FLORA CESTRICA:

AN

HERBORIZING COMPANION

FOR THE

YOUNG BOTANISTS OF CHESTER COUNTY,

STATE OF PENNSYLVANIA.

BY WILLIAM DARLINGTON, M.D. LL.D. &c.

ORE trahit quodcunque potest, atque addit acervo.—HORATIUS.

From giant Oaks, that wave their branches dark,
To the dwarf Moss that clings upon their bark.—DARWIN.

THIRD EDITION:

THE previous omissions, as far as known, supplied; the descriptive details revised and condensed; and the whole arranged according to the NATURAL SYSTEM, as illustrated by DE CANDOLLE, HOOKER, and GRAY.

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TO THE

CULTIVATORS OF BOTANICAL SCIENCE

IN

THE COUNTY OF CHESTER,

THIS ATTEMPT

TO ENUMERATE AND DESCRIBE

THE PLANTS OF THE COUNTY

IS RESPECTFULLY DEDICATED BY

THE AUTHOR.

ADVERTISEMENT.

When this revised Edition was commenced, it was contemplated—with the aid of kind Friends—to insert a brief description of all the indigenous species of the Vegetable Kingdom which had been detected in our *County*,—together with such introduced plants as had become *naturalized*, or were cultivated for useful purposes. It soon became apparent, however, that the lower Orders (especially the *Fungi*) were so multitudinous, as well as obscure, that it would require more *time* to accomplish the undertaking, than *I*, at least, had any right to reckon upon. It was found, also, that to include the whole, would render the work inconveniently *voluminous*. A descriptive enumeration of the *Fungi*, alone, would make a respectable volume. It was therefore concluded to omit all below the *Lichens*,—and leave that portion of our Botany to the future enterprise of our Chester County Naturalists.

For the account of our *Mosses* and *Hepaticae*, I am indebted to the researches, and kind attention, of Thomas P. James, Esq. an enthusiastic Bryologist of Philadelphia. The *Lichens* have been collected and determined by Dr. Ezra Michener, of this County,—a Naturalist from whose acumen, diligence, and indomitable perseverance, we may fairly expect as thorough an exploration of every department of our Cryptogamy, as the active duties of his Profession, and the life-time of an Individual, will permit. I am gratified, moreover, in knowing that a few zealous and faithful Lovers of Nature are engaged with him, as Collaborators, in the laudable attempt to prepare a comprehensive *Natural History of the County of Chester*.—W. D.

PRELIMINARY DISCOURSES.

Discourse I.

Definition of Botany. Inducements to the Study.

Having prepared a new Edition of the *Chester County Flora*,—partly for the purpose of including those plants which have been detected in the County since the preceding one was published—but chiefly for the sake of presenting the work in a form somewhat less diffuse in its details, as well as more congenial in its arrangement with the present state of the Science,—I thought it might be acceptable to the youthful Cultivators of Botany, in our venerable Bailiwick, to premise some general observations touching the subject to which the volume is devoted.

This I propose to do, in a few brief and familiar Discourses; such, in substance, as I have been in the habit of employing, orally, when aiding the researches of the Pupils in some of the West-Chester Seminaries.

As in all attempts to impart or acquire information, it is most advantageous and satisfactory to *begin at the beginning*,—we may as well commence by a definition of the Science, to which we propose to direct our attention. It derives its name from the Greek word *Botáne*—meaning *an Herb*,—and may be briefly defined as "the natural history of the Vegetable Kingdom;" or, to be somewhat more explicit, it is that Science which has for its object a knowledge of the *structure, functions*, and *characters of Plants*—together with a just comprehension of those *general affinities*, and *peculiar features*, by which they may be grouped into *kindred families*,—and yet be distinguishable, among themselves, into well-marked *Genera*, and *Species*.

A very natural preliminary inquiry, on the part of a Pupil engaging in the study of *Botany*—or, indeed, in any other study—would be respecting the *utility*, or value, of such an attainment; and therefore—in order to encourage the young Beginner—it may be well to hint at some of the inducements to the undertaking. These may be considered in reference to mental discipline, intellectual gratification, and practical usefulness. It is impossible for

any one, endowed with the common attributes of humanity, to avoid being something of a *Naturalist*. One of the earliest indications of Intellect, consists in the perception, and discrimination, of the beings and objects subjected to its cognizance. In proportion as the mind is expanded, and its faculties disciplined, so are its powers of discrimination augmented. *Natural Science*—or that knowledge which enables us to ascertain, to distinguish, and to arrange, or classify created beings—is emphatically *a science of observation;* and no study has a happier tendency to induce habits of attention, and accuracy in noticing the characteristic features of objects. No one is less likely to be misled by vulgar prejudices, or to be made the dupe of imposture, than the careful observer, and intelligent student, of Nature. Habitual scrutiny renders him acute in detecting error, and discovering truth,—while it makes him cautious in receiving marvellous statements unsupported by credible testimony.

While his faculties are thus improved by a salutary discipline, his taste is no less gratified by the pleasures of the study:—and, of all the inanimate products of creation, there is none more agreeable to contemplate, than those which constitute the *Vegetable Kingdom.* Destined, by the wisdom of a bountiful Providence, for the sustenance of a higher order of creatures,—they have, at the same time, been admirably adapted to the purpose of adorning the surface of the earth, and charging with fragrance the atmosphere which surrounds it. Occupying an intermediate position, between minerals and animals, they afford us the means of investigating the wonders of organic life, without the infliction of torture, or the necessity of witnessing the sufferings which attend such researches in sensitive beings. Hence, the study of the vegetable creation has ever been a favorite pursuit with gentle minds. There is a calm delight in the contemplation of Plants and Flowers, which is never felt—and can never be appreciated—by those who find their chief gratification in the turmoils and commotions of the animal world. The disposition of man derives much of its character from association, and external impressions; and it is, doubtless, partly owing to the bland influences of a rural life, that enlightened agricultural communities are less prone to those cruel excesses, which so often disturb the artificial and struggling society of crowded cities. If such be the tranquilizing tendency of a simple *residence* among the Vegetable tribes,—how propitious to the growth of the gentler virtues must be the pursuits of the *Botanist*, who may be said—almost without a figure—to hold daily converse with some of the loveliest works of

the Creator,—and to regard with something like the pleasure of a friendly recognition, every Plant which he has successfully investigated!*

We know, indeed, that those groveling mortals who consider nothing as valuable, but mere tangible wealth, are apt to regard the researches of the Naturalist as useless and frivolous,—just as gross, uncultivated minds suppose all pleasures to consist in sensual gratifications, and have no conception of such a thing as intellectual enjoyment. It is the besetting infirmity of sordid natures, to mistake the *instrument* for the *object;* to limit the aim, and confine the affections, to the *means* of enhancing our character, as rational beings—instead of employing those means for the attainment of a nobler *end.* But, is it *true,* that the studies of the Naturalist are useless and frivolous? On the contrary, the most bigoted Utilitarian—on a moment's reflection—will be forced to admit, that they are fraught with results of daily, and high *practical* value, in many of the most important pursuits. To the Agriculturist, the Gardener, the Physician, and the Artist, a correct—and even scientific—knowledge of the Vegetable Kingdom is, to a certain extent, indispensable:—for, a *scientific* knowledge of plants merely implies an acquaintance with their true character and properties,—and *that,* every person whose business is with plants, is bound in honesty and good faith—as well as by the requirements of self-interest—to possess. Such knowledge is, of course, to be best obtained by means of the most skillful, systematic, and facile method of investigation; or, in other words, by the help of a truly *scientific arrangement.*

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*No one ever heard a true lover of Botany complain of *taedium vitae,* or of a want of pleasant employment for his leisure hours. His pursuits, it is true, do not produce that vehement excitement which attends the scrambling rivalry of political aspirants, and is so seductive to the eager fancies of the crafty and ambitious; but the gratifications resulting from their culture—being founded on a consciousness of their value to our fellow creatures, as well as to ourselves—are of the most precious and enduring character,—and are, moreover, wholly independent of vulgar taste or caprice. [See Sir H. DAVY'S *Cons lxtions in Travel.*]

The attractions of Botanical Science are truthfully and appropriately alluded to, in the following extract of a Letter from the late Sir JAMES EDWARD SMITH to the Rev. Dr. MUHLENBERG,—dated London, March 6, 1793:—"You cannot be more enthusiastically fond of Botany than I am; and your letter promises me a fresh instance, in addition to many already experienced, that this study—charming in itself—is still more valuable as a key to the intercourse of the most amiable minds. To Botany I owe friendships and connexions I else could have had no chance of forming; and your Letter, overflowing with the milk of human kindness, and with the amiable modesty of real merit, promises me one which it will be my most anxious care and ambition to deserve."

The successful *culture* of Vegetable Products, requires a knowledge of the character and habits of the Plants which yield them; and that knowledge—so far as it is possessed and applied—is neither more nor less than *practical Botany*. He who is acquainted with the greatest number, and best understands how to multiply the most valuable, is at once the best Botanist, and the most accomplished Agriculturist and Gardener.

Is it not desirable, then, that we should extend our knowledge of the useful Plants,—and learn to estimate correctly, their true and relative values? Is it not necessary, also, that we should have a competent knowledge of the pernicious and worthless Plants? But, to accomplish this, is to make a respectable progress in the Science of *Botany*. Hence I contend, that a certain portion of Botanical knowledge is indispensable to the *Farmer* who aspires to excellence in his profession,—and who would aid in elevating that profession to the rank which it is intitled to hold, among human pursuits.—It is not necessary that he should prosecute the study in all its extent; for *that* would be the business of a life-time: But he ought to make himself acquainted with the Vegetation of the region, or district, in which he resides,—and he should understand well the character of all those plants which immediately concern him, as an Agriculturist. This is a duty by no means so difficult as is generally supposed: And with the aid now afforded by elementary and systematic writers on the subject, the attainment is rendered as agreeably interesting, to an intelligent mind, as it is profitable in its practical results. The man who does not know the more important plants by which he is surrounded—whose eye has not learnt to discriminate their characters,—is deficient in one of the primary qualifications of an enlightened cultivator of the soil. In truth, it is mortifying to see a good practical Farmer, or Gardener, ignorant of some of the very plants which it most behoves him to know,—wasting his time, and his energies, in mis-directed efforts to protect himself from the vegetable pests which invade his grounds. Many of our farms are already over-run with worthless weeds, which are extremely difficult to subdue; and we are menaced with the inroads of others still more annoying and pernicious: Yet there are but few of our Agriculturists who are able to identify these invaders, when they make their appearance,—or who seem to be aware of the importance of prompt and vigorous measures for their extirpation.*

*I have seen an excellent old Farmer zealously waging war upon the fetid Chamomile (*Maruta Cotula, DC.*), under the mistaken belief that he was contending against that troublesome nuisance, the Ox-eye Daisy (*Leucanthemum vulgare, Lam.*). Some years since, a distinguished agricultural gentleman published a

This ought not to be the case, among a people invested with the lofty privileges which we enjoy. The rising generation, at least, should be taught to notice what they see,—to observe, to think, and to discriminate. Our young Farmers should learn to cultivate their *minds*, as carefully as they do their *acres;* and not be permitted to grow up in the neglect of their noblest faculties,—nor—as a modern writer expresses it—be content "to wander among the productions of Nature, with little more perception, or enjoyment of her charms, than a cow on a common, or a goose on a green."

It is not unusual to hear persons say, that they should really like very much to cultivate an acquaintance with the Natural Sciences—and especially *Botany*,—if they only had *time* for such pursuits.—I beg leave to suggest to these worthy people, that they have misapprehended the true nature of their complaint,—and that they not only *deceive*, but really *flatter themselves*, by relying upon such an excuse. It is not so much the want of *time*, which afflicts them, as it is the *want of taste*, and the *neglect of opportunities*. Most people contrive to find time for what they earnestly desire to do; and if driven to the necessity, are apt to *take* it, at any rate, for those pursuits which they are resolved upon. But the fact is, we all idle away countless hours of our existence—especially in the morning of life—which might be successfully devoted to the attainment of useful knowledge.

It is true, indeed, that the higher intellectual enjoyments, afforded by "the amiable Science," can only be fully understood by those who are blest with *a lively sense of the Beautiful*, in Nature. Its purest delights necessarily inure to votaries of that description; for, according to the *proverbial philosophy* of honest SANCHO PANZA—"*No es la miel para la boca del asno*:" Yet it is no less true, that *taste* is a faculty which can be cultivated; and *opportunities* to be improved, happen to all. Some of the most enthusiastic and successful students of Nature that I have ever known, prosecuted their inquiries under a constant pressure of the every-day cares and duties of life; and yet were remarkable for the exemplary performance of those duties. †

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series of essays, for the purpose of rousing the farmers to a simultaneous attack upon what he supposed to be the *Canada Thistle*. It was soon discovered, however, that the plant which he had in view, was the comparatively harmless *Dipsacus sylvestris, Mill.* or Wild Teasel: and yet the *real* Canada Thistle (*Cirsium arvense, Scop.*) was then actually introduced, and spreading around him, unrecognized and unknown, either by himself or his neighbors!

† "Alas for us, when we become so sunk in utilitarian toil as to be blind to the beauty with which even common cares are daily wreathed!"—Miss MARGARET FULLER.

In reflecting upon the interesting character of Botanical knowledge, and upon the many inducements to acquire it,—one is naturally led to ask, why a rational acquaintance with the Vegetable Products which every where surround us, and are literally strewed along our paths, should not be adequately inculcated in all our *Seminaries*,—and especially I would ask, why such a humanizing and elegant Science should not be made an indispensable branch of *Female* Education. As a mere *accomplishment*, it is intitled to rank with any of those ornamental acquirements to which so much time is devoted. As a means of enlarging the views, and disciplining the mind—training it to habits of correct observation, and profitable reflection,—the Study of Plants is far superior to many of the fashionable and fugitive attainments, which so generally engross the attention of young Ladies. It is a pursuit, too, which carries with it its own reward. The knowledge which it affords, is at once pleasing in the acquisition, and of enduring value. It is continually called for, and always at command,—ready to minister to the instruction and gratification of the possessor—whether in the Garden, the Field, or the Forest.

These Studies—said the Roman Orator, on another occasion—and the averment is no less applicable here,—*these Studies are the intellectual nourishment of youth, and the cheering recreation of age; they adorn prosperity, and are the refuge and solace of adversity; they are pleasant at home, and are no incumbrance abroad; they abide with us by night—go with us in all our travels—and lend additional charms to the attractions of our rural retreats.**

Those who make only occasional visits, or excursions, in the country, will find their pleasure greatly enhanced by an acquaintance with the Plants which mainly contribute to the charms of the scenery: But, by those whose constant residence is in the midst of the vegetable tribes, a reasonable knowledge of Botany should be regarded—not merely as an accomplishment, but—as one of the indispensable qualifications for the duties of rural life.† I have

* Haec Studia adolescentiam alunt, senectutem oblectant, secundas res ornant, adversis perfugium ac solatium praebent; delectant domi, non impediunt foris; pernoctant nobiscum, peregrinantur, rusticantur.—CICERO, *pro* ARCHIA *Poeta*.

† "Si vous avez vraiment l'amour de la Botanique, vous ne traversez pas une prairie, vous ne suivez pas la haie d'un chemin sans être en communication intime, je dirai presque en conversation avec les plantes qui sont autour de vous; vous les saluez du regard, si vous les connaissez,—sinon vous vous arrêtez aussitôt et les interrogez avec empressement et plaisir; et si vous voyagez, quel intérêt profond et toujours nouveau s'attache à vos promenades; comme vous vous trouvez heureux en comparant votre ardeur á l'air d'indifference et d'ennui du promeneur oisif ou du touriste blasé!"—E. GERMAIN, DE SAINT PIERRE.

already intimated the opinion, that an *American Farmer* should blush to be ignorant of the objects of his peculiar care; and I know not why a *Farmer's Wife*, or *Daughter*, should be entirely excused for a like deficiency. On the contrary, I am of opinion that it is to *Wives and Daughters* we must look, for the commencement of a salutary reformation in intellectual pursuits and discipline. The work must begin at that early period of life, when the character is being moulded under female auspices and care. The knowledge here advocated, is unquestionably desirable for both sexes; and I sincerely believe, that the most effectual method for diffusing it, will be—first properly to *educate*, and then—to invoke *the co-operation of the Ladies*. Their potent influence has been felt, and owned, in many a noble cause; and I cannot permit myself to doubt its controlling efficacy in this.

Discourse II.

Definition of the Vegetable Kingdom.

In this Discourse, it is proposed to define what is meant by the terms, *Vegetable Kingdom*,—and to notice those characters by which *a Plant* is known, and distinguished from the other objects in nature.

The material world has been arranged, by the generality of Naturalists, in *three great divisions*,—which they have denominated the *Mineral*, the *Vegetable*, and the *Animal* Kingdoms. These three *Kingdoms* are, for the most part, readily distinguishable by the most superficial observer; yet, so nearly do the tribes, on the confines of the divisions, approach each other in structure and character, that it is by no means easy, with descriptive phrases, or definitions, to draw a satisfactory and unexceptionable line of demarcation between them. We have no difficulty, indeed, in distinguishing an *Ox* from an *Oak tree*—nor a *cabbage* from a boulder of *granite:* But, when we descend to those humbler existences, called *Zoophytes*, and *Corallines*, we are sometimes puzzled to determine which is *Animal*, and which is *Vegetable*. Some of the lower orders of Plants, too, (such as a portion of the *Fungi*, and *Lichens*,) are often so simple in their structure, that they seem to be formed by a process somewhat analogous to that of crystallization,—and therein are approximated to the *Mineral* kingdom.

Various attempts have been made, by Naturalists, to designate the distinguishing characters of the three great divisions. The celebrated LINNAEUS, with his characteristic point, and brevity, defined them thus: *Stones* (said he) *grow; Vegetables grow, and live; Animals grow, live, and feel.** It would be difficult, if not impracticable, to give a better definition in the same number of words: But the description furnished by Prof. DE CANDOLLE, will probably be considered as more complete and satisfactory.†

The *bodies* existing in nature—says the distinguished and lamented Professor of Geneva—may be ranked under *two great divisions*:—

I. INORGANIC BODIES,—or those which are rude, homogeneous in their structure, destitute of life, and growing only by the mere addition of similar particles to their exterior surface.

II. ORGANIC BODIES,—composed of heterogeneous parts, endowed with life, and growing by the introduction of dissimilar particles within the intimate tissue, or vessels of which those parts are formed.

Inorganic bodies may be considered as of *two kinds:* Some of them of immense magnitude, sphaeroidal in their figure, and distributed through space,—constituting what are called *Stars*, or heavenly bodies; the others, comparatively small, situated on our globe, and all tending more or less to the crystalline form,—being known under the general name of *Minerals.*

Organic bodies are also of *two kinds:* the one destitute of sensation, of voluntary motion, and of a stomach,—namely, *Vegetables;* the other, endowed with sensation, capable of voluntary motion, and furnished with an internal sac, called a stomach,—these are *Animals.*

The foregoing classification may be recapitulated thus:

I. INORGANIC BODIES—dead, homogeneous, growing by juxtaposition: *two kinds,*—

1. *One kind,* celestial and sphaeroidal—*Stars.*
2. *The other,* terrestrial and crystallizable—*Minerals.*

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* The following are the words used by him, whom PULTENEY designates as the "high priest" of the Science:—*Lapides crescunt; Vegetabilia crescunt, et vivunt; Animalia crescunt, vivunt, et sentiunt.*

† The following, from AUGUSTE DE ST. HILAIRE, presents, neatly and briefly, the distinction between *inorganic* and *organic* bodies. "Parmi les corps qui nous environnent, les uns, bruts et inertes, sont privés de mouvement et de vie; ils ne naissent point, ils se forment; ils ne se nourrissent pas, ils s'agglomèrent: ils ne meurent point, ils se décomposent. Les autres, au contraires, naissent pourvus d'organes destinés à des fonctions diverses; ils vivent, se nourrissent, se développent, et, avant de se décomposer, ils meurent. Les premiers sont les corps inorganiques; les seconds les corps organisés."—*Morphologie Vegetale.*

II. ORGANIC BODIES—living, heterogeneous, growing by intussusception; *two kinds*,—

1. *One kind*, destitute of sensation, of voluntary motion, and of a stomach. } *Vegetables.*

2. *The other*, endowed with sensation, capable of voluntary motion, and provided with a stomach. } *Animals.*

Certain Naturalists have been so forcibly impressed by the contemplation of the gradual and near approach of the two great divisions of *organized* beings, that they have thought we should admit of but a *single class*,—which they have designated by the name of the *organic kingdom*. Others, again, have proposed to establish an *intermediate kingdom*, between animals and vegetables, to consist of Zoophytes, Sea-weeds, and Mushrooms. Both propositions, however, have been rejected by the generality of Naturalists, with great unanimity.

On this head, and in further illustration of the subject, the eminent Author here cited remarks—that those beings which seem to us to be intermediate between animals and plants, ought rather to be considered as evidences of our ignorance, than as proofs of the existence of a peculiar class; and although it may be correct to say, that the two organic kingdoms have such striking resemblances, and approximate so nearly, that a satisfactory line of demarcation cannot be drawn, they nevertheless present differences of such a character that it is useful to separate them,—seeing that these differences exert an influence upon the progress of the study, in the two kingdoms, and consequently upon the logic of the two Sciences.

Assuming as a fact—or as an extremely probable hypothesis—that Animals are endowed with *sensibility*, and that Vegetables are destitute of it, we shall see resulting from that supposition, nearly all the differences that we observe between animals and plants; between Zoology and Botany.

Since *Animals* have a consciousness of their existence, and a sensation of pain and pleasure, it is natural to suppose that they should endeavor to avoid the former sensation, and seek the latter,—that is to say, that they should be endowed with the faculty of *voluntary motion;* for, if we supposed them destitute of this faculty, we should have no means of ascertaining their sensibility. *Plants*, on the contrary, can perform no other motions than those which are produced by external agents, or by certain mechanical circumstances of their structure. These motions can be neither voluntary, nor truly locomotive.

An *Animal*, endowed with sensibility and the power of motion, can select the food necessary for his subsistence,—and go in quest of it, when he does not find it in his immediate vicinity; and can seize it, in order to appropriate it to himself. He can, consequently, nourish himself with various kinds of matter,—even with kinds which are but partially distributed in nature—being such as are already organized.

A *Plant*, on the contrary, being unable to distinguish what is proper for its sustenance, or to seize any kind of prey, must necessarily nourish itself with matters which are so generally diffused over the globe as to be found almost every where; which are sufficiently inert to oppose no resistance to the feeble means of absorption with which it is provided,—and sufficiently soft and yielding to require no mechanical division. Consequently, there are none but inorganic substances—such as water, air, and matters which are soluble in those two vehicles—adapted to that purpose; and these are, in fact, the substances which serve for the nutrition of plants.

Animals, then, can select for their nourishment, a great variety of matter,—and consequently, the organs of their nutrition must present a corresponding diversity: *Vegetables*, on the other hand, are nearly all subsisted on the same materials,—and therefore, their organs of nutrition are very nearly similar.

Animals, which select their food, often experience intervals in which they are unable to procure such as is suitable for them; and when they do find it, they lay in a provision to last them for a time. It is necessary, then, that they should be furnished with a receptacle in which to deposit their store of nourishment: this receptacle is called the *stomach*. *Plants*, being constantly surrounded by their appropriate aliment, and never changing their position, have no necessity to lay in a stock of provisions,—and accordingly have no stomach in which to receive it.

The nourishment of *Animals* being deposited in an internal cavity, all the vessels of the animal are found converging toward that centre: But in *Plants*, the absorbing vessels are directed toward the surface. *Animals*, says BOERHAAVE, are nourished by internal roots,—and *Plants* by external roots: Consequently, the structure of vegetables will be calculated to multiply surfaces,—and will be perfect in proportion as it is fitted to accomplish that object. The organic structure of animals, having a central tendency, will be perfect in proportion to the perfection of their internal organization.

Inasmuch as the essential seat of nutrition, in *Animals*, is placed in the interior—and as the vessels are all directed toward and about that centre,—those vessels must continue to perform the same

office, during the existence of the animal: But the vessels of *Plants* being directed to the exterior, there will be a constant possibility, either of their being elongated, or of new ones being developed on the outer surface. There will then, consequently, be a certain limit to the growth of *Animals;* but none to that of *Vegetables.* There will then, in *Animals,* be a death from old age; which will happen when the existing vessels—not being capable of renovation—shall be obstructed by the influx and lodgment of the minute particles of matter which are conveyed to them. This cause of death does not occur in *Vegetables*—at least, not in *perennial* vegetables,—since new vessels may be indefinitely developed, and take upon themselves the office of the old ones. *Animals,* therefore, die of old age, or of accidents; *perennial Plants* of accidents, only.

In consequence of *Animals* having a centre of nutrition, and of life, it follows that they can rarely, if ever, be divisible into several individuals; for those animals called *Polypi*—which seem to be an exception to this rule—ought rather to be considered as *aggregations* of a number of individuals: *Plants,* on the contrary, having no common centre—and being endowed with the faculty of producing new vessels to an indefinite extent—may be divided without loss of life, and can be indefinitely multiplied by cuttings.*

From the general considerations thus presented, the following Principles seem to result:—

1. That the differences between the two organized kingdoms consist essentially in this,—that one of them is endowed with *sensibility,* and the power of *voluntary motion,* of which the other is destitute.

2. That the general office, or business of *Plants*—in the great system of a wise and beneficent Providence—is to elaborate and prepare inorganic matter, so that it may become fitted for the nourishment of *Animals:*† and

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* This is more particularly true, however, in those plants which form *buds,* and live more than a single season; for the buds of trees, and shrubs, may be regarded as so many *distinct Individuals,* congregated on a common stock. Even those perennials with herbaceous stems, which die down to the ground every winter, form a kind of buds in the crown of the root (or *rhizoma*), from which proceed the aerial stems of the ensuing summer. Those plants called *annuals* (which germinate from the seed, bloom and perfect their fruit, and die, as it were a natural death, within the year) rarely produce anything like buds: and are by no means so susceptible of division, or multiplication by cuttings, as the *woody perennials.*

† "It is one of the laws of nature that Animals shall feed on organized matter, and Vegetables on unorganized. For the support of animal life, therefore, we require vegetables to change the mineral constituents of the surrounding media into suitable nutriment."—Prof. HARVEY.

3. That in the study of those two kingdoms, we should never lose sight of the essential characters which distinguish them; and should extend the application of the principles, which are peculiar to each, with great caution,—lest we be misled by a false analogy.

Discourse III.

External organs of Plants,—and their successive modifications.

In the preceding Discourse, we endeavored to furnish a definition, or distinct idea, of the three great kingdoms in Nature,—and, especially, to present a Sketch of the general resemblance, and distinguishing characters, of the two *organic* kingdoms, from the learned Treatise of Professor De Candolle. We shall now proceed to notice some of the more remarkable traits, and phenomena, of the vegetable economy. For an illustration of the intimate structure, and physiology of Plants, the Student is referred to the admirable *Text-Book* of Prof. A. Gray: Our present purpose being merely to speak of the *external organs*,—or those obvious appendages, and features, which give character to the vegetable tribes, and form the basis of classification.

It is a circumstance worthy of all attention, and admiration, that the works of Nature—even those apparently the most complicated and elaborate—are ever, when rightly understood, found to be performed with extremely few materials, and by the simplest of all possible processes. This truth is exemplified in the most interesting manner, in the structure and economy of Plants. Infinite as are the forms, and varied as is the texture, of the external organs of plants,—it has been satisfactorily shown, that all those protean appendages are, in fact, nothing more than a series of successive modifications (or *metamorphoses*, as they have been termed,) of that *tissue* which, in the germinating seeds, appears in the condition of crude *cotyledons*,—and which in subsequent stages—as the plants are developed and matured—is put forth in the more highly organized state of *stem leaves*, *floral leaves* (or *bracts*), *sepals*, *petals*, *stamens*, and *pistils* (or *young fruit*). For an early, ample, and most interesting exposition of this doctrine, we are indebted to the celebrated

German Poet, GOETHE,—whose writings show him to have been no less accomplished in *Botany*, than eminent in *Belles-Lettres*.*

In accordance with the view here presented, *a Plant* may properly be said to consist of *root*, *stem*, and *leaves*;—all other parts—under whatever name—being modifications of these. The limits assigned to these discourses forbid a complete illustration of the doctrine: but a brief sketch may be attempted, of the more striking modifications which the external organs undergo, during the development of a plant:—i. e. in its progress from the germinating seed, up to the perfection of its fruit. Those who read French, may find the doctrine elaborately set forth in SAINT-HILAIRE'S *Morphologie Végétale*; and in our own language, it may be found briefly but well explained, in the elementary works of GRAY, and LINDLEY. To prevent misapprehension, however, it may be well to let the student understand the precise and proper sense in which the term *metamorphosis* is used, by the Botanists. "When, for instance, the floral organs are called *modified* or *metamorphosed leaves*, it is not to be supposed that a petal has ever actually been a green leaf, and has subsequently assumed a more delicate texture and hue, or that stamens and pistils have previously existed in the state of foliage; but only that what is fundamentally one and the same organ developes, in the progressive evolution of the plant, under each or any of these various forms. When the individual organ has once fairly begun to develope, its destiny is fixed."—GRAY'S *Text-Book*.

It has been aptly remarked, that *the best mode of explaining things, is to show how they come to pass. That* is the mode adopted by GOETHE, in explaining the metamorphosis now under consideration; and it is the one we shall endeavor to pursue.

It will be borne in mind, that a sound and perfect *seed* (by which is meant, one that is capable of vegetating,) is neither more nor less than *a plant in miniature*—rudimentary, it is true, but an *organized, living plant*,—existing in a dormant state, or what may be called suspended vitality. It awaits but the joint application of certain vivifying agents (namely, warmth, moisture, and oxygen,) to rouse it into active life; when its bursts its envelopes, and commences its career of growth. The opinion, so generally entertained,

* It is due, however, to truth and justice, to say, that very few important doctrines, or views, concerning the Vegetable kingdom, have yet been promulgated, of which "the immortal SWEDE" had not some intelligent perception. The idea so happily illustrated by GOETHE, had very nearly occurred to the mind of LINNAEUS, about the middle of the last century. It was first distinctly enunciated by C. FR. WOLFF, in 1764.

that "seeds must *die* before they can *come up*," is a vulgar error. Seeds that die, never "come up." The error probably originated from observing the condition of the *albumen*, in seeds of the *cerealia*, or edible grains, at the period of germination. The efficient cause, or intimate nature, of growth, we do not, of course, pretend to understand. Such knowledge is now—and perhaps will remain—beyond the reach of finite beings; but the physical agents concerned—their operations and results—and the laws which regulate them—the curious observer can both perceive and comprehend, to a very satisfactory extent. The solid portion of Plants is made up, mainly, of an infinity of slender fibres, and delicate membranes—forming tubes, and cells, for conveying and containing fluids; and the physical process of growth consists in the extension and multiplication of those tubes and cells. When the *fibrous* portion (which results from elongated cells,) predominates, the plant becomes firm and woody; and when the strictly *cellular* structure prevails—whether in stem, leaves, or fruit—the product is fleshy, tender and succulent. The same wise Power which endowed plants with vitality, and the capacity for growth, or development, has also established laws to control that development,—whereby each plant assumes a determinate form and character; which, although liable to *variation* in the subordinate features (as in texture, size, color, or other trait of secondary importance in the vegetable economy), are nevertheless essentially perpetuated in the *species*. It is this fixedness of character which enables the Botanist to recognize, and distinguish, the various kinds,—and, in classifying them, to arrange each with its kindred.

But our present business is with the *changes* or modifications, which successively take place, at successive *stages of development*, in the foliaceous appendages of *the same plant*. Naturalists have observed, that in the stems and branches of plants, there are small portions, found at certain intervals, which are more firm and dense than the other parts. These firmer portions are termed knots, or *nodes*,—and the intervening spaces are called *internodes*. These *nodes* exist, under some form, and in greater or less abundance, in all stems: sometimes being crowded together, and condensed at certain points of the stem, so as to form complete, and often solid *rings* (or *joints*, as they have been rather incorrectly termed); at others, they are much divided, and appear in scattered points on the circumference,—in which latter case, they are usually disposed in an ascending spiral line. They seem to have an intimate connection with the formation of all *leaves*, and *buds*,—and are, at least,

the *starting points* from which those organs are evolved, during the growth of the plant.* Even the stem of the *embryo* plant, as it exists in the seed, has its nodes,—with the first of which the *cotyledons* are connected, and at the next above, we find those minute expansions known by the name of *primordial leaves*. The *internodes*, or spaces between those little knots in the stem, may be long, or short,—which will, of course, determine the *distance* between the leaves. They may be so short as scarcely to be perceptible,—in which case the leaves will necessarily be brought close together, in tufts or bunches; or they may even be wholly *suppressed*, as it is termed,—so as to reduce the leaves to the *same plane;* either in *opposite pairs*, if but *two* are developed,—or in *whorls* of the normal number in the circuit of the stem, if *all* are developed. If the nodes are scattered, or disposed in a spiral line, the leaves, of course, will be arranged in the same order, on the stem and branches. Thus we are furnished with a key to the whole mystery of *the arrangement of leaves and buds*,—and consequently, of the *branches*, which arise from the buds. We shall now be prepared to watch the development of the foliaceous appendages of the plant,—and the successive changes of their form and character, as the stem ascends. The *cotyledons* (in that large division of the vegetable kingdom which is provided with *two* of those organs,) are always *opposite*,—as likewise are, for the most part, the next pair of leaves—called *primordial:* but the succeeding ones are variously arranged, in different families—either *alternate*, *opposite*, or *verticillate*. The leaves on the stem, and branches, usually differ *in form*, also, from those early rudimental leaves which appear at germination. If the plant is duly nourished, the leaves are apt to be well developed until it has reached its destined height—or is sufficiently matured for *flowering*,—when they usually become smaller. In several natural families, there are foliaceous appendages, or accompaniments, at the base of the leaves, or petioles, which seem to be a sort of exuberant growth, or supernumerary products: these are called *stipules*.

In sterile, or ungenial soils, the leafy expansions are less complete, and are liable to modifications which appear to be the accidental result of defective nourishment,—though they often become fixed, and permanently characteristic. Prof. De Candolle terms

* Sometimes the *bud*—instead of being in the *axil* of the leaf, as is usual—is formed and situated directly *under, and within, the base of the petiole;* in which case, consequently, the hollow base of the petiole covers the bud, as an extinguisher does the stump of a candle. This feature is well exhibited, in autumn, by the Buttonwood Tree (*Platanus*); and may be likewise observed in the *common petioles* of the *Rhus*, the *Robinia*, and the *Cladrastis* (or *Virgilia*).

the process, *dégénérescence*—i. e. a sort of degeneracy, or habitually stunted growth. Thus, in some plants, we find the true stem-leaves habitually curtailed of their fair proportions,—*compound* leaves being reduced to simple disks, or dilated petioles, called *phyllodia*, —*simple* leaves starved into mere needle-like processes,—and *stipules* shrunk into *prickles;* while even *woody branches*, under a similar privation, often appear in the character of *true thorns*. By taking this view of the vegetable economy, we are not only led to contemplate the various modifications with great interest—but are put completely on our guard against any illusion, or misapprehension of the real nature of apparent irregularities, or so-called *anomalies*.— We know that the proper place to find a *leaf*, is at the *nodes:* We shall generally find one there. It will sometimes be very small—sometimes reduced to a mere scale, or midrib—or it may even be entirely wanting; but *that's the place* to look for it,—and if we find *any thing* occupying *the normal position* of a leaf, or stipule, we shall be prepared to understand its true character. So of the other organs. Whatever strange-looking appendage we may find in the proper position of *any organ*,—we shall at once comprehend, that it is some disguised form, or modification, of *that particular organ*.*

*This view of the subject, I would wish to impress strongly, and distinctly, on the mind of the Botanical Student. Every organ of a plant being liable to modification, we must take care not to be misled by *appearances;* but be constantly suspicious of all disguises, or deviations from regular structure, and symmetry.— The clew to *real character*—as intimated in the text—will be afforded by *the position* of an organ. In the grape-vine, for example, those anomalous organs, called *tendrils*, will be found occupying the normal position of *flowering branches*; and observation has shown that they are, in fact, nothing but abortive or metamorphosed *racemes*. They may be often seen in the *transition state*,—some of the subdivisions of the tendrils actually bearing *flowers*. Prof. DE CANDOLLE even considered the *main stems* of twining plants as partaking of the character, and verging towards the condition, of tendrils; and his opinion is rendered plausible by what we see in many climbers. In some species of *Clematis*, and in *Adlumia*, the *petioles*, or footstalks of the leaves, perform the office; and in the vetches, or Pea tribe, the common petioles usually terminate in real tendrils. In certain leafless plants—such as the *Opuntia*, or prickly Pear, and some species of *Phyllanthus*,— the *stem* assumes the flat, dilated figure—and, to some extent, actually performs the function—of *leaves:* But, with the aid of our Theory, there is no danger of mistaking the real character of any of these "counterfeit presentments."

The change of *calyx*, and *receptacle*, into *apparent fruit*—by reason of the copious development of cellular tissue, in those organs, is not an unusual occurrence. Their *position*, however, in relation to the other parts of the flower, renders the circumstance perfectly intelligible.. The gradual conversion of *pistils*, or *carpels*, into the countless varieties of mature *fruit*, is readily explained by this development of tissues. In their early, rudimental stage, at the opening of the flowers, the texture of the carpels is very similar in all plants; but, during their growth, and progress to maturity, a great change is effected in the different

When a plant is full-grown, or sufficiently matured to bloom, a striking change takes place. Slender *branches* are often thrown out, —or the internodes near the summit of the stem become suddenly elongated; there is usually, also, a great diminution observable in the *size*—and frequently an entire change in the outline, or *figure*—of the *foliage*, on the flowering branches. Next we find, in many instances, a sort of *transition leaves*, called *bracts*, in the immediate vicinity of the flowers. These bracts are sometimes scarcely changed, in appearance, from the other leaves on the stem and branches; but we find them, occasionally, assuming the hue, and almost the texture, of *petals*. Having thus ascertained that bracts are nothing more than modified leaves,—we now approach the *flower*, itself,—which is always the termination, or concluding development, of a stem, or branch;* and here we find, in many plants, a whorl of green leaflets (or *sepals*—composing what is called the *calyx*,) at the base of the flower, so little altered from the small leaves immediately below, that we have no hesitation in considering them as of precisely the same nature;—the only difference being, that, by the suppression of internodes, they are arranged in a ring (called a *verticil*, or *whorl*,) at the summit of the *peduncle*, or ultimate branch of the flower-stalk. This is the *regular* mode of arrangement, of all the parts of a flower. The *sepals*, *petals*, *stamens*—and even the *pistils*, in *symmetrical flowers* (i. e. when all the parts, which normally belong to them, are *present*)—are all disposed in a succession of *verticils*. In the flowers of the DICOTYLEDONS, or *Exogenous Plants*, each floral verticil, when complete, is composed of *five* modified leaves—or some multiple of that number. It may—and often does—vary from this, by reason of a *suppression* of some of the parts; but five is the *normal*, or what may be termed the constitutional number, in the floral verticils of that great division of the vegetable king-

kinds—according as the *vascular* and *fibrous*, or the *cellular*, tissue predominates. In the one case, we have dry, skinny, woody, or even bony, seedvessels; and in the other, we find the product to be fleshy, pulpy and succulent fruits. Even in the same pericarp, we often see one portion tender and juicy,—while another portion is parchment-like, or bony; as in *pomes*, and *drupes*—or apples and cherries. It is only necessary to extend and apply this doctrine to all the modified organs of plants—and to keep the idea constantly in mind—in order to comprehend the whole mystery of *metamorphosis*.

* Although, for convenience in descriptive phraseology, we often say that flowers are *lateral*, *axillary*, *sessile*, &c., it should, nevertheless, be constantly borne in mind, that *a flower* is always the terminal and crowning development—as *the fruit* is the final product—of a *stem*, or *branch*; that the *pedicels* of aggregated florets are the ultimate ramifications of the main flowering stalk,—and that when a flower appears to be sessile, it is merely by the suppression—more or less complete—of the internode which normally constitutes its proper peduncle.

dom. Often, indeed, one or more *entire verticils* are suppressed,—presenting flowers destitute of *calyx*, or *corolla*—or sometimes with one of these, and either the *stamens*, or *pistils*, also wanting.* In the MONOCOTYLEDONS, or *Endogenous Plants*,—such as the *Liliaceous* and *Orchideous* tribes, *Grasses*, *Sedges*, &c.,—*three*, and its multiples, constitute the regular, symmetrical number, of the members of each floral verticil; but they are often incomplete, or wholly suppressed. In the *Liliaceae*, we frequently find some of them doubled,—while in the *Grasses*, and *Cyperaceae*, all but the *staminate* verticil are usually deficient.

The leaflets, or component parts of the several verticils, are in many instances all *free*—i. e. separate and distinct from each other; and this is regarded as their normal or regular condition: But we often find them *united*, or cohering together, to a greater or less extent—either by their margins, or surfaces, or both; and this union is apt greatly to disguise their primitive character. Such cohesions, or *solderings*, as they are termed, are analogous to the process of *ingrafting*, or rather *inarching*,—and may be readily supposed to take place while the tender organs are closely packed together, in their forming stage. Sometimes the *sepals* are united by their *margins*, so as to form a *cup*, at the base of the flower,—and this suggested the name of *calyx*. When the union is nearly complete, a careless observer might be puzzled to know whether the calyx were really compound, or simple, in its structure; but our theory leads us to look for evidences of a *compound* structure,—and we accordingly find them in the free points of the sepals, which are usually obvious enough, under the name of segments, or teeth,—and also in the *seams*, or sutures, formed by the junction of the margins. The union of the *petals* is often quite as remarkable as that of the sepals, and sometimes greatly obscures the normal structure,—as we see in what are called *personate*, and *labiate* flowers. Similar cohesions take place, likewise, among the *stamens*, and *pistils*. The modified leaflets, or parts of the same floral verticil, are not only liable to cohere with each other,—but the *different verticils* are also frequently soldered together, at base—so as to form

* Flowers are termed *symmetrical*, when all the parts of each verticil are developed; *regular*, where the parts, present in a verticil, are all of the same form and size; *complete*, when both calyx and corolla are present; and *perfect*, when each flower is furnished with both stamens and pistils. When *stamens*, or *pistils*, are defective, or wanting in a *portion* of the flowers, while they are perfectly developed in others, the flowers are said to be *polygamous;* and they are termed *monoicous*, or *dioicous*, when simply *staminate*, or *pistillate*,—according to their distribution on the same, or on different, plants.

one concrete mass; in which case the *ovary* (or young fruit) appears to be below the flower, and is said to be *inferior*, though it is really above,—being within the tube, formed by the cohering sepals, &c., and consolidated therewith.

The next regular verticil, above the calyx, is called the *corolla*. The leaflets of this, are usually much more changed than those of the calyx; but even here, we find such various *intermediate forms* as clearly show that the *petals*, also, are nothing but modified foliage. In further corroboration of this view, we observe in many plants what seems to be a kind of supernumerary verticil,—sometimes situated between the calyx and corolla, and sometimes between the corolla and the stamens; which supernumeraries are apt to be very curiously modified,—and are obviously in a state of *transition*, either from sepals to petals, or from petals to stamens. These are commonly called *nectaries*. The same remarks apply to the two remaining regular verticils of the flower, known as *stamens*, and *pistils*.

Singular as it may seem, to the uninitiated, even those organs are now regarded as *leaflets*, which have reached the final stage of *metamorphosis;* for both have been detected in such form and condition as clearly betrayed their foliaceous origin. The reciprocal convertibility of petals and stamens, is a fact familiar to every Tyro in Botany. All *double flowers*—so common under high garden culture—are familiar examples of *staminate verticils* being expanded into *petals*, instead of conforming to the regular law of their nature; and hence, those exuberant developments—so much admired by Florists—are considered by Naturalists as accidents, or monstrosities.

The *pistils*, too—which comprise the young *fruit*—although less frequently, are subject to a similar imperfection; and the very *ovules*, or rudiments of seeds, have been found retrograding,—so as to exhibit their tender cotyledons in the form of leafy expansions.* Thus, it appears that the whole of the external organs of a Plant may be fairly regarded as so many *leaves*, in various successive

* Each simple *pistil* may be regarded as a *folded leaflet*, in the last stage of modification, preparatory to the formation of ovules,—and is often termed a *carpel*, or little fruit. The *ovules* are usually produced on the *margins* of the metamorphosed leaf,—and are arranged on the *placenta* (supposed to be formed by the union or decurrence of their pedicels), along the *seam*, formed by the junction of those margins. When there are several pistils, or carpels, in one flower—and those soldered together,—we have, of course, a *compound fruit*, with several cells; i. e. a cell for each carpel. But some of the ovules—and even entire cells, or carpels—may be, and often are, wholly suppressed, or abortive; thereby impairing the symmetry of the structure—but leaving the phenomenon perfectly intelligible.

stages of metamorphosis, from their origin to their end—from seed to seed again.

Discourse IV.

Classification of Plants. Artificial and Natural Methods.

Having seen that the external organs of Plants consist, fundamentally, of those appendages called *leaves*,—which are regularly modified, and prepared for their several functions, at the successive stages of the vegetable career,—we shall now proceed to notice some of the *Methods*, by which Naturalists have proposed to facilitate a more extended and particular acquaintance with the different kinds:—i. e. with the *Genera*, and *Species*, of the vegetable kingdom. Although the organs of the various tribes assume an almost endless variety of forms, and aspects—and even in the same species, are subject to considerable modification, by the influence of culture, soil, climate, and other circumstances,—it has been observed, nevertheless, that the peculiar structure, and essential character, of each particular family, are remarkably constant, and well defined. Even the *monstrosities* produced by long culture, disease, or other accident, usually retain enough of their primitive features to enable us to recognize them, under all their disguises. It is this constancy, or permanence of character, which affords the basis of all classification; and *classification*, or the grouping together of kindred individuals, is the apparatus by which our conceptions of objects are so arranged, and fixed, as to secure a comprehensive general view,—while it facilitates all subordinate and detailed investigations.*

The most important, or conspicuous organs of plants—their most constant and characteristic features—whether consisting in the structure, the presence, or even the absence, of particular parts, have

* It would be impracticable, without the machinery of classification, to make any important advances in Natural knowledge,—or to leave any durable traces of our progress, in such knowledge, for the benefit of those who come after us. To use a nautical term, we must *belay* all the information we acquire, if we wish to render it permanently available to others: and the best *belaying fixtures*, to prevent entanglement and confusion in Natural History, will be found in the most lucid and practical *systematic arrangement*. "*Omnia*"—says Linnaeus—"*quae a nobis vere dignosci possunt, dependent a* clara Methodo, *qua distinguimus similia a dissimilibus.*"

accordingly been employed by the early Botanists, in constructing systems of classification.*

Some have based the arrangement on the texture and size of plants—classing them in divisions of *Herbs*, *Shrubs*, and *Trees;* others, again, on the structure and form of the *Calyx*, the *Corolla*, the *Fruit*, &c. or on the presence, or absence, of some important organ: And, in our own times, the favorite object—following JUSSIEU and DE CANDOLLE—is to arrange plants strictly according to their *affinities*,—to group together, in Orders and Tribes, those which are most nearly related in *all* the features, and properties, which constitute *character*. These various Systems may be all regarded as forming only *two* kinds,—namely, the *Artificial*, and *Natural Methods;*—though, in point of fact, the *artificial* methods are more or less founded in *Nature*,—and in the most perfect *natural* arrangements, yet devised, *artificial sections*, or groupings, are still resorted to, as useful helps and expedients. "What we call a natural method"—says the excellent Prof. GRAY—"is so termed merely because it expresses the natural relationship of plants as far as practicable; for every form yet contrived, or likely to be devised, is to a considerable extent, artificial."

The great and obvious defect of the methods called *artificial*, consists in their being founded on the fewest possible characters,—whereby plants are arbitrarily brought together without reference to their intimate structure, or general relationship with each other; and hence it often happens, in such methods, that plants which are essentially dissimilar, are arranged side by side; while kindred species are widely separated. This defect is inherent in all artificial systems; and therefore, the most of them are only tolerable on account of the facilities which they afford in determining unknown genera and species—or ascertaining the *names* of particular plants. The system, however, which was devised by the celebrated LINNAEUS, has the merit of combining some of the advantages of both the artificial and natural methods; and will probably long continue to be employed, as a convenient and useful help to the investigations of young *Beginners*. It is, indeed, very remarkable, how many *natural* families of plants are kept nearly entire, under the *Sexual System*.

The *Linnaean classification*, of the flowering plants, is founded on the characters of two of their most important organs,—namely, the

*The late Professor B. S. BARTON, in his Elements of Botany, has given a Synopsis of *seventeen* different methods of artificial arrangement,—from that of CAESALPINUS, "the Father of Systematic Botany"—which was published in 1583—down to the *Linnaean method*, as modified by THUNBERG, near the close of the last century. As a matter of curiosity, they are worth consulting.

stamens, and the *pistils*. The primary divisions, or *Classes*, are established mainly on the *number*, *situation*, *proportion*, and *connection*, of the *stamens*; while a large portion of the secondary divisions, or *Orders*, is based simply on the *number* of the *pistils*. Some exceptions occur in the foundation of the *Orders*: but they are all very intelligible, and readily understood by the student. It is obvious, therefore, that nothing can be easier to acquire, than a knowledge of the *Linnean Classes and Orders*. The practiced eye —even in a flower that it has never before seen—determines them at a glance.

The *genus*, and *species*—which are the remaining subdivisions—are to be ascertained as in all other systems; the former, from the structure of the flower and fruit,—the latter, from the peculiar and permanent characters of the residue of the plant.

It has been often objected to the Linnaean method, that there are too many *exceptions* to the rules of classification,—that a number of *genera* comprise *species* which, according to the system, belong to a different *Class*, or *Order*,—and thus mislead and puzzle the student. This objection is undoubtedly founded on fact; but the inconvenience has been somewhat exaggerated,—and may be greatly remedied, and almost obviated, by simply putting a list of those *anomalies* at the foot of the respective orders, where the system would lead us to look for them. Where this is carefully done, it even seems to facilitate the determination of such irregular species,—directly pointing them out by name, and designating the genera to which they severally belong. It may be questioned, moreover, whether the *exceptions* in the definitions of many *natural* Orders, are not even more numerous than those complained of in the Linnaean method. Instructive, and delightfully interesting, as is the contemplation of the truly *natural families*,—it seems to be necessary to make the definitions of some of them very loose, and comprehensive, in order to embrace all the individuals admitted to belong to them: * so much so, indeed, that unless the student has

* Take, for instance, the very *first* family, in Prof. DE CANDOLLE'S method of arrangement—*viz.* the order RANUNCULACEAE; where we find the following diversified—not to say incongruous—*characters*, enumerated in the *definition* of the order:—*Herbs*, or *woody vines*, with *leaves* variously *dissected*, or *entire*—*polypetalous*, or *apetalous*—flowers *regular*, or *irregular*—*sepals* 5, 3, or 15—*petals* 3 to 15, or *wanting*—*stamens indefinite*, rarely *few*—*pistils many*, or *few*, rarely *single*—*fruits* either *dry pods*, or *akenes*, or *berries*, 1, or *several-seeded!* This is, unquestionably, a correct outline of the features of a *natural* family—sketched, too, by the hand of a master; yet, a Beginner in Botany would probably be apt to think that as *a definition*, it is rather *indefinite*,—and he would, no doubt, be thankful for any *artificial* helps that might tend to facilitate his researches.

already acquired a considerable knowledge of the vegetable tribes, he often finds himself puzzled, and discouraged, in his attempts to ascertain the *names*, and true *position* among them, of specimens which are new and strange to him. In order to abate this inconvenience, it has been found expedient, from time to time, to remove the most discordant members of the old families, and make them the types of new orders; and in this way, the number of the orders has been exceedingly multiplied. In fact, their name is *legion;* and the danger is, that it will soon be more difficult for the young Botanist to ascertain the natural *Order* of a strange plant, than it was to determine the *genus* and *species*, by the Linnaean method. The learned and sagacious JUSSIEU—who first elaborated and published a Natural System, in 1789,—arranged the vegetable kingdom in 15 Classes, and 100 natural Orders, or Families: but the great work of ENDLICHER, in 1840, gives us no less than 61 Classes, and 277 Orders,—with Tribes, and Sub-tribes, almost innumerable. These Orders are continually multiplying; for, whenever the acute investigations of our modern Botanists detect incompatibilities in any member of an existing family, a *new Order* is forthwith created, for its reception and accommodation. The expedient is very convenient—and no doubt very proper: though it obviously threatens to result in an appalling multitude of *Orders*,—which may require some *artificial* devices, to furnish a *practical clew* to the position of unknown plants, in the great *labyrinth of Flora.*

But, after all—however convenient and agreeable may be the aids afforded to the Beginner, by *artificial* methods,—and however intractable some genera may be, in associating with any known *natural* Orders,—it must be confessed, that *the method* which teaches us to investigate the essential characters and true relations of plants, and which enables us to arrange them in kindred groups, according to their respective affinities, is the only true *philosophical Botany;*—the only method, in short, which entitles the pursuit to the appellation of *a Science.* Although—as we have just intimated—the relationship between the members of some natural orders, as at present constituted, is not very striking,—yet there are numerous and vast groups, composed of plants so obviously related to each other, that all the world—both learned and unlearned—have concurred in referring them to the same family. Of these, it is sufficient to mention, here, the great natural Orders of *Grasses*, *Umbelliferous*, and *Leguminous* Plants—and those bearing what are called Syngenesious, or *Compound Flowers.* We may add, moreover,

that those anomalous structures, which seem to have no immediate connections—and are, at present, excluded from every known Order, —may yet find near relatives in the unexplored regions of the vegetable creation; and that future discoveries may possibly supply all the links, which now appear to be wanting, in the great chain of organic existences.

In the mean time,—to those who are commencing the study of Botany—and especially to such as have no other aid than books,— I would say—Avail yourselves of the *Linnaean Method*, as the easiest stepping-stone to the vestibule of the temple, and the readiest means of acquiring the *names*, and learning some of the characteristics, of the more common plants around you. In this way, an *immediate interest* in the pursuit will be excited,—which is indispensable, and can only be effected by successful research; for, if the student is met by repulsive difficulties at the threshold, he is apt to be discouraged, and to abandon the undertaking.* But, while I concede this much, in order to enlist you in the delightful enterprise, I would add, and earnestly enjoin upon you—as soon as you have effected these preliminaries—to make it an invariable rule to refer every plant to its appropriate place in the *Natural System;* to study its characteristic features, and examine with a scrutinizing eye, all its relations to kindred objects. I would furthermore recommend, to all who are bent upon mastering the Science, to commence a *Herbarium*, from the start.† Establish a *correspondence*,

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* While I admit that a mere acquaintance with the *names* of objects, is the most superficial kind of natural knowledge,—observation has satisfied me, that even such knowledge is useful to Beginners in the Science, by the early encouragement, and hopeful stimulus, which it imparts to their researches. I think there is force, and good sense, in the following passage from a writer in the last century :—

"Let it be considered that the first degree of wisdom is to know things when we see them—i. e. to know them by their *names;* and without this knowledge scarce any progress can be made. To know the letters of the alphabet, to join them into syllables, to understand words, is not solid erudition; yet it is absolutely necessary for him who would become learned. Thus the characters and names of things must be thoroughly learned in order to obtain any use from Natural History. We find in the journals of travellers, many things mentioned, partly curious, partly useful, concerning animals, plants, and stones; but those observations can be of no use to us, till we are able to refer each to its genus; that we may make them a part of the system, and know that this curiosity, or use, belongs to this or that object, when it happens to come in our way."—GEDNER, *in* STILLINGFLEET'S *Tracts.*

†The young Botanist should make it a rule to collect and preserve *good specimens* (one or two for himself, and some for his friends,) of *every species*, and remarkable *variety*, that occurs to him in his walks; labeling them carefully—with the *name*, when known,—but, whether known or not, at once, and invariably, noting *the place of growth*, and *the time* when obtained,—together with any

and a system of *exchanges*, where practicable, with competent and zealous Botanists, in other districts. Be very inquisitive, whenever you have a chance to confer with such,—for they are always happy to aid the researches of the hopeful student; furnish them with specimens, and ply them with questions. *Questions*, when rightly directed, and intelligently put, are a most effective apparatus for eliciting information, and bringing truth from her hiding place. A witty rhymer, of the age just elapsed, thus quaintly, yet aptly, illustrates the character and importance of Interrogatories:

> "The Sages say, *Dame Truth* delights to dwell—
> Strange mansion! in the bottom of a well:
> *Questions* are then the windlass and the rope,
> That pull the grave old Gentlewoman up."

The acquisition of the *Language of Botany*—or those technical terms which are necessarily employed in the Science,—is generally considered, by Beginners, as a most formidable part of the undertaking: But this will be found, in a great degree, to be an imaginary difficulty. I admit that it would be a task, as irksome as it would be unprofitable, to attempt to learn the meaning of a parcel of uncouth terms, without knowing their origin, or comprehending the objects to which they are applied. Such is not the mode in which I would study, or try to teach, the natural sciences. Rather let us look at the objects, and examine their structure. We shall

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characteristics which are liable to be obliterated in pressing and drying.† These notes will serve him as valuable *Mnemonics*, in any future references to his Herbarium. On all suitable occasions, he should diligently explore the vegetable products of the region, or district, where he resides:—not neglecting such other localities as he may happen to visit. In that way, he will soon be surprised at the extent and value of his collections; and will find a pleasure, and an interest, in his herborizing excursions, which the uninitiated can neither appreciate nor comprehend. In those excursions, a friend who can sympathize with his predilections, and cordially participate in his researches, will always prove an agreeable and useful companion: But I fully concur in the shrewd advice of my old Correspondent, Dr. E. GERMAIN, DE SAINT-PIERRE, in his *Guide du Botaniste*:—

"Jamais, n'herborisez avec les personnes étrangères à vos études; vous les fatigueriez bien vite par vos allures irrégulières, vos tems d'arret ou votre marche précipitée; tandis que, d'autre part, l'air contrarié de votre compagnon, privé d'un auditeur et s'étonnant que vous regardiez une plante commune ou vous demandant si vous ne l'avez pas déjà récoltée, vous serait à vous même une insupportable gêne. Gardez-vous surtout d'entreprendre, dans de telles conditions, un long voyage: son but serait absolument manqué."

†In collecting plants for a *Herbarium*, and future examination, it is always desirable, when practicable, to have specimens of the *fruit*,—as well as of the *flowers, leaves*, &c. "Every botanical specimen," says Prof. HARVEY, "should be an epitome of the essential marks of a species." The Student should distinctly understand, that *the full grown fruit is indispensable* in determining many of the *Carices*,—and also of the *Cruciferae*, and *Umbelliferae*. He should, therefore, be careful to make his collections accordingly.

then perceive organs, or features, which serve as convenient marks of distinction between different objects. Those organs must necessarily be designated by some name, or term—in order that they may be intelligibly spoken of, or recognized when referred to: and I venture to say, that every one who makes an acquaintance with such objects,—so far from finding the names to be burthensome—will feel the absolute necessity of them; and will take a lively interest in their acquisition. We should undoubtedly find it a dull and insipid employment, to take up a *City Directory*, and commit to memory the names of the Inhabitants: But, if we were to go among them, and form some interesting acquaintances, we should find no difficulty—nor should think it any trouble—to learn the *names* of our new friends. Now, the process should be precisely similar, in the study of Nature. We ought never to waste our precious time in learning mere *names, apart from objects*,—nor in attempting to load the memory with such useless lumber. I say *attempting;* for it is not possible to fix permanently in the memory, any names which are not associated with something like distinct conceptions of the things to which they are applied. Such abstractions amount to nothing more than an unmeaning jargon; and therefore speedily vanish from the mind. I repeat it, then, that in the Natural Sciences, the study of *names*, and *things*, should always go together.

Discourse V.

Linnaean Classification. Natural System.

The *Linnaean* method of Classification—as has been already stated—is based chiefly on the *stamens* and *pistils;* and is, consequently, attended with this inconvenience,—that *the class* of an unknown plant can only be determined, with certainty, while it is *in flower*. The flowering season, to be sure, is the most agreeable time to botanize; but we cannot always procure our specimens in that interesting state,—and hence we soon discover the advantage of such a *general* knowledge of vegetable structure, as is afforded by the study of the *natural* system.

Linnaeus arranged the whole vegetable kingdom in 24 Classes, —23 of which are appropriated to *flowering* plants, and are founded on some circumstance of the *stamens*,—the 24th being established

on the *absence* of visible flowers. The first 13 classes are disposed *numerically*,—according to the number of *distinct* stamens, of about equal length, inserted on the *receptacle* of each flower,—with the exception of the 12th (*Icosandria*), in which the stamens (occasionally few, and sometimes very numerous—though usually about *twenty*, as the name indicates,) are inserted on the *calyx;* and it is *this insertion* which constitutes the essential character of the 12th Class. From Class 1 to 10, inclusive, the number of stamens is the same as the number of the Class. The 11th Linnaean Class (called *Dodecandria*—meaning 12 stamens) was made to comprise all plants with more than 10 and less than 20 stamens; but such plants—being few in number—have been referred (very judiciously, as I think), by some modern Botanists, to the Class *Polyandria*,—which, consequently, contains all plants with more than 10, distinct, or separable stamens, inserted on the receptacle. The Class next after Polyandria (called *Didynamia*—14th of LINNAEUS), contains plants having 4 distinct stamens in *unequal pairs*—one pair being regularly longer than the other; and the succeeding Class (*Tetradynamia*,) has 6 distinct, unequal stamens,—4 of them being longer, and 2 opposite ones short. The next three Classes are founded on the *union* of the stamens,—or rather of their *filaments*—the *anthers* being free: the Class *Monadelphia* usually having numerous stamens, with the filaments all united together in a tube, or *single* set; the Class *Diadelphia* having mostly 10 stamens, with the filaments united in *two* sets (usually 9 and 1), and the *corolla* generally in the form called *papilionaceous*, or butterfly-shaped; and the Class *Polyadelphia* having numerous stamens, united in three or more sets,—but, as the union is often slight, and the filaments—especially in dried specimens—incline to separate, the plants of this Class have been referred to *Polyandria*. The Class next following those with united filaments, is a very large one, with *united anthers* (named *Syngenesia*), and what are called *compound flowers*—i. e. the floral developments (which are often large and showy,) are really composed of many little flowers, densely crowded in *heads*, on a *common receptacle*,—the heads being embraced, or supported, by numerous bract-like leaflets, which constitute what is termed the *involucre*. The succeeding Class (*Gynandria*,) has the *stamens* inserted on the *pistils*—or those organs so united, and often so intimately blended, as to render them rather obscure, to the inexperienced observer.

In the preceding Classes, the *stamens* and *pistils* are mostly in the *same flower;* but in the three following—which conclude the

flowering plants—those organs are generally in *separate flowers*,—and are thus classified:—In the 21st Linnaean Class, named *Monoecia*, the stamens and pistils are in separate flowers, on the *same plant:* In the next Class, called *Dioecia*, they not only occupy separate flowers, but those flowers are on *different plants.*

There are, however, a number of plants, in which the stamens and pistils are *separate* in some flowers, and *associated* in others—either on the *same*, or on *two*, or even *three, different plants.* These anomalies, LINNAEUS placed in a Class which he named *Polygamia;* but they have been, by later Botanists, distributed among the other Classes.

The 24th, or last, of the Linnaean Classes (now more commonly numbered as the 21st), is named *Cryptogamia.* It comprises those multitudinous vegetable forms which seem to be *destitute of flowers*, —or, at most, have only the *analogues*, or equivalents, of stamens and pistils. The subdivisions of this Class are, of necessity, in accordance with the *natural* system; and the genera are therefore grouped in appropriate Orders—as *Ferns*, *Mosses*, *Lichens*, *Fungi*, and *Algae.*

The ORDERS, or secondary divisions, of all the Linnaean Classes —from *Monandria* to *Polyandria*, inclusive—are founded on the *number* of distinct *styles*, or *stigmas*,—and are numerically arranged. The Class *Didynamia* is divided into *two Orders:—one*, called *Gymnospermia*, because it produces a thin-coated, and usually 4-lobed, fruit, resembling *naked seeds*, or nutlets: the *other*, bearing manifest *seedvessels*, and therefore named *Angiospermia.* The Class *Tetradynamia* is likewise divided into *two Orders*—founded on the size, or rather *length*, of the fruit, *one*, called *Siliculosa*, having a *Silicle* or short pod,—and the *other*, *Siliquosa*, with a *Silique* or long pod. In the remaining Classes of the flowering plants—with the exception of *Syngenesia*—the Orders are established on the *number*, or *connection* of the *stamens.*

The Orders of the Class *Syngenesia* are founded on the *florets*, in the compound heads,—and are as follows:—

1. *Polygamia aequalis*, where the *florets are all perfect.*

2. *P—— superflua*, where the central, or *disk florets* are *perfect*, and the *ray florets* are merely *pistillate.*

3. *P—— frustranea*, where the *disk florets* are *perfect*, and the *ray florets neutral* (or vacant).

4. *P—— necessaria*, where the *disk florets* are *staminate*, and the *ray florets pistillate.*

5. *P*—— *segregata*, where each floret in the head has a kind of *involucre* of its own—separating it from the others.

The Orders of the *Cryptogamia*, or 24th Linnaean Class, have been already noticed, as being necessarily *natural*. By distributing the Genera, which LINNAEUS placed in *Dodecandria*, *Polyadelphia*, and *Polygamia*, among the *other* Classes, the number of those primary divisions may be reduced to 21, without any detriment to the System. The simplicity and elegance of this method—the facility with which it is learnt, and applied—are considerations which have made it extensively popular,—especially with young Botanists: and although it is avowedly *artificial*, the fact of its bringing so many genera into *natural groups*, is strong evidence that it is based on the most important organs in the vegetable economy.*

I shall now conclude these desultory Discourses, by an attempt briefly to indicate the mode in which Plants are classified, and viewed, under the *Natural System*. The object proposed by that System, is "to bring together into groups those plants which most nearly resemble each other, not in a single and perhaps unimportant point (as in an artificial classification), but in all essential particulars;† and to combine the subordinate groups into larger natural assemblages, and these into still more comprehensive divisions, so as to embrace the whole vegetable kingdom in a methodical arrangement. All the characters which plants present, that is, all the points of agreement or difference, are employed in their classification; those which are common to the greatest number of plants being used for the primary grand divisions; those less comprehensive for subordinate groups, &c.; so that the *character*, or description of each group, when fully given, actually expresses all the known particulars in which the plants it embraces agree among themselves, and differ from other groups of the same rank. This

* The most superficial observer cannot fail to be struck with the fact, that the *Sexual System* groups together—with comparatively few exceptions—the genera belonging to the following eminently *natural*—and some of them eminently *large*—families of flowering plants: namely, *Cruciferae*, *Malvaceae*, *Leguminosae*, *Rosaceae*, *Umbelliferae*, *Compositae*, *Labiatae*, *Boraginaceae*, *Orchidaceae*, *Cyperaceae*, and *Gramineae*,—not to mention a number of others, which will occur to the experienced Botanist, as more or less approximating a natural association.

† The *Naturalist*—says Prof. DE CANDOLLE—arranges or groups together all those beings which have the greatest number of organs in common, or of similar structure,—and separates those which possess but a small number of them in common: whence it results that, while the perfection of an *Artificial System* consists in connecting with the character of the Classes the smallest possible number of ideas,—a *Natural Method*, on the contrary, is so much the more perfect, as the characters of the Classes are expressive of a greater number of ideas.

complete analysis being carried through the system, from the primary divisions down to the species, it is evident that the study of a single plant of each group will give a correct general idea of the structure, habits, and even the sensible properties, of the whole."—GRAY'S *Text-book.*

The vegetable kingdom, viewed in reference to the natural system, is divided primarily into two great SERIES,—a higher one, called *phaenogamous* or *flowering* plants producing proper *flowers* (with stamens and pistils), and *seeds* containing a ready-formed *embryo* or young plantlet—and a lower one, called *cryptogamous* or *flowerless* plants, which are reproduced by little cellular *analogues* or equivalents of seeds, termed *spores*, without the agency of proper flowers.

The *higher* SERIES (or *flowering* plants)—which embraces the larger and more important portion of the vegetable kingdom—is divided into *two Classes*, named *Exogens*, and *Endogens*. The difference between these two Classes pervades their whole port and aspect, and is manifest from their earliest stage of existence. The embryo of *Exogens* is provided with *a pair* of opposite *cotyledons* (rarely with more than two—as in some of the *Coniferae*, or Pine family),—that of *Endogens*, with only *one;* whence the former have been also termed *Dicotyledonous*, and the latter, *Monocotyledonous* plants.—There is a remarkable difference, likewise, in their *foliage;* the leaves of the Exogens generally having reticulated or *netted veins*, and falling off by an *articulation*, or separable joint,—while the Endogens have nearly *parallel-veined* leaves, which are *not articulated*, but wither on the stem.

The class of *Exogens* is divided into *two Sub-Classes;* the one, much larger, bearing their *seeds* in a proper *Pericarp*, or *closed Seedvessel*, and hence called *Angiosperms;* the other (containing a couple of Orders), having the *seeds naked*,—i. e. borne on an *open scale*, or seated in a fleshy *disk*,—andtherefore called *Gymnosperms.*

The Subclass of *Angiosperms* contains so many *Orders*, that it has been found convenient to adopt some rather artificial divisions, based on the character, or absence, of the *Corolla*. The *first division* comprises those exogenous plants, in which the *petals* of the flower are all nearly or quite *distinct*, or separate from each other,—and are termed *polypetalous*, or more accurately, *dialypetalous Exogens.* The *second division* is composed of those in which the *petals* are more or less completely *united by their margins* into one piece—forming a sort of tubular corolla,—and the plants of this division have been called *monopetalous*, but more properly *gamopetalous Exogens.*

The *third division* includes those in which the *Corolla* (and occasionally the *Calyx*, also,) is *wanting*,—and the plants of this division are therefore called *apetalous Exogens*. A few *exceptions*, however, occur in each of these divisions (as in every other arrangement, yet devised—whether *natural*, or *artificial*); which will be noticed in the proper places.

The Subclass of *Gymnosperms*—as already mentioned—consists of a couple of Orders; viz. the *Coniferae*, or Pine Family,—and the *Cycadàceae*—a small tropical Order,—in which the *pistil* is represented by an *open scale*, or by a more evident *leaf*,—or sometimes entirely *wanting*; and the *ovules* and *seeds* consequently *naked*—i. e. not included in a *pericarp*.

The above are the principal *divisions* of the great Class of Exogenous Plants: But these (as in the other Classes,) are again sub-divided into *Groups*, *Orders*, *Suborders*, *Tribes*, *Subtribes*, *Genera*, *Subgenera*, *Species*, and *Varieties*. The *Groups* comprise kindred *Orders*,—while the *Orders* and *Tribes* consist of kindred *Genera*, and usually derive their names from some well-defined typical Genus (as *Malvàceae*, or *Rosàceae*),—or some characteristic family feature (as *Umbellíferae*, or *Leguminòsae*).*

The Class of *Endogens*—partially defined above—does not admit of so many principal *divisions*, as the preceding; but contains a number of well-characterized *Orders* and *Tribes*,—as will be seen in the following pages.

The second or *lower* SERIES of plants—called *cryptogamous*, or *flowerless*—has been divided into *three Classes*; in *two* of which, the plants have a distinct axis, or definite *stem* and *foliage*,—and in the *third*, there is no distinction of stem and foliage, but a mere vegetable *expansion*—or *thallus*, so called. The plants of the *first* of these cryptogamous Classes, consist of *woody* and *vascular tissue*, and grow only at the *summit*,—and are, for that reason, termed *Acrogens*, or Apex-growers,—embracing the *Ferns*, and *Fern-like* plants. Those of the *second* Class consist of *cellular tissue only*; but, having a *distinct foliage*, and acrogenous growth, with somewhat of

* Some of the *Orders* are so remarkably *natural*—i. e. the structure and more obvious features of the plants comprised by them, are so similar,—that it is often difficult to indicate good and striking characteristics, by which to distinguish the *Genera* belonging to them. This is especially true of the Families named *Cruciferae*, *Umbelliferae*, and *Labiatae:* so much so, indeed, that each of those Orders might be regarded as a comprehensive, and yet tolerably well-defined, *Genus*.—This fact will enable the Student to understand why it has been found necessary, in such families, to seize upon any *constant* characters—however minute, or obscure—that may serve to discriminate between closely allied Tribes and Genera.

the aspect of the *superior* plants, they have on that account been denominated *Anophytes*,—comprising the *Mosses* and *Hepaticae*.

The plants of the *third* and lowest cryptogamous Class composed of *parenchyma alone*, or mere *cellular masses*, or *expansions*, without any marked distinction of *root*, *stem*, or *foliage*,—are called *Thallophytes*. This Class consists mainly of *Lichens*, *Fungi*, and *Algae*, or Sea-weeds,—some of which present the simplest forms of vegetable existence.

"In an exposition of the natural system, some authors (such as JUSSIEU and ENDLICHER) commence with the lower extremity of the series, and end with the higher; while others (as DE CANDOLLE) pursue the opposite course, beginning with the most perfect flowering plants, and concluding with the lowest grade of flowerless plants. The first mode possesses the advantage of ascending by successive steps from the simplest to the most complex structure; the second, that of passing from the most complete and best understood to the most reduced and least known forms; or, in other words, from the easiest to the most difficult; and is therefore the best plan for the student."*

These very imperfect preliminary Discourses are submitted to the youthful reader in the hope, and for the simple purpose, of commending to his favor the study of the interesting objects hereinafter described; and in the firm belief, moreover, that such study will prove an unfailing source of both pleasure and profit, to all who prosecute it with success.

And now—having reached the allotted limit of *three score and ten*—the Author would take an affectionate leave of his young

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*The opinion cited in the text, is that of Prof. A. GRAY. It is sustained by AUGUSTE DE SAINT-HILAIRE, in the following passage, referring to the same subject:—"Devons-nous, à l'exemple de JUSSIEU, commencer cette série par les plantes les plus imparfaites, ou faut-il, comme M. DE CANDOLLE, la commencer par celles qui sont le plus élevées dans l'ordre des développments? Il est incontestable que nous ne saurions nous former une idée juste d'un corps qui a éprouvé quelques suppressions, si sous ne l'avonn vu dans son intégrité, ou, du moins, si nous n'avons vu sans aucune suppression quelque corps analogue. Les botanistes d'un pays où il n'existerait que des Graminées ou des *Polygala* pourraient, sans doute, decrire les caractères de leurs fleurs, mais ils ne sauraient s'expliquer la véritable structure de ces mêmes fleurs, ils n'en comprendraient point la symétrie. Nous mettrons donc less plantes les plus complètes à la tète de la série puisque celles là seules peuvent nous expliquer les autres; ce sera procéder du connu à l'inconnu, marche que l'on suit dans toutes les sciences. Le pâtre, qui connait seulement sa cabane, ne verra, dans de nobles ruines, que d'informes amas de pierres; mais un architecte habile, qui aura soigneusement observé une foule de constructions diverses, aura à peine jeté les yeux sur ces restes dédaignés de l'ignorant, qu'il se représentera l'édifice auquel ils ont appartenu, qu'il pourra même nous tracer le plan de cet édifice."

friends,—under the impression that the present will most likely be his last attempt, in this way, to promote among them an acquaintance with the Vegetation of his native County. He has devoted the leisure hours of a number of years to the favorite employment of endeavoring to excite a taste for the study of Plants, and to aid the researches of his juvenile contemporaries, in that charming department of Natural Science. His efforts have been amply repaid, by the gratification attending the communion of kindred spirits; and such is his delight in the pursuit, that sometimes, in his dreamy reveries, he indulges the flattering idea—that if, peradventure, his work should survive him, he may continue to be an humble auxiliary of our youthful Botanists—and, in some sort, a companion of their studies—even when the flowers of *Chester* shall be blooming on his grave.

WEST-CHESTER, PENNSYLVANIA.
April 28*th*, 1853.

GLOSSARY

OF THE

PRINCIPAL BOTANICAL TERMS USED IN THIS WORK.

☞ THE reader will bear in mind, that where *compound* descriptive terms are employed in this work, the *last member* of the compound word is intended to express the *predominant character* of the object,—and that the word, or syllable *prefixed*, merely indicates a *modification* of that character: as, for example,—"ovate-lanceolate" signifies *lanceolate*, but inclining somewhat to *ovate;* while "lance-ovate" means *ovate*, with something of the *lanceolate form*, &c. So of colors: "yellowish-green," "bluish-green," &c. signify that *green* is the prevailing hue; but that it is tinged with a shade of *yellow*, *blue*, &c.

Terms indicative of the *size* of any organ, or portion of a plant, without giving the exact dimensions,—such as "large," "small," or "middle-sized,"—are, of course, relative; and have reference to the usual or average size of such parts, or organs, in other species of the same genus, or family.

N. B. To enable the reader to distinguish, at a glance, our native plants from the foreign,—the *names* of those which are **indigenous** to the County are printed in **full face** type; while those of the *naturalized*, are in *italics*,—and of the CULTIVATED, in SMALL CAPITALS.

A; privative, in composition; as *a*petalous, destitute of petals, &c.
Abnormal; different from the regular or usual structure.
Abortion; an imperfect development, or product.
Abortive; not arriving at perfection; producing no fruit.
Abrupt; not gradual; sudden.
Abruptly acuminate; suddenly narrowed to a tapering point.
Abruptly pinnate; see *Even-pinnate.*
Acaulescent; apparently stemless.
Accessory; additional, or supernumerary.
Accumbent cotyledons; having their *edges* applied to the radicle (expressed by this sign, o=),—as in some of the *Cruciferae.*
Acerose; needle-shaped.
Achenium; see *Akene.*
Acicular; needle-like, or bristle-like.
Acotyledonous; destitute of cotyledons.
Acrocarpi; bearing the fruit at apex (a division of the Mosses).
Acrogenous; growing only at the apex, or summit of the stem.
Acrogens; apex-growers, or acrogenous plants.
Aculeate; prickly; armed with prickles.
Acuminate; ending in a produced or extended tapering point.
Acumination; an extended tapering point.
Acute; sharp; not rounded; ending in an angle, or point, without much tapering.
Adherent; attached or growing to another different organ,—as the calyx-tube to the ovary, &c. See *Coherent.*
Adnate; adhering laterally; fixed or growing to.
Adventitious; happening irregularly; not produced usually.
Aerial; in the air; situated, or growing above ground.
Aestivation; the mode in which sepals and petals are arranged in the bud, before they expand.
Aggregated; crowded together.
Akene (or *Achenium*); a 1-seeded fruit, with a dry indehiscent pericarp,—often bony, or nut-like.
Alate; winged; having a membranous border.
Albumen; a deposit of nutritive matter, distinct from the embryo, found in many *seeds*, and sometimes (as in the Grasses) constituting their chief bulk.
Albuminous seeds; furnished with, or containing albumen.

Alternate; not opposite each other; arranged one after or above another on the axis, or receptacle.
Alveolate; having pits, or cells, something like a honey comb.
Ament; a slender spike of naked and usually diclinous flowers, with imbricated scales or bracts.
Amentaceous; bearing, or resembling aments.
Amorphous; without definite form.
Amphigastria; the rudimentary leaves (stipules?) on the under side of the stem, in some *Hepaticæ*.
Amphitropous ovule; when it is half inverted, and stands across the apex of the stalk, or funiculus.
Amplexicaul; clasping the stem.
Analogue; a body, or organ, resembling, substituted for, or equivalent to, an other body or organ.
Anastomosing; branching and uniting again, like net-work.
Anatropous ovule; inverted on the stalk, so that the apex points toward the placenta.
Ancipital; two-edged; somewhat flatted, with opposite edges.
Androecium; a term employed to designate the Staminate portion of a flower; the stamens, or fertilizing organs, in the aggregate.
Androgynous; having both staminate and pistillate flowers in the same inflorescence.
Angiocarpi; fruit-covered; *Lichens* in which the apothecia are closed.
Angiospermous; having the seeds covered or included in a seedvessel.
Angulate; having angles, or corners.
Annotinous; renewed every year.
Annual; living but one year.
Annular; in the form of a ring.
Annulus (in *Mosses*); an elastic ring, between the rim of the capsule and the lid.
Anomalous; not according to the rule, or system; forming an exception to usual appearances.
Anophytes; superior plants,—i. e. *cellular* plants (as *Mosses*) which emulate the forms of *Vascular* plants.
Anterior; in front, or below,—as that part of a flower next to the bract, or farthest from the axis of inflorescence.
Anther; the capsular portion of the stamen, which contains the pollen,—usually supported on a filament.
Antheridia; the analogues or equivalents of anthers.
Antitropous embryo; when its direction is contrary to that of the seed.
Antheriferous; bearing anthers.
Antrorse, or *antrorsely;* pointing forward, or upward. See *retrorse*.
Apetalous; destitute of petals.
Apex: the summit, upper or outer end.
Aphyllous; destitute of leaves.
Apiculate; tipt with an abrupt minute point.
Apophysis; a prominence made by the enlargement of a body,—as of the pedicel at the base of the capsule, in *Mosses*.
Apothecia; the cups, or shield-like *receptacles* of the fructification of the *Lichens*.
Appendiculate; having some appendage annexed.
Appressed; pressed to, or lying close against.
Approximated; situated near each other.
Aquatic; growing naturally in water.
Arachnoid, or *araneous;* resembling cobweb.
Arborescent; tree-like, in size.
Arcuate; curved, or bent like a bow.
Areolæ; little areas; circular spots, or cavities; the spaces between the cracks, in *Lichens*.
Arcolate; having areolæ, circumscribed spaces, or cavities.
Arid; dry, as if destitute of sap.
Arillate; having an arillus.
Arillus; an expansion of the seed-stalk, forming a loose (and often fleshy) coating of the seed.
Aristate; awned; having awns or bristle-like processes.
Armed; having thorns or prickles.
Aromatic; having a spicy flavor, or fragrance.
Articulated; jointed; connected by joints, or places of separation.
Articulations; joints; the places at which articulated members are separable.
Ascending; rising obliquely.
Asci; the cells which contain the *sporidia*, in *Lichens*.
Ascigerous; bearing *asci*, or cells containing sporidia.
Assurgent; rising with a curve from a declined base.
Attenuated; thin; or tapering gradually until it becomes slender.
Auricled, or *auriculate;* having rounded appendages at base, like ears.
Awn: a slender bristle-like process,—common on the chaff of Grasses.
Awned; furnished with awns.
Awnless; destitute of awns.
Axil; the angle between a leaf and stem, on the upper side.
Axillary; situated in an axil.
Axis; the stem, or centre, round which parts are arranged.
Baccate; succulent, or fleshy, like a berry.
Bald akenes; naked at summit; destitute of pappus.
Banner; the broad upper petal of a papilionaceous flower,—called, also, the *Vexillum*.
Barb; a straight slender process having retrorse teeth.
Barbellate; armed with little barbs, or rigid retrorse points.
Basilar; situated at the base.
Beak; a terminal tapering process, like the bill of a bird.
Beaked; terminating in a beak.
Bearded; crested, or beset with parallel bristly hairs; also applied to *awned wheat*, &c.

Berry; a pulpy valveless fruit in which the seeds are imbedded.
Bi— in composition, meaning two, or twice; as
Bibracteate; having two bracts.
Bibracteolate; having 2 bractlets.
Bicarinate; having 2 keels.
Bicuspidate; ending in 2 cusps, or sharp points.
Bidentate; furnished with 2 teeth.
Biennial; living or enduring 2 years.
Bifarious; in 2 ranks, or pointing in 2 directions.
Bifid; two-cleft: split into 2 segments.
Bifoliate; having or bearing 2 leaves.
Bifurcate; forked; ending in 2 equal branches.
Bigibbous; having 2 hunches, or rounded protuberances.
Biglandular; having 2 glands.
Bilabiate; having 2 lips.
Bilamellate; having 2 thin plates.
Bilocular; having 2 cells.
Bipartible; separating, or separable, into 2 parts.
Bipartite; 2-parted.
Bipinnate leaf; twice pinnate; the common petiole having opposite branches, and those branches bearing opposite leaflets.
Bipinnatifid leaf; the common petiole bearing opposite pinnatifid segments.
Birostrate; having 2 beaks.
Biserial; in 2 rows, or sets.
Bisetose; having 2 bristles.
Bisulcate; having 2 grooves, or furrows.
Biternate leaf; the common petiole 3-parted, and each division or branch bearing 3 leaflets.
Bivalved; having 2 valves.
Biventricose; having 2 bellied or distended portions.
Bloom; a fine greyish powdery coating on certain fruits, &c. as Plums.
Border; the summit, or upper spreading part, of a calyx, or corolla. See *limb*.
Bowl-shaped; hemispherical and concave, like a common bowl.
Brachiate; having pairs of opposite spreading branches, alternately crossing at right angles.
Bract; a floral leaf; a leaf, more or less modified, in the immediate vicinity of a flower.
Bracteate flowers; furnished with bracts, or floral leaves.
Bracteoles, or *bractlets;* small bracts among clustered florets.
Bractless; destitute of bracts.
Branchlets; small branches, or subdivisions of branches.
Bristles; stiffish elastic hairs.
Bud; a growing point, or undeveloped axis, covered with the rudiments of leaves (i. e. bud-scales).
Bulb; a thickened subterranean bud, or extremely abbreviated stem, clothed with the bases of leaves, and radicating beneath.
Bulbiferous; bearing or producing bulbs.
Bulblets; little aerial bud like bulbs, with fleshy scales, borne in the axils of leaves, or on terminal peduncles.
Bulbous; formed of, or like, a bulb.
Bullate; having bubble-like convexities, resembling blisters.
Caducous; falling off immediately, or earlier than usual with similar organs.
Calcarate; spurred; having a spur.
Callous; firm and gristle-like.
Callus; a gristle-like tubercle, or substance.
Calyciform; shaped like a calyx.
Calycine; belonging to a calyx.
Calyculate; having an additional (usually small) outer calyx, or calyculus.
Calyptra; the hood of Mosses.
Calyx: the flower-cup, or outer (and sometimes the only) covering of a flower.
Campanulate; in the form of a bell.
Campylotropous ovule; where it is curved upon itself, bringing the apex near to the base.
Canaliculate; channelled, or furrowed.
Candicant; whitish.
Canescent; hoary, with greyish-white hairs.
Capillaceous, or *capillary,* hair-like; long and slender like a hair.
Capitate; head shaped; in a globular cluster.
Capitellate; in little heads.
Capsular; resembling, or being, a capsule.
Capsule; a dry seedvessel, formed of several carpels, usually opening by regular valves, and definite seams.
Carina; a keel. *Carinate;* keeled.
Carnose; fleshy; more firm than pulp.
Carpel; a little fruit; a partial pistil, or constituent portion of a compound ovary.
Carpellary; belonging to the carpel.
Carpophore; the fruit-stalk of the carpels (usually of the *Umbelliferae*).
Cartilaginous; firm yet flexible, like gristle.
Caruncle; an excrescence, or appendage, at the hilum of a seed.
Caryopsis; a grain, or fruit of the Grasses, Cyperaceae, &c. in which the *pericarp* is thin, indehiscent, and closely adherent to the seed.
Catkin; a name for that mode of inflorescence otherwise called an Ament.
Cauda; a tail. *Caudate;* having a tail-like appendage.
Caudicle; the little tail, or stalk of the pollen-mass, in the Orchids.
Caulescent; having more or less of an evident stem.
Cauline; belonging to the stem.
Cellular; made up of little cells, or cavities, formed of membranaceous sacs.
Cellular plants; the lower orders of plants (including *Mosses,* and those below them) composed exclusively of cellular tissue.

Centrifugal inflorescence; where the central flowers of a cyme precede the others.—i. e. the flowering commences at the centre, and extends successively to the circumference.

Centripetal inflorescence; where the outer flowers of a corymb, or umbel, precede the inner ones,—expanding in succession from the circumference to the centre.

Cephaloid; head-shaped; in the rounded form of a head.

Cephalodia; the knobs, or head-shaped fructification of some *Lichens.*

Cereal; pertaining to *Ceres;* belonging to the farinaceous grains, over which Ceres presided.

Cernuous; nodding; drooping at apex.

Cespitose; having numerous stems from the same root, forming a tuft, or tussock.

Chaff; the small dry *husks*, or seed-covers of the Grasses (being the stunted sheaths of abortive leaves); also, the *bracts* on the *receptacle* of many compound and other aggregated flowers.

Chaffy; bearing, or resembling, chaff.

Channels; longitudinal grooves; the intersticcs between the ribs on the fruit of Umbelliferae.

Character; a phrase, or sketch, giving the essential features of the objects, or classes of objects, by which they are known, and distinguished.

Chartaceous; with the texture of writing paper.

Cicatrice; a scar,—such as that left at the place of articulation, after the fall of a leaf, &c.

Cilia; hairs arranged like eye-lashes.

Ciliate; fringed with parallel hairs on the margin, like eye-lashes.

Ciliate-serrate; having serratures so fine as to resemble short eye-lashes.

Ciliolae: diminutive of *cilia;* hairs like miniature eye-lashes.

Cinereous; of the color of wood-ashes.

Circinate; with the apex rolled back on itself, like the young fronds of a fern.

Circumscissed; cut round transversely, or opening horizontally, like a snuff box.

Cirrhose; bearing, or resembling, tendrils.

Class; one of the higher or primary divisons, in a systematic arrangement.

Clavate; club-shaped; thicker toward the summit, or outer end.

Clavellate; in the form of a little club.

Claw of a petal; the slender tapering portion, at base.

Cleft; split, or divided, less than half way to the base.

Clypeate; in the form of an ancient shield, or buckler.

Coacervate; heaped, or aggregated.

Coaetaneous flowers; appearing at the same time with the leaves.

Coarctate; contracted, or crowded into a narrow compass.

Coccus (plural *Cocci*); a kind of semi-baccate, separable, and sometimes indehiscent, carpel.

Cochleate; coiled like a snail-shell.

Coherent; united with an organ of the same kind,—as stamens coherent with each other, &c. See *adherent.*

Collateral; placed side by side; or on the same side of another organ.

Colored; of any other color than green.

Columella; a little column; the solid axis of a pod.

Column; the combined stamens in Malvaceous,—or stamens and pistils in Orchidaceous plants.

Coma; a tuft of hair, bracts, &c.

Comissure; the face by which two carpels cohere,—as in Umbelliferae.

Common (petiole, peduncle, &c.); belonging to, or sustaining, several similar subordinate parts.

Comose; having a tuft, or topknot of hairs, bracts, or leaves, at summit, or at one end (in case of seeds).

Complete flower; having both calyx and corolla.

Compound; not simple,—but made up of similar, simple parts.

Compound flower; an aggregated cluster, or head of syngenesious florets, seated on a common receptacle, and embraced by an involucre, or many-leaved common calyx.

Compound leaf; consisting of several leaflets, each articulated with the common petiole (or its branches), and ultimately falling from it.

Compound pistil; consisting of 2 or more carpels or simple ovaries, cohering together.

Compound umbel; in which each primary ray bears a small umbel (or umbellet) at summit.

Compressed; flatted, as if laterally squeezed

Compressed akene; in compound flowers; flatted, with one edge to the front, or periphery. See *obcompressed.*

Concave; presenting a hollow or depressed surface.

Concentric layers, or circles; circles of different sizes, or diameters, with a common centre.

Concrete; grown together, or united.

Conduplicate; doubled lengthwise, so that the sides are applied face to face,—like a folded sheet of paper.

Cone; the woody ament of the Pines: also the fruit of the Hop.

Confluent; blended, or running together; forming a junction.

Congener; one belonging to the same genus; nearly related.

Conglomerate; clustered into a mass.

Conjugate; in pairs; coupled.

Connate; united, or cohering together, from the first.

Connate-perfoliate leaves; their bases united round the stem.

Connective; that portion of the filament

which connects the two cells of an anther.

Connivent; the summits meeting or converging together.

Constant; invariable; also never failing. nor wanting.

Contiguous; so near as apparently to touch.

Continuous; without interruption, or articulation.

Contorted; twisted; or obliquely overlapping.

Contracted; narrowed; or reduced into a smaller compass.

Contrary dissepiment; not parallel, but at right angles, or nearly so, with the valves of the pericarp.

Convex; presenting an elevated rounded surface.

Convolute; rolled up from one edge or margin into a terete form.

Coraloid; having the appearance of coral.

Cordate; heart-shaped; ovate with a sinus or notch at base.

Cordate-oblong; oblong, with a cordate base.

Coriaceous; of a leathery texture.

Corm, or *Cormus;* a fleshy subterranean stem, of a round or oval figure, and an uniform compact texture,—as in *Arum,* or Indian Turnep.

Corneous; having the texture of horn.

Corniculate; bearing a small horn.

Cornute; having a horn-like appendage.

Corolla; the delicate (mostly colored) inner covering of the flower, between the calyx and the stamens.

Coroniform; in the shape of a crown.

Corrugated; contracted into wrinkles.

Cortical; belonging to the bark.

Corticate; clothed with a bark.

Corymb; a mode of flowering; a kind of raceme, with the lower pedicels elongated so as to form a level top.

Corymbose; in the manner of a corymb.

Corymbulose; having the flowers in little corymbs.

Costate; ribbed; having ribs.

Cotyledons; seed-lobes; the first crude leaves of a plant,—formed in the seed.

Crateriform; in the form of a bowl, or hemispherical cup.

Creeping; running along the ground, and putting forth roots at the nodes.

Crenate; notched on the edge, with the segments rounded, and not inclining to either extremity.

Crenulate; very finely crenate.

Crested; bearing an elevated ridge, like the crest of an helmet.

Crisp; curled, or wavy at the edges.

Cristate; crested; having a crest.

Crown; a circular series of petaloid appendages at the throat of a corolla: also, of chaffy scales at the summit of an akene.

Crowned; having appendages resembling a crown.

Cruciate, or *cruciform* corolla; having 4 petals arranged in form of a cross.

Crustaceous; having a dry brittle shell.

Cryptogamous plants; those which are destitute of visible genuine flowers.

Cucullate or *cucalliform;* hooded; in the form of a cowl.

Culm; the stem of the grasses and cyperaceous plants.

Cuneate, or *cuneiform;* wedge-shaped; tapering, with straight edges, to the base.

Cupule; the cup of an acorn.

Cusp; a stiffish tapering sharp point.

Cuspidate; terminating in a cusp.

Cuticle; the outer skin.

Cyathiform; top-shaped, and hollowed at summit like a cup.

Cylindric; long, round, and of uniform diameter.

Cyme; a kind of panicle, depressed nearly to the form of an umbel,—with the principal peduncles rising from the same centre, but the subdivisions irregular.

Cymose; with the flowers in cymes, or approaching that arrangement.

Cymules; the reduced cymes, or cymose clusters, of the Labiatae,—sometimes called *Verticillasters.*

Decandrous; having ten distinct stamens.

Deciduous; falling off, at the usual time. See *Caducous.*

Declinate; or *declined;* bent off nearly horizontally; or curved downward.

Dichotomal flower; situated in the fork of a dichotomous stem or branch.

Dichotomous; 2-forked; regularly divided in 2 equal branches.

Diclinous; having the stamens and pistils in distinct flowers,—whether on the same or different plants.

Dicotyledonous plants; where the embryo has 2 cotyledons, or seed-lobes.

Didymous; double, or twin.

Didynamous; having 4 stamens, in pairs, —1 pair being regularly longer than the other.

Diffuse; spreading widely and loosely.

Digitate; arranged like fingers.

Digynous; having 2 pistils, or 2 distinct styles and stigmas.

Dimerous; when the component parts of a flower are in *twos,*—as 2 sepals, petals, &c.

Dimidiate; halved; as if one side, or half had been cut off.

Dingy; of a dull, smoky, or leaden-brown color.

Dioicous; having staminate and pistillate flowers on different plants.

Dioicously polygamous; having perfect and imperfect flowers on different plants.

Decompound; twice compound; composed of compound parts; much divided.

Decumbent; reclining on the ground, with base and apex ascending.

Decurrence; a running or extending down, or backward.

Decurrent leaf; when the two edges are continued down the stem, like wings.
Decussate; arranged in opposite pairs, and alternately crossing each other.
Definite; clearly defined, or limited; also, of a constant or determinate (and not large) number.
Deflected; bent off, or downward.
Dehiscence; the opening of seedvessels.
Dehiscent; gaping, or opening naturally by seams, at maturity.
Deltoid; triangular in the outline like the Greek letter Delta.
Demersed; growing or being under water.
Dense; closely arranged; compact.
Dentate; toothed; edged with teeth-like projections.
Denticulate; having minute teeth.
Depauperated; having a starved or stunted inflorescence; few-flowered.
Depressed; flatted vertically, or pressed down at summit.
Depressed-globose; globular, with the base and summit flatted.
Di; in composition, two.
Diadelphous; having the filaments in 2 parcels,—usually 9 & 1, with a papilionaceous corolla.
Dialypetalous; having the petals entirely free, and distinct from each other.
Diandrous; having 2 distinct stamens.
Diaphanous; permitting light to pass through.
Dipetalous; having 2 petals.
Diphyllous; having 2 leaves.
Discoid flowers: a head of compound flowers without ray-florets.
Discrete; separate; distinct.
Disepalous; having 2 sepals.
Disk; a flat circular body; the surface of a leaf; also, the face or central part of a head of compound flowers.
Disk-form; flat and circular.
Dissected; divided into segments, or lobes.
Dissepiment; the partition between the cells of seedvessels.
Distichous; 2-ranked; bearing leaves, flowers, &c. in 2 opposite rows.
Distinct; separate; unconnected.
Divaricate; widely diverging; forming rather more than a right angle with the stem above.
Divergent; spreading; making nearly a right angle with the stem.
Divided; cleft or separated to the base,—or to the midrib, if a leaf.
Dorsal; belonging to, or inserted, on the back.
Dorsal suture; the seam on the back of a carpel,—being at the place of the midrib; the opposite of *ventral* suture, —which see.
Dorsally compressed: flatted on the back.
Dotted; covered with dots, specks, or minute slightly elevated points.
Downy; clothed with fine soft hairs.
Drupaceous; drupe-like; resembling what is called *stone-fruit.*
Drupe; a fleshy, succulent, or spongy pericarp, without valves, containing a nut, or stone,—or sometimes several *nutlets.*
Drupel; a little drupe,—as in the compound fruit of *Rubus.*
E, or *Ex*, in composition; destitute of; not furnished with.
Ebracteate; destitute of bracts.
Ebracteolate; without bractlets.
Ecaudate; destitute of tail-like appendage.
Echinate; hedge-hog-like; covered with rigid prickles.
Effigurate; carved, or marked with figures.
Elaters; minute clubshaped filaments, which are coiled round the spores of certain cryptogamous plants.
Eleutheropetalous; having the *laminæ* free, but the *claws* united at base.
Elliptic, or *elliptical;* somewhat oval, or longer than wide, with the two ends narrowing equally to a point.
Elongated; exceeding the usual or average length.
Elongating; becoming finally elongated.
Emarginate; notched at apex.
Embryo; the young plant, as it exists in the seed.
Emersed; raised out of the water.
Endocarp; the inner portion of a pericarp,—which lines the cavity, or forms the cell, for the seed,—such as the stone or hard shell, in a drupe.
Endogenous plants; which have a single cotyledon, no distinct bark, and grow by *internal* deposits of new matter, distending the older deposits.
Endogens; inside growers; plants which increase by internal deposits of new matter. See *Exogens.*
Enneandrous; having 9 stamens.
Ensiform; sword-shaped; 2-edged, and tapering from base to apex.
Entire; having a continuous even margin; without incision, notch, or tooth.
Envelope; an integument, or covering.
Ephemeral; lasting but one day.
Epicarp; the outer coat, or layer, of a pericarp.
Epidermis; the outer skin, or cuticle.
Epigæan; situated, or rising, above ground.
Epigynous; adherent to the ovary so that the upper portion is apparently inserted on its summit,—as in the *Umbelliferæ, &c.*
Epipetalous; growing on the petals.
Epiphyllous; apparently inserted, or growing, on leaves.
Equal; of the same dimensions; similar parts equal among themselves.
Epiphytes; air plants having no immediate connection with the earth, but growing on the stems of branches of other plants.
Equitant leaves; when they are distichously alternate, infolded lengthwise and toward each other, the outer ones

partially inclosing or embracing the inner,—as in *Iris*, &c.

Erect ovules; when they arise from the bottom of the ovary, or base of the cell, and point upward.

Eroded, or *erose;* irregularly notched, as if gnawed.

Esculent; eatable; fit, or safe, to be eaten.

Etiolated; blanched; rendered white by excluding light.

Eu, in composition; meaning clearly, certainly, *par excellence*.

Evanescent; speedily disappearing.

Even-pinnate leaf; with the leaflets all in pairs, or without a terminal odd one; often termed *abruptly pinnate*.

Evergreen; continuing green, and persisting all the year.

Exalbuminous; destitute of albumen.

Excentric; deviating from the axis, or centre.

Exciple; the receptacle of the fructification, in *Lichens*.

Excurrent; projecting, or running out beyond, like a cusp.

Exfoliate; to throw off layers, or plates, as bark, &c.

Exocarp; see *Sarcocarp*.

Exogenous plants; which have 2 (or more) cotyledons,—and grow by *external* deposits of new matter, between the old deposits and the bark.

Exogens; outside growers; plants which increase by additions to the outer surface. See *Endogens*.

Explanate; made plain, or open, flat and smooth.

Exserted; protruding beyond the orifice.

Exstipulate: destitute of stipules.

Extrorse anthers; having the cells turned outward, and the connective extending up the inner side.

Falcate: flat, and curved like a scythe, or sickle.

Family of plants; a definite group of kindred plants (called also an *Order*), comprising one or more genera.

Fan-shaped: broadly cuneate, or spreading like a lady's fan.

Farinaceous: mealy; reducible to a meal-like powder.

Fascicle: a little bundle, or bunch, of flowers, leaves, &c. originating from nearly the same point.

Fascicled, or *fasciculate:* arranged in little bundles, or bunches; in fascicles.

Fastigiate: level-topped—the summits of the branches all rising to the same height (Oddly enough changed from the *original sense*,—which meant a *pointed*, or *tapering summit*).

Feather-veined leaf; where the lateral veins (or nerves) diverge regularly from each side of the midrib, like the plumage of a quill.

Ferruginous: of the color of rust of iron; reddish-brown.

Fertile: having perfect pistils, and producing fruit.

Fibrous; composed of fibres or thread-like processes.

Fide: on the faith, or authority.

Filament: a slender thread: that part of a stamen (usually thread-like) which supports the anther.

Filiform: very slender and terete, like a thread.

Fimbriae: fringes, or fringe-like processes.

Fimbriate: fringed on the margin.

Fimbrillate: clothed with *fimbrillae* (i. e. membranaceous linear or subulate filaments,)—as the receptacle of thistles.

Fissure: a slit, crack, or narrow opening.

Fistular, or *fistulous:* hollow and terete, like a pipe; tubular.

Flabelliform: fan-shaped,—which see.

Flaccid: so limber as to bend by its own weight.

Flagelliform: long, slender and pliable, like a whip-lash.

Flexuose: bent right and left alternately.

Floccose, or *flocculent:* covered with loose cottony tufts.

Floral: belonging to, or situated near, a flower.

Floral envelopes: coverings of flowers,—usually known as calyx and corolla,—sometimes as chaff.

Floret: a little flower; usually one of the number which constitute compound or aggregated flowers.

Floriferous: flower-bearing.

Foliaceous: of a leaflike form and texture; resembling a leaf.

Foliole: a leaflet, in a compound leaf.

Follicle: a capsular fruit, opening at maturity along the ventral suture.

Follicular: resembling, or being, a follicle.

Foramen: a roundish hole, or opening.

Foveolate: pitted.

Free: distinct; not adherent to any other organ.

Frond: the leaf-like expansion of cryptogamous plants.

Frondose: leafy, or with leaf-like appendages.

Fructification: the flower and fruit, with their parts.

Fruit: the mature ovary, or seedvessel, with its contents.

Frutescent: becoming shrubby.

Fruticose: shrub-like; hard and woody.

Fruticulose: like a little shrub.

Fugacious: fleeting; of short duration.

Fulvous: tawny; fox- or tan-colored.

Fungous: of rapid growth and soft texture, like the *Fungi*.

Funiculus: the little cord by which seeds are attached to the placenta.

Funnel-form: shaped like a funnel; tubular below, and expanding above.

Furcate: forked.

Furfuraceous: bran-like; scaly, or scurfy, like bran, or dandruff.

Fuscous: greyish-brown, or deep brown with a tinge of green.

Fusiform: spindle-shaped; terete, and

tapering both ways.

Galea; a helmet; the arched upper lip of a ringent corolla.

Galeate; helmeted; having a galea.

Gamopetalous; having all the petals more or less completely united by their margins; forming what has been (rather incorrectly) called a *monopetalous* corolla.

Gamosepalous; having the sepals all more or less united by their margins.

Geminate; in pairs; twin.

Generic; pertaining or relating to a genus.

Geniculate; forming an angle at the joints, like a bent knee.

Genus (plural, *Genera*); a group of species, which agree in what is called the generic character,—i. e. in the structure of the flower and fruit (species sometimes solitary).

Germ; the growing point of a bud.

Germen; the old name for the ovary.

Germination; the sprouting or incipient growth of a seed.

Gibbous; hunched, or swelled out, on one or both sides.

Gills; the fruit-bearing membranes of the *Agarics*, or mushrooms. See *Hymenium.*

Glabrous; very smooth; without any roughness or pubescence.

Gland; a small roundish organ, or appendage, which often secretes a fluid.

Glandular; gland-bearing; or gland-like.

Glandular-hispid, or *glandular-pubescent;* hairy, or pubescent, and the hairs tipt with glands.

Glaucescent; inclining to glaucous, or becoming glaucous.

Glaucous; of a silvery hue; pale-bluish, or greenish-white; or covered with a greenish-white mealiness, called *bloom.*

Globose, or *globular;* round on all sides.

Glomerate; densely clustered in small heaps, or irregular heads.

Glomerules; small dense roundish clusters.

Glumaceous; chaffy; or chaff-like.

Glumes; the outer chaff (bracts, or stunted modified leaf-sheaths (embracing the spikelets of the Grasses.) See *Palea.*

Glumose; having glumes (sometimes expressive of *conspicuous* glumes).

Glutinous; viscid; covered with an adhesive fluid.

Gonidia; the cells of the green layer, in *Lichens.*

Gonimous layer; the green layer of *Lichens.*

Grain; the fruit of the true Grasses,—sometimes called a *Caryopsis.*

Gramineous; grass-like; resembling the grasses.

Graniferous; bearing grain, or grain-like substances.

Granular; formed of grains, or consisting of small particles.

Gymnocarpi; naked fruit; *Lichens* in which the apothecia are open.

Gymnospermous; having the seeds naked,—i. e. not inclosed in a pericarp.

Gynandrous; having the stamens growing on, or adhering to, the pistil.

Gynoecium; a term designating the Pistillate portion of a flower; or the seed-bearing organs, collectively.

Gynostegium; the pistil cover, or tube formed by the connate filaments, of the *Asclepiadeae.*

Habit of plants; their general external appearance and mode of growth, by which they are usually recognized at sight.

Habitat, or *habitatio;* the place, or situation, in which a plant naturally grows.

Halved; one-sided,—as if one half had been cut away.

Hastate; shaped like a halbert; lanceolate, with a divergent lobe on each side of the base.

Head; a dense roundish cluster of sessile flowers.

Heptandrous; having 7 stamens.

Herbaceous; green, or not scarious; also not woody; of a tender consistence, and generally destructible by frost.

Herbarium; a collection (systematically arranged) of dried specimens of plants.

Herbs; plants which are not woody,—of a more tender structure than trees and shrubs.

Heterogamous; having dissimilar florets (perfect and imperfect) in the same head.

Heterophyllous; having leaves of different forms.

Hexamerous; consisting of 6 parts.

Hexandrous; having 6 stamens all of equal length.

Hilum; the scar on a seed, at the point of attachment to the funiculus, or seed stalk.

Hirsute; rough-haired; clothed with stiff hairs.

Hispid; bristly; beset with bristle-like hairs.

Hoary; covered with a white, or greyish-white, pubescence.

Homogamous; all the florets of a head being alike.

Homotropous embryo; when its direction is the same as that of the seed.

Horizontal ovules; when they project from the side of the cell, pointing neither to base nor apex.

Humus; the mould, or soil, formed by the decomposition of organized matter.

Hyaline; transparent, like glass.

Hybrid; a mule; a cross between allied species.

Hymenium; the membrane containing the spores of certain *Fungi*, & *Lichens;* the plates, or gills, on the under side of the *pileus* of the Agarics.

Hypogaean; situated, growing, or remaining, under ground.

Hypogynous; inserted beneath the ovary,—i. e. on the receptacle, and free from the surrounding organs.

Hypothallus; the elementary state of *Lichens*, in which the layers, are confused;

also the fibrous base, or under surface, of foliaceous *Lichens*.

Icosandrous; having about 20 stamens which are perigynous,—i. e. growing to, and apparently inserted on the rim of, the calyx.

Imbricated; the edges lying over the next series,—like shingles on a roof, or scales on a fish.

Immarginate; not margined; destitute of border, or margin.

Immersed; under water; also closely nestling in the bosom of leaves,—as the capsule of some *Mosses*.

Imperfect flower; when either stamens or pistils are deficient.

Incised; cut, or gashed; separated by incisions.

Inclinate, or *inclined;* bent over toward the ground, or some other object.

Included; wholly contained within a tube, or cavity; not *exserted*.

Incomplete flower; when either calyx or corolla is wanting.

Incubous leaves (in *Hepaticae*); their bases covered severally by the apex of the preceding.

Incumbent; lying upon, against, or across.

Incumbent anther; attached at or near its middle, and lying horizontally across the summit of the filament.

Incumbent cotyledons; having the radicle bent over and applied to the *back* of one of the cotyledons (represented by this sign o‖).

Indefinite; not distinctly limited, or defined; numerous, and of no constant or determinate number.

Indehiscent; not opening at maturity.

Indigenous; growing naturally, or originally, in a country.

Induplicate; folded inward.

Indurated; become hard.

Indusium; the membrane which covers the young *sorus* (or cluster of fruit), on the Ferns.

Inferior calyx: having the ovary above, and free within it.

Inferior ovary; situated apparently below the calyx, or rather its *lobes*,—i. e. adnate to the *tube* of the calyx, and consequently bearing the lobes at its summit.

Inflated; swelled like a blown bladder.

Inflected, or *inflexed;* bent suddenly inward.

Inflorescence; the arrangement of flowers and their footstalks on a plant; the the mode of flowering,—such as Umbel, Raceme, Panicle, &c.

Innate anther; erect,—having its base resting directly on the apex of the *filament*.

Innovations; new shoots from the apex, or near the summit,—as in the *Mosses*.

Inserted; fixed upon, or growing out of.

Internodes; that portion of a culm, or stem, between the nodes.

Interpetiolar stipules; situated or originating between the petioles of opposite leaves.

Interrupted; having intervals; the continuity broken.

Interruptedly pinnate; having smaller *pinnae*, or leaflets, between each pair of larger ones.

Introrse anthers; having the cells turned inward, and the connective extending up the outer side.

Inversely; in a contrary position; end for end, or upside down.

Involucel; the verticil of leaflets at the base of an umbellet.

Involucellate; having involucels.

Involucrate; having an involucre.

Involucre; an assemblage of modified leaves accompanying certain forms of inflorescence.—usually verticillate at the base of an Umbel,—or in imbricated series beneath or around heads of compound flowers.

Involute; rolled inward from both margins.

Irregular; the component parts differing in size and shape.

Isidia; minute coral-like particles, or crystals, in certain *Lichens*.

Isidioid; resembling a kind of coral.

Keel; a central ridge on the back of a leaf, sepal, &c., resembling the keel of a boat; also, the lower pair of (cohering) petals in a papilionaceous flower.

Keeled; having a keel.

Labiate flowers; where the border is somewhat in the form of 2 lips.

Lacerate; divided into irregular segments, as if torn.

Laciniate; jagged; the margin irregularly and deeply cut into segments.

Lactescent; milky; containing a milky or whitish juice.

Lacunose; pitted, furrowed, or having little cavities.

Lamellae; the plates, or gills, of the Agarics.

Lamellate; divided, or dilated, into thin plates.

Lamina; a thin layer, or plate; the expanded or flat portion of a leaf, or petal, as distinguished from the petiole, or claw.

Lanate; woolly; clothed with wool.

Lanceolate; tapering from near the base to the apex,—like the head of an ancient Lance.

Lance-linear, lance-ovate, &c., linear, ovate, &c., with something of the lanceolate form.

Lance-ovoid; egg-shaped, with a tapering lengthened apex.

Lanuginous; clothed with a loose wool.

Lateral; at the side.

Laterally compressed; flatted on the sides (not on the back).

Lax; loose, or limber; not compact.

Leaflets; partial leaves; the constituent leaves of a compound leaf.

Leaf-like (*foliaceus*); having a texture,

and expansion, resembling a leaf.

Leafy (*foliosus*); furnished with, or abounding in, leaves.

Legume; a bean, or pulse; a fruit formed of a single elongated carpel of 2 valves, with the seeds affixed along the upper suture only.

Leguminous; having the structure of a Legume; bearing Legumes.

Lenticular; having the form of a double convex lens.

Ligneous; of a firm woody texture.

Ligulate; strap-shaped; flat and linear.

Ligule; the usually membranous appendage at the base of the leaf, or summit of the sheath, in the grasses.

Limb; the border, summit, or upper spreading part, of a calyx, or corolla.

Line; the twelfth part of an inch.

Linear; of an uniform width; long and narrow, with parallel sides.

Linear-lanceolate, &c., partaking of both forms, but more of the latter.

Lingulate; tongue-shaped; linear and somewhat fleshy; nearly the same as *ligulate.*

Lip; the upper or under division of a labiate flower; also, the lower or anterior lobe of an Orchidaceous flower.

Lirellae; little ridges, or furrows; the linear elongated apothecia of some *Lichens,*—as in *Opegrapha.*

Lobe; a segment, or division, of a leaf, or flower; the free portion of a gamosepalous calyx, or of a gamopetalous corolla.

Lobate, or *lobed;* cut or divided into lobes.

Loculicidal; when a pericarp opens naturally on the back of a cell (i. e. at the dorsal suture of a carpel) directly into the cavity.

Loment; an indehiscent 2- or several-seeded legume, contracted between the seeds, and finally separating at the joint-like contractions.

Lomentaceous; constructed like a loment.

Longitudinal; lengthwise; in a direction from base to apex.

Lunate, or *lunulate;* having the figure of a new moon.

Lutescent; yellowish.

Lyrate; lyre-shaped; pinnatifid with the the terminal lobe largest and mostly rounded.

Mammillate; conical, with a rounded apex; nipple-shaped.

Marcescent; withering and persistent on the stem.

Margin; the edge or circumference of a leaf, or other expansion; also, the thin wing-like border of certain seeds, &c.

Marginal; belonging to, or situated at, the margin.

Marginate, or *margined;* having a border or edging of a texture, or color, different from that of the disk; also, surrounded by a wing-like expansion, or narrow membrane.

Medullary rays; thin vertical plates of cellular tissue, which pass from the pith to the bark, in woody stems.

Melliferous; producing or containing honey.

Membranaceous, or *membranous;* thin, flexible, and often slightly translucent.

Micropyle; the small foramen in the proper coats of a seed, to which the radicle always points.

Midrib; the central nerve of a leaf,—apparently a continuation of the petiole.

Mitriform; mitre-shaped; conical with a bell-shaped summit,—like a calyptra.

Monadelphous; having the filaments all united in one set,—usually forming a tube.

Monandrous; having a single stamen.

Moniliform; arranged like, or resembling the beads of a necklace.

Mono, in composition; one, or single.

Monoclinous; having the stamens and pistils in one and the same flower.

Monocotyledonous plants; in which the embryo has but one lobe, or cotyledon.

Monograph; a description (usually ample and elaborate) of a single object, or class of objects,—as of a Genus, Tribe, or Family.

Monogynous; having but one pistil.

Monoicous; having staminate and pistillate flowers distinct, but situated on the same plant.

Monoicously polygamous; having perfect and imperfect flowers on the same plant.

Monopetalous; having one petal; or rather, the petals united in one. See *gamopetalous.*

Monophyllous; having but one leaf.

Monosepalous; consisting of one sepal,—or rather, the sepals united. See *Gamosepalous.*

Mucronate; terminating in a *mucro,* or dagger-like point.—usually the prolongation of the midrib, in leaves.

Mucronulate; having a small *mucro,* or terminal point.

Multifid; many-cleft.

Multiple; a number containing another number several times without a fraction, or remainder,—as 9 is a multiple of 3.

Multiple fruits; where there is a combination of several flowers and fruits into one aggregate mass,—as in the Pine Apple, Mulberry, &c.

Multiseptate; having many *septa,* or partitions.

Muricate; beset with projecting points, like a *Murex.*

Mutic, or *muticous;* awnless, or pointless; the opposite of mucronate.

Naked; destitute of the usual covering, or appendage; as a *stem* without leaves; *seeds* without a pericarp,—*umbel* without an involucre, &c.

Napiform; turnep-shaped.

Nectariferous; producing honey.

Nectary; that organ, or portion of a flower, which secretes honey (a term formerly applied to all disguised forms of petals and stamens).
Nerves; rib-like fibres (in leaves, &c.) which usually extend from the base to, or toward, the apex.
Neuter, or *neutral* flower; having neither stamen nor pistil.
Nodding; turning downward.
Nodes; solid points, in stems & branches, at which leaves and buds originate.
Nodose; having nodes.
Normal; according to rule; agreeing with the pattern or type.
Nucamentaceous; nut-like.
Nuciform; nut-like.
Nucleus; a central body; the seed or kernel of a nut.
Nucules; little nuts, or nutlike fruit.
Nut; a hard 1-celled indehiscent fruit, usually containing a single seed.
Ob, in composition; inverts the usual meaning of the word to which it is prefixed.
Obcompressed; flatted back and front, instead of at the sides.
Obconic; inversely conical,—i. e. with the apex downward.
Obcordate; inversely heart shaped.
Oblanceolate; with the widest part above the middle, and tapering lance-like to the base.
Oblique; unequal-sided; also, a position between erect and horizontal.
Oblong; longer than wide, with sides parallel, or nearly so.
Obovate; inversely ovate.
Obovoid; inversely ovoid.
Obsolete; indistinct, as if worn out, or off.
Obtuse; blunt, or rounded.
Obversely; turned contrary to the usual position.
Ochrea; a membranous stipular sheath, embracing the stem like a boot-leg,—as in *Polygonum.*
Ochroleucous; yellowish-white, or cream-colored.
Octandrous; having 8 stamens.
Odd-pinnate leaf; having the leaflets in opposite pairs, with a terminal odd one,—often termed *impari pinnate.*
Officinal; used in, or belonging to, a shop, or medical office.
Oleraceous; of the nature or quality of pot-herbs.
Opaque; not transparent.
Opercular; opening like an *Operculum,* or lid.
Opposite; situated directly against, or at the same height on contrary sides.
Orbicular; circular and flat, like a coin. See *Terete.*
Orchidaceous, or *Orchideous;* belonging to, or resembling, the *Orchis* family.
Order; a family, or group, of allied natural objects; a sub-division of a *Class,* embracing kindred *Genera.*
Ordinal; belong to the Orders, or to an Order.
Ordinal names; the names of the Natural Orders, or Families of Plants.
Orthotropous ovule; straight; not curved, nor turned from its original or natural direction.
Ostiole; a little door; a small opening, passage, or entrance.
Oval; longer than broad, with the two ends of equal breadth and curvature, and the sides curving from end to end.
Ovary; the young seedvessel, or fruit; the hollow portion at the base of the pistil containing the *ovules,* or bodies destined to become seeds.
Ovate; flat, with the outline of a longitudinal section of an egg; somewhat oval, but broader near the base.
Ovate-lanceolate; lanceolate, but somewhat ovate at base.
Ovate-oblong; oblong, with an ovate dilatation at base.
Ovoid; egg-shaped; terete, and swelling near the base,—i. e. having the outline of an entire egg.
Ovoid-oblong; the ovoid form lengthened out.
Ovules; the rudiments of future seeds, contained in the ovary.
Palate; the prominence in the lower lip of a personate corolla.
Paleæ (singular, *palea*); chaff; the inner bracts, or immediate floral covering of the Grasses. See *Glumes.*
Paleaceous; of a chaffy texture,—or furnished with chaff-like scales.
Palmate; hand shaped; with lobes spreading like fingers on the open hand.
Palmately veined; having the veins divergent, like the spreading fingers of of an open hand.
Panduraeform; fiddle-shaped.
Panicle; a loose irregular compound raceme,—in which the peduncles are unequally elongated, and irregularly sub-divided.
Panicled, or *paniculate;* disposed in the form of a panicle.
Pannose; spongy and thickish, or dense, like the texture of woollen cloth.
Papilionaceous corolla; butterfly-shaped; when complete, consisting of 5 petals, the broad upper one called the *vexillum,* or banner—the 2 lateral ones termed the *alae,* or wings—the 2 lower ones more or less cohering, and, from their form, denominated the *Carina,* or keel.
Papillate, or *papillose;* covered with fleshy dots, or soft points.
Pappus; the crown of the fruit (being the segments, or free portion of an adherent calyx, in the *Compositae*)—usually hair-like, or plumose,—sometimes in the form of minute chaffy scales, and awns.
Papulose; covered with *papulae,* or pimple-like protuberances.
Paraphyses; cellular, jointed filaments, which accompany the reproductive organs of *Mosses* and *Lichens.*

Parasite; a plant growing on, or deriving sustenance from, another plant.
Parasitic; being, or relating to, a parasite.
Parenchyma; vegetable pulp.
Paries (plural, *parietes*); the wall, or inclosing shell, which circumscribes the cavity of a pericarp.
Parietal; fixed to, or belonging to, the *paries*, or inclosing wall of the seed-cell.
Parietal placentae; placentae borne upon the inclosing shell, or wall of the ovary, or pericarp, instead of the axis.
Parted; divided deeply, almost to the base.
Partial; a term applied to portions of a compound whole.
Patellaeform; in the form of little plates, or dishes.
Patellulae; small orbicular receptacles of the *Lichens;* resembling little dishes,—also termed *spangles*.
Pectinate; finely, regularly and deeply cleft, so as to resemble the teeth of a comb.
Pedate leaf; divided nearly to the petiole, in narrow segments, with the lateral ones diverging; resembling a bird's foot.
Pedicel; a partial peduncle; the ultimate branch in a compound inflorescence.
Pedicellate; having, or being supported on, a pedicel.
Peduncle; a simple flower- or fruit-stalk; also, the *common* footstalk of a compound inflorescence.
Pedunculate; having a peduncle; not sessile.
Pellucid; transparent; pervious to light.
Pellucid-punctate; having punctures which permit light to pass through.
Peltae; little flat receptacles on *Lichens*, resembling targets, or shields.
Peltate; like a shield; having the footstalk affixed to the under surface, and not to the margin.
Pencil-form, or *pencil-tufted;* resembling a painter's pencil, or little brush.
Pendulous; hanging down.
Penninerved; having the lateral nerves pinnately arranged. See *Feather-veined.*
Pentagonal; have 5 angles, or corners.
Pentagynous; having 5 pistils.
Pentamerous; composed of 5 parts.
Pentandrous; having 5 stamens.
Pentapetalous; having 5 petals.
Penultimate; next to the last; the one next to the terminal one.
Pepo; an indehiscent, fleshy or internally pulpy fruit, usually composed of 3 carpels invested by the adherent calyx-tube, and with a firm rind,—as the Melon, &c.
Percurrent; extending, or running the whole way through.
Perennial; living more than 2 years, and for an indefinite period.
Perfect flower; having both stamen and pistil (1 or more of each).
Perfoliate; having the stem apparently pierced through the leaf.
Perianth; a term for the envelopes of a flower, where the calyx and corolla are not clearly distinguishable.
Pericarp; the seedvessel or fruit; the ovary in a mature state.
Perichaeth, or *perichaetium;* the verticil, or cluster of bract-like leaves, round the base of the *seta*, or footstalk of the capsule, in *Mosses*,—often called *perichaetial leaves.*
Peridium; a term applied to the outer sac; or envelope of the sporanges, in some of the *Fungi.*
Perigonial leaves (in *Mosses*); those surrounding the antheridia.
Perigynium (plural, *Perigynia*); the *sac* which incloses the fruit of the Carices; also, the hypogynous *scales*, *bristles*, or *hairs*, investing the ovary, in many of the Cyperaceae.
Perigynous stamens and petals; inserted on the calyx,—or rather adhering to the inner surface of the calyx-tube, and thus surrounding the pistils.
Peripherical; fixed or coiled round the circumference.
Perisperm; a synonym of albumen,—which see.
Peristome; the circle of teeth, or bristle like processes, which surround the orifice of the theca, or capsule of the *Mosses.*
Perithecium; the proper envelope of the fruit (in *Lichens*), when it is not inclosed in the thallus.
Persistent; not falling off; remaining beyond the time when similar organs usually fall off.
Personate corolla; masked; having the throat closed by a prominent palate, and resembling the mouth of an animal.
Pertuse; perforated; pierced with holes, as if punched, or bored through.
Petaloid; petal-like; delicate and colored, or expanded, like a petal.
Petals; the (usually) delicate, colored leaves, which compose the corolla.
Petiolar; seated on, or belonging to, a petiole.
Petiolate; supported on, or having, a petiole; not sessile.
Petiole; the stem or footstalk of a leaf.
Petiolulate; having a partial, or subdivided petiole.
Petiolule; a little or partial petiole; the footstalk of a leaflet.
Phaenogamous plants; having visible genuine flowers; often written *phanerogamous.*
Phyllodium; a leaf-like expansion; supposed, sometimes, to be the dilated petiole of an abortive compound leaf.
Pileus; the cap- or hat-like receptacle borne on the stipe of a mushroom,—as in the Agarics.

Pilose; clothed with straight soft hairs.
Pinnae; the paired or opposite leaflets of a pinnate leaf.
Pinnate leaf; having distinct articulated leaflets in pairs, on opposite sides of a simple petiole.
Pinnatifid leaf, or frond; cleft in a pinnate manner, but the segments united or confluent at base.
Pinnatifidly; in a pinnatifid manner.
Pinnules; the leaflets, or sub-divisions of a bi- tri- or multi-pinnate leaf, or frond.
Pistil; the central organ of a fertile flower,—consisting usually of *ovary*, *style*, and *stigma;* sometimes the style is wanting,—or, in other words, the stigma is sessile.
Pistillate flowers; those which have 1 or more pistils, but no stamens.
Pistillidia; small bottle-shaped bodies, the analogues of pistils, in the *Mosses*.
Pistilliferous; bearing pistils.
Pitted; having small shallow depressions.
Placenta (plural, *placentae*); that part of a pericarp to which the seeds are attached (usually by a *funiculus*, or little cord.)
Placental; pertaining to the placenta.
Placentiferous; bearing the placenta.
Plane; flat; with an even surface.
Plano-convex; flat on one side, and convex on the other.
Pleurocarpi; bearing the fruit on one side, or the pedicel lateral (a division of *Mosses*).
Plicate; plaited; folded, or crimped, like a fan, or ruffle.
Plumose; feather-like; a pappus is plumose, when each hair has short hairs arranged on opposite sides.
Pod; a dry seedvessel,—usually elongated, and opening, at maturity, by 2 valves.
Podetia; the pedicels which support the knobs (*Cephalodia*) of the *Lichens*.
Pollen; the fertilizing powder contained in the anthers.
Pollen-masses, or *pollinia;* the waxy masses of pollen, in the *Asclepias* and *Orchis* families.
Poly, in composition; many.
Polyadelphous; having the filaments united in 3 or more parcels.
Polyandrous; having more than 10 distinct hypogynous stamens.
Polycotyledonous; having 3 or more cotyledons.
Polygamo-dioicous; having perfect and imperfect flowers on distinct plants.
Polygamous; where some flowers are perfect, and others either staminate, pistillate, or neuter.
Polygynous; when the pistils are numerous, or indefinite.
Polymorphous; assuming, or apt to assume, several different forms.
Polypetalous; having several distinct petals. See *Dialypetalous*.
Polysepalous; having distinct sepals.
Pome; an apple-fruit; a fleshy fruit, formed of several cartilaginous, or bony carpels, imbeded in pulp, and the whole invested by the adherent tube of the calyx.
Pores; small holes, or tubular openings.
Porous; full of holes, cells, or tubular openings.
Posterior; behind, or above,—as that part of a flower which is next to the axis of inflorescence.
Praemorse; end bitten; ending blunt, as if bitten off.
Precocious flowers; appearing before the leaves.
Prickles; sharp processes arising from the bark only, and not from the wood.
Primary; first in a series, either in order of time, position, or importance,—opposed to *secondary*.
Primordial; first in order; usually applied to the first genuine leaves,—or those next above the cotyledons.
Prismatic; like a prism; having several angles, and intermediate flat faces.
Process; a projection from the surface.
Procumbent; lying along the ground.
Produced; extended, or lengthened out.
Proliferous; producing its like in an unusual way; as putting forth a second growth from the centre of a flower, umbel, or other terminal and usually final development.
Prostrate; lying flat or close on the ground.
Pruinose; covered with a glaucous bloom, like a Plum.
Pseudo-pinnate; falsely or imperfectly pinnate,—the leaflets (or segments) not articulated at base to the common petiole.
Puberulent; covered with a minute short pubescence.
Pubescence; hairiness in general.
Pubescent; clothed with soft hairs.
Pulp; a soft, cellular, juicy mass.
Pulverulent; powdery, or dust-like.
Punctate; covered with indented points; dotted.
Puncticulate; having minute punctures, or indented points.
Pungent; sharp-pointed and rigid; also acrid.
Pyramidal; shaped like a pyramid; angular and tapering upward; usually applied to 4-sided solids which diminish from base to apex.
Pyriform; pear-shaped; round and enlarging from base to apex.
Quadrangular; four-angled.
Quadrifarious; in 4 rows, or pointing in 4 directions.
Quadrifid; 4-cleft.
Quadripartible; separating, or separable, into 4 parts.
Quaternate; growing in fours.
Quinate; 5 together, or arranged in fives.

Race of plants; a peculiar form, or modification, become permanent.
Raceme; a mode of flowering, in which the common peduncle, or axis, is elongated, with the flowers on short lateral pedicels.
Racemose; having the flowers in racemes.
Rachis; the common peduncle, axis, or elongated receptacle, on which florets are collected in a spike; also, the midrib of a pinnatifid frond, in the *Ferns*.
Radiate; diverging from a common centre; having rays, (i. e. ligulate florets) at the circumference.
Radiatiform; in compound flowers, where all the florets are ligulate, and directed toward the circumference.
Radical; belonging to, or growing immediately from, the root.
Radicating; sending out roots, or striking root at the nodes.
Radicle; a little root; the slender fibrous branch of a root.
Rameal; belonging to the branches.
Ramose; branching.
Rank; a row, or arrangement in a line.
Raphe; the ridge on one side of an inverted ovule, or seed, formed by the adhesion of the *funiculus*, or seed-stalk.
Rays; the ligulate florets round the disk of a compound flower; also, the footstalks, and enlarged marginal flowers, of an umbel.
Receptacle; the apex of the peduncle (much dilated in the *Compositae*) on which the parts of a flower (or entire florets) are inserted; also, the seat of the fruit.—as in the Strawberry, &c.
Recurved; curved backward.
Reflexed; bent strongly backward.
Refracted; doubled backward; or bent abruptly back.
Regular; having the parts uniform and equal among themselves.
Remote; seated or growing at an unusual distance.
Reniform; kidney-shaped.
Replicate; flolded back on itself.
Resupinate; turned upside down.
Reticulate; netted; like net-work.
Retrorse, or *retrorsely;* pointing backward, or downward.
Retuse; having a shallow sinus at the end.
Revolute; rolled backward, or outward.
Rhizoma; a root-stock; a root-like underground stem.
Rhombic; 4-sided, with unequal angles; shaped like a lozenge.
Rhomboid; oval, but somewhat angular at the sides.
Ribbed; having parallel ridges.
Rigescent; stiffish; becoming stiff.
Rigid; stiff; not pliable.
Rimose; having cracks, or chinks.
Ringent; gaping; the lips and throat open.
Root-stock; a kind of underground stem, —usually elongating and creeping,—sometimes tuberous, with buds, or eyes.
Rosaceous; with 5 regular spreading petals, like a rose.
Rostrate; beaked; having a process resembling a bird's beak.
Rosulate; in a rosette; arranged in circular series and spreading, like the petals of a double rose.
Rotate corolla; wheel-shaped; gamopetalous and spreading almost flat, with a very short tube.
Round; circular, or globular; not angular. See *globose*, *orbicular*, and *terete*.
Rudiment; an imperfectly developed organ.
Rufous; reddish-brown, or rust-colored.
Rugose; wrinkled: *rugulose;* finely wrinkled.
Ruminated albumen; folded and variegated.
Runcinate; somewhat lyrate, with sharp lobes pointing backward,—resembling the teeth of a mill-saw.
Runner; a slender procumbent shoot, producing roots and leaves at the end, only,—as in the Strawberry.
Sac; a membranous bag, or boundary of a cavity.
Saccate; having, or being in the form of, a sac or pouch.
Sagittate; arrow-shaped; notched at base, with the lobes acute.
Salver-form; tubular, with the border horizontally spreading.
Samara; an akene-like fruit, with a winged apex, or margin,—as in the Ash, Elm, Maple, &c.
Samaroid; margined like a samara.
Sarcocarp; the fleshy portion of a pericarp (as in a drupe), between the *epicarp* and the *endocarp*.
Sarmentose; having, sending forth, or being in the form of, runners.
Scabrous; rough with little points, or short rigid hairs.
Scales; small thin plates, or leaf-like processes; also, the leaflets of the involucre, in the *Compositae*,—the bracts of the *Cyperaceae*, &c.
Scandent; climbing.
Scape; a peduncle proceeding directly from the root.
Scarious; dry, skinny and transparent.
Scattered; distributed thinly, and without regular order.
Scorpioid inflorescence; rolled back from the apex (circinate), before development.
Scrobiculate; marked by little pits, or depressions.
Scutellae; little shield-like orbicular sessile receptacles of some of the *Lichens*.
Scutellate; resembling a target, or shield.
Scyphiferous; bearing a scyphus, or vase, —as the podetia of some Lichens.
Scyphus; a cup, in the form of an inverted cone.

Secund; one sided; all seated on, or turned to, one side.
Seed; the matured ovule, with the embryo, or young plant, formed within it.
Segment; the division, or separated portion, of a cleft calyx, leaf, &c.
Semi, in composition; half,—as *semi-bivalved,* half 2-valved, *semi-terete,* half round, &c.
Seminal; belonging to the seed.
Sempervirent; evergreen.
Sepal; the leaflet, or distinct portion of a calyx.
Sepaloid; resembling a sepal; green and not petal-like.
Septicidal dehiscence; where a compound pericarp opens by splitting the dissepiments,—i. e. the carpels separate from each other, and usually open to the seeds by the ventral suture.
Septiferous; bearing a septum.
Septifragal dehiscence; where the dissepiments remain attached to the axis, while the valves break away from them
Septum; the partition which divides the cells of fruit.
Sericeous; silky; clothed with soft glossy appressed hairs.
Series; a continued succession of things in the same order; also, a comprehensive group of objects, in Natural History.
Serrate; sawed; having sharp teeth on the margin pointing toward the apex.
Serratures; the teeth of a serrated margin.
Serrulate; finely serrate.
Sessile; sitting closely; having no footstalk, or pedicel.
Seta, (plural, *Setae*); a bristle, or stiffish elastic hair.
Setaceous; bristle-like.
Setose; beset with bristles.
Sheath; a membranous expansion which is tubular, or convolute, and inclosing or embracing a stem.
Sheathed; inclosed by a sheath.
Sheathing; embracing the stem like a sheath.
Shining; smooth, glossy and bright.
Shrub; a small woody plant not exceeding 3 times the height of a man.
Shrubby; hard and woody, like a shrub; of the texture and size of a shrub.
Silicle; a little, or short silique,—nearly as wide as long.
Silique; a long, slender, membranous pericarp, of 2 valves, having the seeds fixed alternately along both sutures.
Siliquose; having siliques, or resembling a silique.
Simple; undivided; not compound.
Simple umbel; where each ray terminates in a single flower.
Sinuate; having sinuses, or scallops, which are open and rounded at bottom.
Sinuate-dentate, and *sinuate serrate;* having teeth, or serratures, with the clefts or openings rounded at bottom.
Sinus; an open notch; a rounded incision, or scallop.
Soboliferous; producing young plants from the roots.
Solitary; standing alone; one only in a place.
Soredia; minute sorus-like masses, or reproductive particles, on *Lichens.*
Sorediate; covered with *soredia,* or irregular powdery masses.
Sorediferous; bearing soredia.
Sori (plural of *sorus*); fruit-dots; small clusters of sporanges, on the back of the fronds, in *Ferns.*
Spadix; a dense-flowered, fleshy, club-like spike,—usually accompanied by a sheathing involucre, called a *spathe.*
Span; a measure of 9 inches.
Spathaceous; having, or resembling, a spathe.
Spathe; a sheathing kind of bract, or involucre, open on one side,—containing, or accompanying, a spadix.
Spatulate; like a spatula; obovate-oblong, or larger and rounded at apex, and tapering to the base.
Species; the lowest permanent division of natural objects, in a systematic arrangement; a group comprising all similar individuals.
Specific; belonging to, or distinguishing, the species.
Sphacelate; dark-colored; as if gangrenous, or dead.
Sphagnous; full of bog-moss, or *Sphagnum.*
Spicate; in the form, or after the manner, of a spike.
Spike; a kind of inflorescence in which the flowers are sessile on the sides of a common peduncle, or rachis.
Spikelet; a little spike,—or subdivision of a compound spike.
Spindle-shaped; see *Fusiform.*
Spine; a thorn; a sharp process originating in the wood,—i. e. a pointed, abortive branch.
Spinellose; armed with minute spines.
Spinescent; becoming thorny, or inclining to be thorny.
Spinose; thorny; armed with thorns.
Spinulose; covered with small spines.
Sporange; a spore case, a vessel or cell containing spores; the pericarp of cryptogamous plants.
Spores, sporidia, or *sporules;* the seminal equivalents, or analogues of seeds, in cryptogamous plants.
Sporocarp; a synonym (nearly) of *sporange.*
Spur; a tapering hollow extension of some part of a flower,—usually of the petals.
Spurred; having a spur, or spur-like elongations.
Squamate; furnished with scales.
Squamose; scaly; resembling scales.
Squarrose; jagged; having spreading tips, or divaricate points, all round.

Stamen; the organ of a flower which prepares the pollen,—usually consisting of a *filament* and *anther*, and situated between the corolla and pistil.
Staminate flower; having stamens only.
Staminiferous; bearing the stamens.
Staminodia; imperfect organs, occupying the position of, & resembling stamens.
Stellate; star-shaped; the parts spreading from a common centre, like rays of a star.
Stellular; radiating like a star.
Stellular pubescence; compound or fasciculate hairs, with the branches spreading like rays.
Stem; the main axis, or body, of a plant.
Stemless; having no visible or aerial stem.
Sterile; barren; producing no fruit.
Stigma; the summit of the style,—or that portion of the pistil through which the pollen acts.
Stigmatic, or *stigmatose;* relating to the stigma.
Stigmatic lines; slightly prominent glandular lines (being the proper stigmas), on the style-branches of the *Compositae*.
Stipe; a foot-stalk of a frond, or of a pileus; also, the pedicel of a pod, &c.
Stipellate; furnished with *stipelles*,—i. e. the stipules of *leaflets*, in compound leaves.
Stipelles; the stipular appendages of leaflets, in compound leaves.
Stipitate; having a stipe; supported on a little pedicel.
Stipitiform; resembling a stipe.
Stipular; belonging, or relating to stipules.
Stipulate; furnished with stipules.
Stipules; leaflets, or leaflike appendages, at the base of a petiole, or leaf.
Stoles (i. e. *stolones*); shoots, or offsets, from the base of the stem, or roots,—usually applied to young winter wheat.
Stolomiferous; producing offsetts, or running shoots (stolones).
Striate; marked with longitudinal lines, or streaks.
Strict; very straight and erect.
Strigose; armed with flattish tapering bristly hairs.
Strobile; the cone, or collective fruit, of the Pines, Firs, &c.
Strumose capsule (in some mosses); having a cushion-like swelling, or protuberance, at base.
Style: the columnar (usually slender) portion of the pistil, between the ovary and stigma.
Styliferous; bearing or producing a style or styles.
Stylopodium; the thickened base of some styles,—as in *Umbelliferae*.
Sub, in composition; a qualifying prefix, equivalent to somewhat, or nearly,—as *sub*cordate, somewhat cordate,—*sub* sessile, nearly sessile, &c.
Suberose; of a texture like cork.
Submersed; entirely under water.
Subulate; shaped like an awl-blade.
Succubous leaves (in *Hepaticae*); their bases severally covering the apex of the preceding.
Succulent; juicy; full of juice.
Sucker; a young shoot, or offset, from the root, or base of the stem.
Suffrutescent; almost shrubby.
Suffruticose; somewhat shrubby.
Sulcate; furrowed, or grooved.
Super, or *supra*, in composition; meaning, *above*, or *upon*,—*beyond*, or *more than*.
Super-axillary; above an axil.
Supra-decompound; more than decompound; many times divided, or compounded.
Superior; above; a term applied to the *ovary*, when it is free in the calyx.—and to the *calyx*, when the tube is adherent to the ovary, and the segments borne on its summit.
Suppression; the non-production, or failure in the development, of an organ.
Suspended ovules, or seeds; when they are attached to the summit of the ovary, or pericarp, and hang perpendicularly in the cavity.
Suture; the line, or seam, formed by the junction of two margins.
Symmetrical flower; when the number of the parts in each series, or verticil, is equal,—or some multiple of the primary number.
Syngenesious: having the anthers united,—as in the *Compositae*.
Synonyms: different names for the same things.
Tenacious; sticky, or adhesive; also, holding on by hooked points.
Tendril; a filiform twining branch, by which some climbing plants are sustained: in the Grape-vine, it is an abortive raceme; in the Vetches, an appendage to the leaves.
Terete; round, like a column,—and either cylindric or tapering. See *Orbicular*.
Terminal; situated at, or proceeding from, the apex.
Ternary; arranged in threes; consisting of 3 parts, or elements.
Ternate; three-fold; three together,—as the leaflets of clover, &c.
Tessellated: resembling mosaic work; checquered.
Testa; the proper or outer coat of a seed.
Tetradynamous: having 6 stamens, of which 4 are regularly longer.
Tetragonous; 4 covered.
Tetramerous; consisting of 4 parts.
Tetrandrous; having 4 stamens of equal length.
Thalamium: the fructification of *Lichens* which is situated in the substance of the thallus.
Thallogenous plants; destitute of stem, or axis,—consisting of *Thalli*, or mere cellular expansions.

Thallophytes: flowerless plants, consisting wholly of *Thallus*, or cellular leaf-like expansion: sometimes branched and fruticulose.

Thallus: a name for the stemless frond-like expansion, of which many cryptogamous plants are entirely composed: in the *Lichens* it is often terete, branched and shrub-like.

Theca (plural, *thecæ*); a name for the spore-case of the *Mosses*.

Thorn; a sharp process from the wood of a plant,—being an abortive branch.

Throat; the orifice or passage into the tube of a gamopetalous corolla.

Thyrsoid; nearly in the form of a thyrsus.

Thyrsus; a kind of contracted or dense ovoid panicle.

Tissue; web, or fabric; the intimate organic structure of bodies.

Tomentose; covered with a curled, or matted, short pubescence.

Tomentum; a matted, or curled, wool-like short pubescence.

Torose, or *torulose;* swelled out in obtuse ridges.

Tortuous: bent in different directions.

Torus; the seat, or receptacle, of the component parts of a flower; the extremity of a pedicel.

Translucent; clear, or transmitting light faintly.

Transverse, or *transversely;* cross-wise; at right angles with lengthwise.

Tree; a woody plant taller than a shrub.

Triadelphous: having the filaments united in 3 parcels.

Triandrous; having 3 stamens.

Tribes; groups of kindred plants, intermediate between Orders and Genera.

Tribracteate: having 3 bracts.

Trichotomous; 3-forked; dividing by 3 equal branches.

Tricoccous; composed of 3 separable indehiscent carpels (*cocci*).

Tricuspidate; having, or terminating in, 3 rigid sharp points.

Trifarious; facing or pointing in 3 directions.

Trifid; 3-cleft.

Trifoliate; 3 leaves together.

Trifoliolate; 3 leaflets together.

Trigonous: 3-cornered.

Trigynous; having 3 pistils.

Trilobate; 3-lobed.

Trimerous; consisting of 3 parts.

Tripartite; 3 parted.

Tripetalous; having 3 petals.

Tripinnate; thrice pinnate; the common petiole 3 times divided, or with bipinate divisions on each side.

Tripinnatifid; pinnately dissected, with the primary divisions twice pinnatifid.

Triplinerved; having 3 principal nerves from the base.

Triquetrous; having 3 sharp angles, and 3 flat or concave sides.

Trisepalous; having 3 sepals.

Triternate leaf; when the petiole is twice divided ternately, and each final branch bears 3 leaflets.

Truncate; as if cut off transversely.

Tube; the united portion of a calyx, or corolla; a hollow cylinder.

Tuber; a thickened fleshy *rhizoma*, or knob-like termination of a subterranean branch.

Tubercle; a small excrescence, knob, or rough point, on a surface.

Tuberculate; covered with tubercles.

Tuberiferous; bearing or producing tubers.

Tuberous; consisting of, or fleshy and solid like tubers.

Tubular; having a tube, or formed like a tube.

Tuft; a bunch or fascicle, growing from the same root, or originating nearly at the same point.

Tumid; swelled, or enlarged like a swelling.

Tunicated; coated; having concentric coats, or layers.

Turbinate; top-shaped; resembling an inverted cone.

Turf; the green sward, or grassy sod.

Turgid; swelled, but not inflated.

Turion: a thick tender young radical shoot of a plant,—as of Asparagus, &c.

Tussock; a dense tuft, formed at the root,—as in some species of Carex, &c.

Twin; two of the same kind connected, or growing together.

Twining; winding round and ascending spirally.

Type; a model, or form; a pattern individual which unites in itself most completely the characters of a group.

Umbel; a kind of inflorescence, in which the flowerstalks proceed from a common centre, like the rays or braces of an umbrella.

Umbellate; in the form or manner of an umbel.

Umbellet; a partial umbel; one of the subdivisions of a compound umbel.

Umbelliferous; bearing the flowers in umbels.

Umbilicate; navel-like; having a central pit, or depression.

Umbonate; protuberant; having a boss, or elevated point, in the centre.

Unarmed; without thorns, or prickles.

Uncinate; hooked at the end.

Undulate; wavy; curved, or rising and depressed, like waves.

Unequal; not alike in length, size, nor duration.

Unguiculate; clawed; having a slender base, like a claw.

Uniform, or *uniformly;* in one form; equally and alike.

Unilateral; one-sided; growing or situated all on one side of a stem, or rachis.

Unisexual; staminate, or pistillate, only.

Urceolate; pitcher-shaped, or urnshaped; swelling below, and contracted to a neck, above.

Utricle; a little sac, or thin pericarp, which incloses, but does not adhere to, the seed.
Valvate; shutting or fitted together by the edges, without overlapping.
Valves; the parts of a regularly dehiscent capsule; also, the scales which close the tube, in some corrollas; and the chaffy pieces which cover the flowers of the Grasses.
Variety; a modification of a plant, produced by accidental causes,—such as soil, climate, culture, crossing, &c. but not permanently—at least, not *specifically*—distinct.
Vascular plants; the higher orders (including all above the *Mosses*),—composed more or less of woody fibres, and elongated or tubular vessels.
Vaulted; arched, like the roof of the mouth.
Veil (of the *Fungi*); a delicate membrane, in certain Agarics, which, in an early stage, connects the margin of the pileus with the stipe. See *Volva*.
Veined; having the vessels variously branching over the surface.
Veins; the elongated vessels of leaves,—often synonymous with *nerves*.
Venation of a leaf; the distribution or arrangement of the veins, or frame work in the lamina or blade.
Ventral; belonging to the belly.
Ventral suture; the seam of a carpel (or folded leaf), formed by the union of its margins: the opposite of *dorsal*.
Ventricose; bellied; swelling out in the middle, or below it.
Vernation; the mode in which young leaves are folded and packed in the bud.
Verrucose; warty; covered with warts.
Versatile anther; fixed by the middle on the point of the filaments, and movable round.
Vertical, in a perpendicular direction, from the zenith downward.
Vertical leaves; standing edge up, instead of the flat surface.
Verticil; a whorl; a horizontal ring of leaves, &c. round a stem, or at its summit.
Verticillate; arranged in a verticil, or whorl.
Vesicles; little bladder-like vessels.
Vesicular; made of, or resembling, little bladders.
Vespertine flowers; expanding in the evening.
Vexillum; the banner, standard, or broad upper petal, of a papilionaceous flower.
Villous; velvety; densely clothed with soft hairs.
Virescent; inclining to, or becoming, green.
Virgate; wand-like; long, slender, and straight.
Viridescent; greenish.
Viscid; clammy; covered with a sticky moisture.
Viscid-pubescent; clothed with a clammy pubescence.
Vittae; fillets; linear receptacles of oily matter on the carpels of umbelliferous plants.
Viviparous; producing young plants by bulbs, instead of seeds; also, applied to plants in which the seeds germinate while in the pericarp, on the parent stem.
Volubile; ascending spirally round another object.
Volva; the veil, or wrapper, of a young Agaric,—which bursts by the rapid development of the plant, leaving its remains adherent to the base of the stipe.
Whorl; see *verticil*.
Winged; having a thin extended margin.
Wings; the side petals of a papilionaceous flower; also, the membranous expansion of certain pericarps; margins of petioles, &c.
Woolly; clothed with a long curled or matted pubescence.

ABBREVIATIONS

USED IN THIS WORK.

o═, sign of Cotyledons *accumbent*.
o‖, " Cotyledons *incumbent*.
? " doubt, or uncertainty.
! " authentication, or certainty; sometimes, also, of a peculiar, or striking circumstance.
Ach. Eric Acharius; Swedish Botanist.
Adans. Michel Adanson; French.
Agardh. Car. Ad. Agardh; Swedish.
A. Gr. Asa Gray; American.
Ait. William Aiton; English.
All. Car. Allioni; Italian.
Alph. DC. Alphonse De Candolle; French.
Andr. Henry Andrews; English.
Auct. (*auctorum*); Of authors.
B. & S. Bruch and Schimper; German.
Bart. B. S. & W. P. C. Barton; American.
Bartr. John Bartram; American.
Beauv. Palisot de Beauvois; French.
Beck. L. C. Beck; American.
Benth. George Bentham; English.
Berk. & Mont. M. J. Berkeley, and C. Montagne; English and French.
Bieb. M. Bieberstein; German.
Bigel. Jacob Bigelow; American.
Boerh. H. Boerhaave; Dutch.
Boott. Francis Boott; American.
Borkh. M. B. Borkhausen; German.
Braun. Alexander Braun; German.
Brid. Sam. Elias Baro de Bridel-Brideri; German.
Brongn. Adolph Brongniart; French.
Bronn. H. G. Bronn; German.
Carey. John Carey; Anglo-American.
Cass. A. H. G. de Cassini; Italian.
Cav. A. J. Cavanilles; Spanish.
Chaix. Chaix; French.
Cham. Adelb. de Chamisso; German.
Chav. M. Chavannes; French.
Choix. J. D. Choisy; Swiss.
Corda. A. C. J. Corda; German.
Crantz. H. J. N. Crantz; German.
Darlingt. Wm. Darlington; American.
DC. Aug. Pyr. De Candolle; French.
Dcne. J. De Caisne; French.
Desf. R. L. Desfontaines; French.
Dicks. James Dickson; English.
Dillen. J. J. Dillenius; German.
Duby. J. E. Duby; French.
Duham. H. L. Duhamel; French.
Dum. B. C. Dumortier; French.
Dunal. M. F. Dunal; French.
Ehrh. Friedr. Ehrhart; German.
Ell. Stephen Elliott; American.
Endl. Stephen Endlicher; Hungarian.
Excl. Syn. Excluding the Synonyms.
Ex. gr. for the sake of example.
Fl. Flowers expanded.
Fl. Cestr. Flora Cestrica.
Floerk. H. G. Floerke; German.
Fr. Fries. Elias Fries; Swedish.
Fr. Fruit mature.
Gaertn. J. Gaertner; German.
Gaud. J. Gaudin; French.
Ging. Friedr. de Gingins; German.
Gloxr. B. P. Gloxin; German.
Gmel. J. F. Gmelin; German.
Gooden. Saml. Goodenough; English.
Grev. R. K. Greville; English.
Griseb. A. H. R. Grisebach; German.
Gronov. J. F. Gronovius; Dutch.
H. B. K. Humboldt, Bonpland, and Kunth.
Hall. Albert von Haller; Swiss.
Hedw. John Hedwig; German.
Hoffm. G. F. Hoffmann; German.
Hook. Sir W. J. Hooker; English.
Hook. & Wils. Hooker and Wilson; English.
Houst. Wm. Houston; English.
Huds. Wm. Hudson; English.
Humb. Alex. Von Humboldt; German.
Jacq. N. J. Jacquin; Dutch.
Juss. A. L. de Jussieu; French.
Kalm. Peter Kalm; Swedish.
Ker. J. Bellenden Ker; English.
Koch. W. D. J. Koch; German.
Kunth. C. S. Kunth; German.
L. C. Linnaeus; Swedish.
Lag. Mar. Lagasca; Spanish.
Lam. J. B. M. de la Mark; French.
l. c. In the place already cited.
Lehm. J. G. C. Lehmann; German.
L'Herit. C. L. L'Heritier; French.
Lib. Anna Maria Libert; French?
Lindenb. J. B. W. Lindenberg; German.
Lindl. John Lindley; English.
Link. H. F. Link; German.
Marsh. Humphry Marshall; American.
Mart. C. F. P. Von Martius; German.
Medik. F. C. Medikus; German.
Mey. C. A. Meyer; German.
Mich. P. A. Micheli; Italian.
Mill. Philip Miller; English.
Moench. Conrad Moench; German.
Mont. C. Montagne; French.
Muhl. H. Muhlenberg; American.
Mutis. J. C. Mutis; Spanish.
Mx. Andrè Michaux; French.
Neck. N. J. de Necker; German.
Nees. C. G. Nees von Esenbeck; German.
Nutt. Thomas Nuttall; Anglo-American.

Obs. Observation, or remarks.
P. Br. Patrick Browne; English.
Pers. C. H. Persoon; Dutch.
Ph. Fredk. Pursh; Siberian.
Plum. Charles Plumier; French.
Poir. J. L. M. Poiret; French.
Pollich. John Adam Pollich; German.
Radd. Giusep. Raddi; Italian.
Rafin. C. Rafinesque; Sicilian.
R. Br. Robert Brown; English.
Rich. L. C. Richard; French.
Richards. J. Richardson; English.
R. & S. Roemer & Shultes; German.
R. & P. Ruiz & Pavon; Spanish.
Rostk. F. W. Rostkow; German?
Roth. Alb. W. Roth; German.
Rudge. Edward Rudge; English.
Salisb. R. A. Salisbury; English.
Savi. C. Savi; Italian.
Schk. Christ. Schkuhr; German.
Schleid. M. J. Schleiden; German.
Schrad. C. F. Schrader; German.
Schreb. J. C. D. von Schreber; German.
Schultes. F. A. Schultes; German.
Schw. L. D. von Schweinitz; American
Schwaegr. Christ. Friedr. Schwaegrichen; German.
Scop. J. A. Scopoli; Italian.
Ser. N. C. Seringe; French.
Sm. James Edward Smith; English.
Soland. D. C. Solander; Swedish.
Spach. Edward Spach; German.
Spreng. Kurt Sprengel; German.
Spring. Prof. Spring; Flemish.
Sulliv. W. S. Sullivant; American.
Sw. Olaus Swartz; Swedish.
Torr. John Torrey; American.
Torr. & Gr. Torrey & Gray; American.
Tournef. J. P. de Tournefort; French.
Trin. C. B. Trinius; German.
Tuckerm. Edw. Tuckerman; American.
Turn. Dawson Turner; English.
Vahl. Martin Vahl; Danish.
Vaill. S. Vaillant; French.
Vent. E. P. Ventenat; French.
Vill. D. Villars; French.
Wahl. P. F. Wahlenberg; Swedish.
Willr. F. W. Wallroth; German.
Walt. Thos. Walter; Anglo-American.
Wangenh. F. A. Y. Wangenheim; German.
Web. & M. Weber & Mohr; German.
Weih. Aug. Weihe; German.
Willd. C. L. Willdenow; German.
With. Wm. Withering; English.

LINNAEAN ARRANGEMENT

OF THE

GENERA TREATED OF IN THIS WORK.

☞ With a view to aid Beginners, or those accustomed to the *Linnaean System*, in determining the *Genera*, the following Synopsis is inserted,—with references to the *Natural Orders* to which they severally belong.

"Nunc, quo quamque modo possis cognoscere, dicam."

CLASS I. MONANDRIA.

Order 1. Monogynia.

[Cyperus inflexus, Fimbristylis laxa, Eriophorum Virginicum. and Rhynchospora alba. Ord. CXVII. Cyperaceae. *p.* 336—343.]

Order 2. Digynia.

[Callitriche. Ord. LXXXVIII. Callitrichaceae. *p.* 257.]

[Cinna. Andropogon Virginicus, and macrourus. Ord. CXVIII. Gramineae. *p* 358—388.]

CLASS II. DIANDRIA.

Order 1. Monogynia.

§1. Flowers complete. A. Ovary *superior.*

Corolla *gamopetalous:* †*regular.* *Fruit *a Berry.*

Ligustrum. *Calyx* minutely 4-toothed. *Corolla* 4-lobed; lobes ovate, spreading. *Berry* 2-celled; cells 2-seeded. Ord. LXXIV. Oleaceae. *p.* 237.

**Fruit *a Drupe.*

Chionanthus. *Calyx* 4-parted. *Corolla* deeply 4-parted: lobes long and linear. *Drupe* 1-seeded; *nut* striate. Ord. LXXIV. Oleaceae. *p.* 238.

††Corolla *irregular:* fruit *a Capsule.*

Veronica. *Calyx* 4- or 5-parted. *Corolla* tubular, or sub-rotate, unequally 4-lobed, the lower lobe usually narrower. *Capsule* ovoid, or obcordate, 2-celled. Ord. LXIII. Scrophulariaceae. *p.* 188.

Dianthera. *Calyx* 5-parted, bracteate at base. *Corolla* deeply bilabiate; upper lip erect, emarginate, lower lip 3-parted. *Capsule* tapering and stipitate at base, 2-celled, 4-seeded. Ord. LXII. Acanthaceae. *p.* 183.

Utricularia. *Calyx* 2-parted. *Corolla* 2-lipped, spurred at base. *Capsule* globose, 1-celled. Ord. LIX. Lentibulaceae. *p.* 180.

B. Ovary *inferior*.

CIRCAEA. *Calyx* 2-parted. *Petals* 2, obcordate. *Capsule* obovate, uncinately hirsute, 2-celled, 2-seeded. ORD. XXXVIII. ONAGRACEAE. *p.* 90.

§ 2. FLOWERS OFTEN INCOMPLETE.

FRAXINUS. *Dioicously polygamous: Calyx* none, or 3- or 4-parted. *Corolla* none, or 4-petalled. *Capsule* (or *Samara*) 2-celled, compressed, with a wing-like extension at apex. ORD. LXXIV. OLEACEAE. *p.* 238.

LEMNA. *Sub-monoicous: Calyx* a membranaceous urceolate *spathe*, seated in the edge of the *frond*. *Corolla* none. *Fruit* a 1-seeded *utricle*. ORD. C. LEMNACEAE. *p.* 300.

[Lepidium Virginicum. ORD. X. CRUCIFERAE. *p.* 23.]

[Anychia dichotoma. ORD. XVI. CARYOPHYLLACEAE. *p.* 34.]

[Lycopus, Cunila, Hedeoma, Collinsonia, Salvia, Monarda, and Blephilia.—ORD. LXV. LABIATAE. *p.* 198—205.]

[Catalpa, and Martynia. ORD. LXI. BIGNONIACEAE. *p.* 182.]

[Gratiola, and Ilysanthes. ORD. LXIII. SCROPHULARIACEAE. *p.* 187—8.]

[Cyperus diandrus, and Fimbristylis autumnalis. ORD. CXVII. CYPERACEAE. *p.* 336—342.]

Order 2. Digynia.

PODOSTEMUM. *Sub-monoicous: Flowers* in a sac-like *spathe*. *Calyx* none. *Corolla* none. *Capsule* 2-celled, many-seeded. ORD. LXXXIX. PODOSTEMACEAE. *p.* 258.

[Anychia dichotoma. ORD. XVI. CARYOPHYLLACEAE. *p.* 34.]

[Leersia Virginica, Brachyelytrum, and Anthoxanthum. ORD. CXVIII. GRAMINEAE, *p.* 356—378.]

CLASS III. TRIANDRIA.

Order 1. Monogynia.

§ 1. FLOWERS COMPLETE. a. Ovary *inferior*.

FEDIA. *Calyx-teeth* 3 to 5, or obsolete. *Corolla* funnel-form, 5-lobed. *Capsule* 3-celled, by abortion 1-seeded. ORD. XLIX. VALERIANACEAE. *p.* 120.

b. Ovary *superior*.

COMMELYNA. *Flowers* in a folded cordate *spathe-like bract: Sepals* 3, unequal. *Petals* 3, mostly unequal. *Stamens* mostly 3 perfect, and 3 (sometimes 4) abortive. *Capsule* 3-celled. ORD. CXV. COMMELYNACEAE. *p.* 333.

XYRIS. *Flowers* in the axils of *scale-like bracts*, which are imbricated in an *ovoid head: Sepals* 3,—the 2 lateral ones boat-shaped, the anterior one larger. *Petals* 3, with long narrow claws. *Capsule* 1-celled. ORD. CXVI. XYRIDACEAE. *p.* 335.

§ 2. FLOWERS INCOMPLETE: *spathaceous*.

a. Ovary *inferior*.

SISYRINCHIUM. *Spathe* 2 leaved, bract-like. *Perianth* corolla-like, deeply 6-parted. *Filaments* mostly united below. *Capsule* membranaceous, pedicellate; *seeds* subglobose. ORD. CVIII. IRIDACEAE. *p.* 318.

IRIS. *Spathe* membranaceous. *Perianth* corolla-like, 6-parted,—the 3 outer segments reflexed. *Filaments* distinct. *Stigmas* 3, dilated and petal-like, arched over the stamens. *Capsule* coriaceous; *seeds* flat, margined. ORD. CVIII. IRIDACEAE. *p.* 317.

b. Ovary *superior*.

SCHOLLERA. *Spathe* 1-flowered. *Perianth* corolla-like, with a long slender tube; limb 6-parted. *Capsule* 1-celled. ORD. CXIV. PONTEDERIACEAE. *p.* 333.

HETERANTHERA. *Spathe* inclosing several flowers. *Perianth* corolla-like, tubular; limb 6-parted. *Anthers* of 2 forms. *Capsule* incompletely 3-celled. ORD. CXIV. PONTEDERIACEAE. *p.* 332.

§ 3. FLOWERS GLUMACEOUS: *imbricated in spikelets, or heads.*

☞ The plants of this *Section* belong to ORDER CXVII. CYPERACEAE. *p.* 335.

[Anychia dichotoma. ORD. XVI. CARYOPHYLLACEAE. *p.* 34.]

[Acer dasycarpum. ORD. XXVIII. ACERACEAE. *p.* 46.]

[Galium trifidum. ORD. XLVIII. RUBIACEAE. *p.* 117.]

[Juncus effusus, paradoxus, acuminatus. *and* marginatus. ORD. CXIII. JUNCACEAE. *p.* 330—1.]

Order 2. Digynia.

☞ The *Genera* belonging here. are the TRUE GRASSES.—and will be found in ORDER CXVIII. GRAMINEAE. *p.* 354.

[Anychia dichotoma. ORD. XVI. CARYOPHYLLACEAE. *p.* 34.]

[Podostemum. ORD. LXXXIX. PODOSTEMACEAE. *p.* 258]

Order 3. Trigynia.

MOLLUGO. *Calyx* inferior, deeply 5-parted, colored inside. *Corolla* none. *Capsule* 3-celled, many-seeded. ORD. XVI. CARYOPHYLLACEAE. *p.* 34.

LECHEA. *Sepals* 3, with 2 small *bracts*, persistent. *Petals* 3, inconspicuous. *Stamens* 3 to 12 (some multiple of 3). *Capsule* 3-celled; cells 1-seeded. ORD. XIII. CISTACEAE. *p.* 27.

[Stellaria media. ORD. XVI. CARYOPHYLLACEAE. *p.* 32.]

[Amaranthus albus. ORD. LXXVIII. AMARANTHACEAE. *p.* 245.]

CLASS IV. TETRANDRIA.

Order 1. Monogynia.

A. OVARY INFERIOR. a. Corolla *monopetalous, or none.*

CEPHALANTHUS. *Flowers* in naked globose *heads: Calyx* angular, 4-toothed. *Corolla* tubular, 4-cleft. *Style* much exserted. *Capsule* inversely pyramidal, 2-celled, 2-seeded. *Receptacle* hairy. ORD. XLVIII. RUBIACEAE. *p.* 118.

DIPSACUS. *Flowers* in involucrate ovoid *heads: Florets* involucellate. *Calyx* cup-shaped, entire. *Corolla* tubular, with 4 erect lobes. *Fruit* akene-like, 1-seeded. *Receptacle* chaffy. ORD. L. DIPSACEAE. *p.* 120.

GALIUM. *Calyx*-teeth obsolete. *Corolla* rotate, 4-(rarely 3-) parted. *Styles* short, bifid. *Fruit* didymous, roundish, dry or fleshy, smooth or hispid, 2-seeded. ORD. XLVIII. RUBIACEAE. *p.* 116.

DIODIA. *Calyx* 2- or 4-toothed. *Corolla* funnel-form; limb 4-lobed. *Fruit* quadrangular-obovoid, splitting into 2, dry, 1-seeded carpels. ORD. XLVIII. RUBIACEAE. *p.* 118.

HEDYOTIS. *Calyx* 4-lobed. *Corolla* tubular; limb 4-parted. *Capsule* half superior, 2-celled, many-seeded, opening at apex across the dissepiment. ORD. XLVIII. RUBIACEAE. *p.* 119.

MITCHELLA. *Calyx* 4-toothed. *Corolla* funnel-form; limb 4-parted, villous on the inner side. *Berry* didymous, 4-seeded. ORD. XLVIII. RUBIACEAE. *p.* 119.

SANGUISORBA. *Calyx* corolla-like, 4-lobed, 3-bracted; tube 4-angled. *Corolla* none. *Fruit* an *akene* (rarely 2), included in the winged calyx-tube. ORD. XXXV. ROSACEAE. *p.* 76.

b. Corolla *tetrapetalous, or none.*

CORNUS. *Calyx* minutely 4-toothed. *Petals* oblong, spreading. *Drupes* berry-like, distinct; nut 2 or 3-celled. ORD. XLVI. CORNACEAE. *p.* 110.

LUDWIGIA. *Calyx*-lobes 4, persistent. *Petals* sometimes wanting. *Capsule* quadrangular-obovoid, 4-celled, many-seeded. ORD. XXXVIII. ONAGRACEAE. *p.* 89.

B. OVARY SUPERIOR. a. Flowers *complete.*

PLANTAGO. *Calyx* of 4 persistent sepals, slightly connected at base. *Corolla* tubular, with 4 reflexed lobes, marcescent. *Capsule* ovoid, 2-celled, circumscissed. ORD. LVII. PLANTAGINACEAE. *p.* 176.

BARTONIA. *Calyx* 4-parted. *Corolla* 4-parted. *Stigma* 2-lobed, decurrent on the style. *Capsule* oblong, 1-celled, 2-valved. ORD. LXXI. GENTIANACEAE. *p.* 230.

OBOLARIA. *Calyx* of 2 spatulate leaf-like sepals. *Corolla* tubular, 4-lobed, marcescent. *Stamens* in the clefts of the corolla. *Capsule* ovoid, 1- (or imperfectly 2-) celled, 2-valved. ORD. LXXI. GENTIANACEAE. *p.* 232.

AMMANNIA. *Calyx* 4-angled, 4-lobed, with a tooth at each cleft. *Petals* 4, or wanting. *Capsule* globular, 4- (or finally 1-) celled, many-seeded. ORD. XXXVII. LYTHRACEAE. *p.* 87.

b. Flowers *incomplete.*

SYMPLOCARPUS. *Spathe* conch-shaped, acuminate. *Spadix* roundish-oval, covered with florets. *Calyx* deeply 4-parted, persistent. *Ovary* immersed in the receptacle. *Seed* solitary. ORD. XCIX. ARACEAE. *p.* 298.

PARIETARIA. *Monoicously polygamous: Flowers* in axillary involucrate clusters. *Calyx* 4-parted, persistent. *Stigma* pencil-tufted. *Fruit* a polished *akene*, or *nut*. ORD. XCVII. URTICACEAE. *p.* 289.

[Euonymus atropurpureus. ORD. XXX. CELASTRACEAE. *p.* 48.]

[Orontium aquaticum. ORD. XCIX. ARACEAE. *p.* 299.]

[Smilacina bifolia. ORD. CXI, LILIACEAE. *p.* 323.]

Order 2. Digynia.

HAMAMELIS. *Flowers* clustered in threes, in small scale-like 3-leaved *involucres*. *Calyx* 4-parted, with 2 or 3 *bractlets* at base. *Petals* 4, long and linear. *Capsule* woody, 2-celled, 2-seeded, opening at summit. ORD. XLIII. HAMAMELACEAE. *p.* 98.

[Galium. ORD. XLVIII. RUBIACEAE. *p.* 116.]

[Cuscuta epilinum. ORD. LXIX. CONVOLVULACEAE. *p.* 223.]

[Gentiana crinita. ORD. LXXI. GENTIANACEAE. *p.* 231.]

Order 4. Tetragynia.

ILEX. *Dioicously polygamous: Calyx* 4- or 5-toothed, persistent. *Corolla* subrotate, of 4 or 5 nearly distinct *petals*. *Stamens* alternating with the petals. *Berry* 4- or 5-seeded. ORD. LV. AQUIFOLIACEAE. *p.* 175.

POTAMOGETON. *Flowers* on a spadix-like *spike: Sepals* 4. *Corolla* none. *Ovaries* 4, becoming fleshy, or coriaceous *drupelets*. ORD. CII. NAIADACEAE. *p.* 303.

CLASS V. PENTANDRIA.

Order 1. Monogynia.

A. FLOWERS COMPLETE. § 1. Ovary *superior*.

a. Corolla *monopetalous*. † Nutlets 4, *apparently naked*.

* Nutlets *fixed to the bottom of the calyx*.

MERTENSIA. *Corolla* trumpet-form, much longer than the 5-parted *calyx*. *Nutlets* roundish-ovoid, smooth, rather fleshy. ORD. LXVI. BORAGINACEAE. *p.* 216.

LITHOSPERMUM. *Corolla* funnel-form, or salver-form, with rounded lobes; throat open. *Style* included. *Nutlets* ovoid, rugose or smooth, bony. ORD. LXVI. BORAGINACEAE. *p.* 215.

ONOSMODIUM. *Corolla* tubular-campanulate, with 5 acute, erect lobes; throat open. *Stamens* included. *Style* much exserted. *Nutlets* ovoid, smooth and shining. ORD. LXVI. BORAGINACEAE. *p.* 215.

ECHIUM. *Corolla* irregular, subcampanulate, obliquely 5-lobed; throat open. *Stamens* mostly exserted. *Nutlets* tuberculate or wrinkled. ORD. LXVI. BORAGINACEAE. *p.* 214.

MYOSOTIS. *Corolla* salver-form; throat closed by 5 short arching scales. *Stamens* included. *Nutlets* smooth. ORD. LXVI. BORAGINACEAE. *p.* 216.

SYMPHYTUM. *Corolla* tubular-campanulate; throat ventricose, closed by 5 converging subulate-lanceolate scales. *Nutlets* gibbous, angular, smooth. ORD. LXVI. BORAGINACEAE. *p.* 214.

** Nutlets *fixed to the style, or central column.*

CYNOGLOSSUM. *Corolla* funnel-form; throat closed by 5 obtuse scales. *Nutlets* depressed or convex, covered with rigid, barbed, or hooked bristles. ORD. LXVI. BORAGINACEAE. *p.* 217.

†† Seeds *in an evident Seedvessel.*

‡ Fruit *a Capsule.* * Capsule 1-*celled.*

ANAGALLIS. *Corolla* rotate, deeply 5-parted. *Filaments* hirsute. *Capsule* circumscissed. ORD. LVIII. PRIMULACEAE. *p.* 179.

LYSIMACHIA. *Corolla* subrotate, 5-parted. *Filaments* often united in a ring, at base. *Capsule* 5- to 10-valved, few- or many-seeded. ORD. LVIII. PRIMULACEAE. *p.* 178.

SAMOLUS. *Calyx* half superior, persistent. *Corolla* subcampanulate, 5-cleft, with 5 sterile filaments in the clefts. *Capsule* half inferior, 5-valved at summit, many-seeded. ORD. LVIII. PRIMULACEAE. *p.* 179.

SABBATIA. *Calyx* 5- to 12-parted. *Corolla* subrotate, 5- to 12-parted. *Anthers* finally revolute. *Stigmas* 2, spirally twisted. *Capsule* 2-valved. ORD. LXXI. GENTIANACEAE. *p.* 229.

ERYTHRAEA. *Calyx* appressed, angular. *Corolla* funnel-form; limb 5-lobed, marcescent and twisting. *Anthers*, after flowering, spirally twisted. *Capsule* sublinear, 2-valved. ORD. LXXI. GENTIANACEAE. *p.* 230.

HYDROPHYLLUM. *Corolla* subcampanulate, 5-cleft, with 5 longitudinal grooves on the inside. *Stamens* exserted; *filaments* hairy. *Capsule* 2-valved, 1- to 4-seeded. ORD. LXVII. HYDROPHYLLACEAE. *p.* 218.

** Capsule 2- *to* 5-*celled.*

AZALEA. *Calyx* 5-parted, minute and hairy. *Corolla* funnel-form, irregularly 5-lobed. *Stamens* exserted,—the *filaments* and *style* declined, or curved. *Capsule* oblong, 5-celled, 5-valved. *Seeds* numerous, minute and scale-like. ORD. LIV. ERICACEAE. *p.* 170.

POLEMONIUM. *Calyx* loosely campanulate. *Corolla* campanulate-rotate; tube closed by the dilated valve-like bases of the filaments. *Capsule* 3-celled; cells many-seeded. ORD. LXVIII. POLEMONIACEAE. *p.* 218.

PHLOX. *Calyx* sub-prismatic. *Corolla* salver-form; tube slender, more or less curved. *Stamens* included, unequally inserted in the corolla-tube. *Capsule* 3-celled; cells 1-seeded. ORD. LXVIII. POLEMONIACEAE. *p.* 219.

CONVOLVULUS. *Calyx* naked. *Corolla* sub-campanulate; limb nearly entire. *Stigmas* mostly 2, lobed or capitate. *Capsule* 2- or 3-celled. ORD. LXIX. CONVOLVULACEAE. *p.* 221.

CALYSTEGIA. *Calyx* inclosed in 2 large, opposite, subcordate *bracts*. *Corolla* campanulate-funnel-form. *Stigmas* oblong. *Capsule* 1-celled. ORD. LXIX. CONVOLVULACEAE. *p.* 220.

DATURA. *Calyx* tubular, 5-angled, deciduous. *Corolla* funnel-form. *Capsule* ovoid, mostly muricate, 2- to 4-celled, 4-valved. ORD. LXX. SOLANACEAE. *p.* 225.

NICOTIANA. *Calyx* sub-urceolate, persistent. *Corolla* funnel-form, plicately 5-lobed. *Capsule* ovoid, smooth, bisulcate, 2-celled, many-seeded. *Seeds* minute. ORD. LXX. SOLANACEAE. *p.* 224.

VERBASCUM. *Calyx* 5-parted. *Corolla* rotate; limb unequally 5-lobed. *Stamens* declined; filaments (or some of them) hairy.—*Capsule* subglobose, 2-celled, many-seeded. ORD. LXIII. SCROPHULARIACEAE. *p.* 184.

‡‡ Fruit *a Berry*.

LYCIUM. *Calyx* 2- to 5-cleft. *Corolla* tubular, mostly 5-lobed; throat closed by the beard of the filaments. *Stamens* exserted. *Berry* 2-celled. ORD. LXX. SOLANACEAE. *p.* 224.

SOLANUM. *Calyx* mostly 5-parted, spreading, persistent. *Corolla* rotate, usually 5-lobed. *Anthers* often slightly cohering, opening by pores at apex. *Berry* mostly 2-celled. ORD. LXX. SOLANACEAE. *p.* 227.

LYCOPERSICUM. *Calyx* 5- to 10-parted. *Corolla* rotate, 5- to 10-lobed. *Anthers* cohering by a membrane at summit, opening on the inner side. *Berry* 2- or 3-celled. ORD. LXX. SOLANACEAE. *p.* 227.

NICANDRA. *Calyx* 5-angled, 5-parted,—the segments sagittate, enlarged in fruit. *Corolla* spreading-campanulate. *Berry* 3- to 5-celled, rather dry. ORD. LXX. SOLANACEAE. *p.* 226.

PHYSALIS. *Calyx* 5-cleft, enlarging and finally much inflated, inclosing the fruit. *Corolla* campanulate-rotate, spotted at base.—*Berry* 2-celled, viscid and fleshy. ORD. LXX. SOLANACEAE. *p.* 226.

CAPSICUM. *Calyx* 5- or 6-cleft. *Corolla* sub-rotate, 5- or 6-lobed. *Berry* inflated, subcoriaceous, imperfectly 2- or 3-celled, polymorphous. ORD. LXX. SOLANACEAE. *p.* 226.

b. Corolla *mostly pentapetalous*. † Fruit *a Capsule*.

CLAYTONIA. *Sepals* 2, persistent. *Petals* obovate-oblong, bearing the stamens on their claws. *Capsule* 1-celled, 3-valved, 2- to 5-seeded. ORD. XVII. PORTULACACEAE. *p.* 35.

IMPATIENS. *Sepals* 5 (apparently 4,—2 being united), irregular, deciduous. *Petals* 4,—by union, forming a 2-lobed petal on each side. *Ovary* 5-celled. *Capsule* opening by 5 elastic valves. ORD. XXIII. BALSAMINACEAE. *p.* 41.

VIOLA. *Sepals* produced, or eared, at base. *Petals* rather unequal,—the larger one spurred at base. Two lower *anthers* extended into the spur of the corolla. *Capsule* 1-celled, 3-valved. ORD. XII. VIOLACEAE. *p.* 24.

SOLEA. *Sepals* not eared at base. *Petals* very unequal,—the larger one merely gibbous at base, the others linear-oblong. *Style* hooked at summit. ORD. XII. VIOLACEAE. *p.* 24.

CEANOTHUS. *Calyx* 5-cleft, circumscissed after flowering,—the base turbinate, persistent. *Petals* cucullate, on slender claws. *Style* trifid. *Capsule* obtusely trigonous, or 3-lobed, 3-celled; cells, or carpels, 1-seeded. ORD. XXXI. RHAMNACEAE. *p.* 49.

CELASTRUS. *Dioicously polygamous: Sepals* 5, connected at base. *Petals* small. *Stamens* on the margin of a *disk*. *Capsule* globose, 3-valved. *Seeds* arillate. ORD. XXX. CELASTRACEAE. *p.* 48.

EUONYMUS. *Sepals* 4, or 5, united at base. *Petals* 4, or 5. *Stamens* 4, or 5, inserted on a *disk*, which covers the ovary. *Capsule* 3- to 5-lobed, 3- to 5-valved. *Seeds* arillate. ORD. XXX. CELASTRACEAE. *p.* 48.

†† Fruit *a Berry*.

VITIS. *Dioicously polygamous: Calyx* obsoletely 5-toothed. *Petals* cohering at apex, caducous. ORD. XXXII. VITACEAE. *p.* 49.

AMPELOPSIS. *Calyx* slightly 5-toothed. *Petals* opening at apex, spreading and reflexed. ORD. XXXII. VITACEAE. *p.* 51.

§ 2. Ovary *inferior*. a. Corolla *monopetalous*.

† Fruit *a capsule*.

LOBELIA. *Calyx* 5-cleft; tube short, tumid. *Corolla* tubular, sub-bilabiate, slit on the upper side. *Stamens* more or less united,—the *anthers* coalesced into a tube, and bearded at summit. *Capsule* 2-celled, opening at top. ORD. LII. LOBELIACEAE. *p.* 163.

CAMPANULA. *Calyx* 5-cleft. *Corolla* campanulate, 5-lobed. *Stamens* distinct; *filaments* dilated, connivent and valve-like, at base. *Capsule* 3-celled, opening by 3 lateral valves. ORD. LIII. CAMPANULACEAE. *p.* 164.

SPECULARIA. *Calyx* mostly 5-lobed. *Corolla* sub-rotate. *Filaments* dilated and connivent at base, hairy, shorter than the anthers.—*Capsule* prismatic, 3-celled, opening by lateral valves. ORD. LIII. CAMPANULACEAE. *p.* 165.

DIERVILLA. *Calyx* bibracteate at base, tubular, oblong, tapering above; segments subulate. *Corolla* funnel-form, 5-lobed. *Capsule* ovoid-oblong, pointed, 2-celled, 2-valved. ORD. XLVII. CAPRIFOLIACEAE. *p.* 113.

†† Fruit *a Berry*.

LONICERA. *Calyx*-teeth very short. *Corolla* tubular, often gibbous at base, irregularly 5-lobed, or sub-bilabiate. *Berry* 3-celled, cells few-seeded. ORD. XLVII. CAPRIFOLIACEAE. *p.* 112.

TRIOSTEUM. *Calyx*-tube ovoid; segments lance-linear. *Corolla* tubular, gibbous at base, sub-equally 5-lobed. *Berry* rather dry, 3-celled, containing 3 bony nutlets. ORD. XLVII. CAPRIFOLIACEAE. *p.* 113.

b. Corolla *pentapetalous*: fruit *a Berry*.

RIBES. *Calyx* tubular, or campanulate, 5-lobed. *Petals* small, inserted alternately with the stamens, on the calyx. *Berry* crowned with the shrivelled calyx. ORD. XXXIX. GROSSULACEAE. *p.* 91.

B. Flowers incomplete. a. Ovary *superior*.

Anychia. *Sepals* 5, connivent, subcucullate and callous at apex. *Corolla* none. *Utricle* minutely verrucose. Ord. XVI. Caryophyllaceae. *p.* 34.

b. Ovary *inferior*.

Comandra. *Calyx* campanulate, 5-cleft, lined with a 5-lobed *disk*. *Stamens* inserted between the lobes of the disk; *anthers* connected with the calyx-segments by a tuft of threads! *Fruit* dry and nut-like, 1-seeded. Ord. LXXXIII. Santalaceae. *p.* 253.

Nyssa. *Dioicously polygamous:* Stam. Fl. *Calyx* 5-parted.—*Stamens* 5, to 10, or 12, inserted round a peltate *disk*. Pistil. Fl. *Calyx* 5-cleft. *Stamens* 5, or wanting. *Style* mostly revolute. *Drupe* oblong-oval. Ord. LXXXII. Nyssaceae. *p.* 253.

[Acer rubrum, and dasycarpum. Negundo. Ord. XXVIII. Aceraceae. *p.* 46.]

[Cassia nictitans. Ord. XXXIV. Leguminosae. *p.* 69.]

[Prinos verticillatus. Ord. LV. Aquifoliaceae. *p.* 175.]

Order 2. Digynia.

A. Ovary superior. ‡1. Flowers *complete*.

a. Corolla *monopetalous*. †Fruit *a Capsule*.

Gentiana. *Calyx* 4- or 5-cleft. *Corolla* 4- or 5-lobed, usually with intermediate plaited folds which bear appendages at the sinuses. *Capsule* oblong, 1-celled, 2-valved, many-seeded. Ord. LXXI. Gentianaceae. *p.* 230.

Cuscuta. *Calyx* 4- or 5-cleft. *Corolla* globose-urceolate. *Stamens* with a scale-like, often fringed, appendage at their base. *Capsule* globular, circumscissed or indehiscent, 2-celled, 4-seeded. Ord. LXIX. Convolvulaceae. *p.* 223.

†† Fruit *a Follicle: Often in pairs.*

Apocynum. *Calyx* 5-parted. *Corolla* campanulate, 5-lobed, with 5 triangular appendages in the throat, opposite the lobes. *Anthers* slightly adherent to the stigmas. *Follicles* in pairs, rigid and slender. *Seeds* imbricated, comose. Ord. LXXII. Apocynaceae. *p.* 232.

Asclepias. *Calyx* deeply 5-parted. *Corolla* 5-parted, reflexed. *Crown* of 5 hooded lobes, each containing a horn-like incurved process. *Anthers* adherent to the angular *stigma*,—the *cells* opening perpendicularly, with rigid wing-like margins; each cell containing a flattened pearshaped waxy *pollen-mass*—the two contiguous pollen-masses of adjacent anthers forming pairs, which hang by their slender summits from 5 small cloven *tubercles*, or glands, at the angles of the stigma. *Ovaries* in pairs, one of them usually abortive. *Follicle* somewhat ventricose, acuminate, soft. *Seeds* imbricated, comose. Ord. LXXIII. Asclepiadaceae. *p.* 233.

Acerates. Characters nearly those of *Asclepias*, but the *pollen-masses* more slender, and the hooded lobes of the *crown* destitute of the *horn-like process*. Ord. LXXIII. Asclepiadaceae. *p.* 236.

GONOLOBUS. *Calyx* 5-parted. *Corolla* rotate, deeply 5-parted. *Crown* a small wavy-lobed ring in the throat of the corolla. *Anthers* partly hidden under the flattened stigma, opening transversely. *Pollen-masses* 5 pairs, horizontal. *Follicle* turgid, somewhat ribbed, and softly muricate. *Seeds* comose. ORD. LXXIII. ASCLEPIADACEAE. *p.* 237.

b. Corolla *pentapetalous.*

HEUCHERA. *Calyx* 5-cleft, persistent. *Petals* small, inserted at the clefts of the calyx. *Capsule* 2-beaked, opening between the beaks, 1-celled. ORD. XLII. SAXIFRAGACEAE. *p.* 96.

§ 2. Flowers *incomplete.*

CHENOPODIUM. *Calyx* 5-parted, the *segments* often *keeled,*—embracing the fruit, but not adhering to it. *Utricle* thin, membranaceous. *Seed* 1, horizontal, lenticular, *embryo* forming *a ring* round the albumen. ORD. LXXVII. CHENOPODIACEAE. *p.* 242.

AMBRINA. Characters nearly as in *Chenopodium,*—but the *calyx-segments* usually *not keeled. Seed* sometimes vertical; *embryo* not forming a complete ring. ORD. LXXVII. CHENOPODIACEAE. *p.* 242.

BETA. *Calyx* urceolate, 5-cleft,—the *base* slightly adherent to the fruit, finally indurated. *Ovary* depressed. *Utricle* immersed in the base of the calyx, and covered by the segments. ORD. LXXVII. CHENOPODIACEAE. *p.* 243.

ULMUS. *Calyx* 5- to 8-cleft. *Ovary* compressed, ovate, 2-celled. *Samara* 1-celled, 1-seeded; *margin* broad. ORD. LXXXV. ULMACEAE. *p.* 255.

CELTIS. *Monoicously polygamous: Calyx* deeply 5- or 6-parted. *Ovary* ovoid, 1-celled. *Drupe* globular. ORD. LXXXV. ULMACEAE. *p.* 256.

B. OVARY INFERIOR: Corolla *pentapetalous.* FLOWERS IN UMBELS.

a. Umbels *simple.* † Fruit *more or less baccate.*

PANAX. *Dioicously polygamous: Calyx*-teeth obsolete. *Fruit* drupe-like, or subcoriaceous, 2- or 3-lobed, 2- or 3-celled. ORD. XLV. ARALIACEAE. *p.* 109.

†† Fruit *dry—twin carpels.* TRUE UMBELLIFERAE.

HYDROCOTYLE. *Fruit* laterally compressed, orbicular; *carpels* 5-ribbed, the lateral ones enlarged; *vittae* none. ORD. XLIV. UMBELLIFERAE. *p.* 99.

b. Flowers *in compound Umbels.*

☞ The *Genera* of this division all belong to ORD. XLIV. UMBELLIFERAE. *p.* 98.

[Anychia dichotoma. ORD. XVI. CARYOPHYLLACEAE. *p.* 34.]

[Polygonum amphibium, & Virginianum. ORD. LXXIX. POLYGONACEAE. *p.* 246—7.]

Order 3. Trigynia.

a. Ovary *inferior:* Corolla *monopetalous.*

VIBURNUM. *Calyx* 5-toothed. *Corolla* subcampanulate, 5-lobed. *Fruit* a *drupe,* with scanty pulp, and a crustaceous flattened *nut.* ORD. XLVII. CAPRIFOLIACEAE. *p.* 115.

SAMBUCUS. *Calyx*-segments 5, minute. *Corolla* subrotate, 5-lobed. *Fruit* a globular juicy *drupe*, containing 3 to 5 seed-like *nutlets*. ORD. XLVII. CAPRIFOLIACEAE. *p.* 114.

b. Ovary *superior:* Corolla *pentapetalous.*

RHUS. *Polygamo-dioicous: Sepals* 5, connected at base. *Petals* lance-ovate, spreading. *Stamens* inserted in or under the edge of a flatted *disk*. *Fruit* small, indehiscent, a sort of dry *drupe*. ORD. XXVII. ANACARDIACEAE. *p.* 43.

STAPHYLEA. *Sepals* 5, connected at base. *Petals* spatulate-obovate. *Ovary* 2- or 3-lobed, enlarging into a membranaceous, inflated, 2- or 3-lobed *capsule*. *Seeds* obovoid, bony, smooth, 1 to 3 in each cell. ORD. XXX. CELASTRACEAE. *p.* 48.

[Hypericum Sarothra. ORD. XV. HYPERICACEAE. *p.* 29.]

[Stellaria media. ORD. XVI. CARYOPHYLLACEAE. *p.* 32.]

[Ceanothus Americanus. ORD. XXXI. RHAMNACEAE. *p.* 49.]

[Panax trifolium. ORD. XLV. ARALIACEAE. *p.* 110.]

[Polygonum aviculare. ORD. LXXIX. POLYGONACEAE. *p.* 248.]

Order 5. Pentagynia.

ARALIA. *Calyx* mostly 5-toothed. *Petals* 5. *Ovary* inferior.—*Berry* 5-celled, 5-seeded, often torulose. ORD. XLV. ARALIACEAE. *p.* 108.

LINUM. *Sepals* 5, connected at base. *Petals* 5, unguiculate. *Ovary* superior. *Capsule* globose, imperfectly 10-seeded. ORD. XX. LINACEAE. *p.* 38.

DROSERA. *Calyx* 5-parted. *Petals* 5, marcescent. *Ovary* superior. *Capsule* oblong, 1- to 3-celled. ORD. XIV. DROSERACEAE. *p.* 27.

[Cerastium viscosum. ORD. XVI. CARYOPHYLLACEAE. *p.* 33.]

[Ilex opaca. ORD. LV. AQUIFOLIACEAE. *p.* 175.]

CLASS VI. HEXANDRIA.

Order 1. Monogynia.

A. FLOWERS COMPLETE.

FLOERKEA. *Calyx* 3-parted. *Petals* 3, shorter than the calyx.—*Ovary* 2- or 3-lobed. *Fruit* consisting of 2 or 3 connate, fleshy, utricular *akenes*. ORD. XXV. LIMNANTHACEAE. *p.* 42.

TRADESCANTIA. *Sepals* 3. *Petals* 3, larger than the sepals. *Filaments* bearded with moniliform hairs. *Capsule* 2- or 3-celled; cells 1- or 2-seeded. ORD. CXV. COMMELYNACEAE. *p.* 334.

CAULOPHYLLUM. *Sepals* 6, with caducous *bractlets* at base. *Petals* 6, subreniform and gland-like, inserted on the base of the sepals. *Pistil* gibbous; *ovary* bursting early, and disappearing,—the naked globular *seeds* resembling drupes, elevated on the thick erect seed-stalks. ORD. V. BERBERIDACEAE. *p.* 10.

PRINOS. *Dioicously polygamous: Calyx* mostly 6-cleft. *Corolla* monopetalous, subrotate, mostly 6-parted. *Berry* drupe-like, with 6 smooth *nutlets*. ORD. LV. AQUIFOLIACEAE. *p.* 175.

B. FLOWERS INCOMPLETE.

a. Perianth *Corolla-like.* † Flowers *with a Spathe.*

PONTEDERIA. *Perianth* tubular, recurved, bilabiate,—under side of the *tube* with 3 slits; the persistent *base* inclosing the fruit.—*Utricle* 1-seeded. ORD. CXIV. PONTEDERIACEAE. *p.* 332.

ALLIUM. *Perianth* of 6 sepals, distinct or slightly connected at base, becoming dry. *Filaments* subulate,—the inner ones often toothed on each side. *Capsule* 3-lobed, 3-celled, few-seeded. ORD. CXI. LILIACEAE. *p.* 324.

†† Flowers *without a Spathe.*

* Ovary *superior.* + Fruit *a Berry.*

POLYGONATUM. *Perianth* tubular, cylindric, 6-cleft. *Stamens* inserted above the middle of the tube, included. *Berry* 3-celled; cells 1- or 2-seeded. ORD. CXI. LILIACEAE. *p.* 321.

SMILACINA. *Perianth* 6- or 4-parted, spreading. *Stamens* as many as the perianth- segments, attached to their base. *Berry* 2- or 3-celled. ORD. CXI. LILIACEAE. *p.* 322.

ASPARAGUS. *Perianth* 6-parted; segments linear-oblong, rather erect. *Anthers* peltate. *Berry* 3-celled. ORD. CXI. LILIACEAE. *p.* 321.

+ + Fruit *a Capsule.*

ORNITHOGALUM. *Perianth* of 6 partly colored sepals, slightly connected at base. *Filaments* dilated below. *Capsule* roundish-angular, 3-celled. ORD. CXI. LILIACEAE. *p.* 323.

HEMEROCALLIS. *Perianth* funnel-form,—the short cylindric *tube* inclosing the ovary; the *limb* 6-parted, spreading and lily-like, marcescent. *Capsule* rather fleshy. *Seeds* globular. ORD. CXI. LILIACEAE. *p.* 323.

LILIUM. *Perianth* mostly campanulate,—the 6 slightly connected *sepals* sessile or clawed, often recurved or revolute, with a central *groove* above the base, deciduous. *Capsule* oblong, 3-valved,—the valves connected by latticed hairs. *Seeds* flat, densely packed in double rows. ORD. CXI. LILIACEAE. *p.* 326.

ERYTHRONIUM. *Perianth* of 6 slightly connected lanceolate spreading *sepals,*—the 3 inner ones usually with a callous *tooth* on each side, near the base, and a *groove* in the middle. *Capsule* trigonous-obovoid, 3-celled. *Seeds* ovoid, acuminate. ORD. CXI. LILIACEAE. *p.* 327.

UVULARIA. *Perianth* of 6 slightly connected spatulate-lanceolate *sepals.* *Anthers* long, linear, adnate; *filaments* short. *Capsule* 3-valved from the top, loculicidal. *Seeds* obovoid, with a fungous *raphe.* ORD. CXII. MELANTHACEAE. *p.* 327.

ALETRIS. *Perianth* tubular, ovoid-oblong, rugose-scurfy, adhering to the base of the ovary; limb 6-cleft. *Style* subulate, finally 3-parted. *Capsule* 3-celled, inclosed in the roughened perianth.—ORD. CVII. HAEMODORACEAE. *p.* 317.

** Ovary *inferior*.

HYPOXIS. *Perianth* 6-parted, persistent,—the 3 outer segments green externally. *Capsule* oblong, 3-celled, not opening by valves. *Seeds* globular, crustaceous. ORD. CVI. AMARYLLIDACEAE. *p.* 316.

b. Perianth *Calyx-like*. † Flowers *on a Spadix*.

ORONTIUM. *Spadix* terminal on a terete clavate scape. *Perianth* of 4 or 6 truncate concave sepals. *Stamens* as many as the sepals, and opposite them; *anthers* 2-celled. *Fruit* a green globose *utricle*.—ORD. XCIX. ARACEAE. *p.* 299.

ACORUS. *Spadix* lateral, sessile, emerging from the edge of a flat scape, which resembles the leaves. *Sepals* 6, concave. *Anthers* reniform, 1-celled. *Capsule* somewhat baccate, indehiscent, few-seeded. ORD. XCIX. ARACEAE. *p.* 299.

†† Flowers *more or less panicled*.

JUNCUS. *Perianth* of 6 dry glumaceous persistent *sepals*, slightly connected at base. *Stamens* often 3. *Capsule* 3-celled, loculicidal. *Seeds* numerous. ORD. CXIII. JUNCACEAE. *p.* 330.

LUZULA. *Perianth* as in *Juncus*, but *bibracteate* at base. *Capsule* 1-celled. *Seeds* 3. ORD. CXIII. JUNCACEAE. *p.* 330.

[Acer dasycarpum. ORD. XXVIII. ACERACEAE. *p.* 46.]

[Sabbatia angularis. ORD. LXXI. GENTIANACEAE. *p.* 229.]

[Sassafras officinale. ORD. LXXX. LAURACEAE. *p.* 251.]

[Commelyna. ORD. CXVI. COMMELYNACEAE. *p.* 333.]

Order 2. Digynia.

[Polygonum Pennsylvanicum, Persicaria, and arifolium. ORD. LXXIX. POLYGONACEAE. *p.* 246—8.]

[Celtis. ORD. LXXXV. ULMACEAE. *p.* 256.]

[Zizania. ORD. CXVIII. GRAMINEAE. *p.* 356.]

Order 3. Trigynia.

☞ Floral envelope *a* 6-*parted Perianth*. † Fruit *Capsular*.

MELANTHIUM. *Monoicously polygamous: Perianth* corolla-like, rotate,—the *segments* roundish, clawed, finally ovate-oblong and subhastate, with 2 *glands* at base. *Capsule* formed of 3 separable carpels. *Seeds* flat. ORD. CXII. MELANTHACEAE. *p.* 328.

VERATRUM. *Monoicously polygamous: Perianth* calyx-like, spreading,—the *segments* lance-oblong, sessile, without *glands* at base.—*Capsule* and *Seeds* nearly as in *Melanthium*. ORD. CXII. MELANTHACEAE. *p.* 328.

CHAMAELIRIUM. *Polygamo-dioicous: Perianth* corolla-like,—segments spreading, spatulate-linear. *Anthers* yellow. *Styles* clavate. *Capsule* obovoid-oblong, loculicidal, 3-valved from the apex. *Seeds* linear-oblong, winged at each end. ORD. CXII. MELANTHACEAE. *p.* 329.

AMIANTHIUM. *Perianth* corolla-like,—segments oblong, obtuse.—*Anthers* white. *Styles* filiform. *Capsule* of 3 connate carpels. *Seeds* ovoid-oblong, not winged. ORD. CXII. MELANTHACEAE. *p.* 329.

†† Fruit *a Berry.*

MEDEOLA. *Perianth* corolla-like,—segments lance-oblong, revolute, deciduous. *Anthers* incumbent. *Styles* long, recurved. *Berry* globose, 3-celled, few-seeded. ORD. CX. SMILACEAE. *p.* 320.

TRILLIUM. *Perianth* with the 3 outer segments calyx-like, the 3 inner ones corolla-like. *Anthers* adnate. *Styles* subulate, recurved. *Berry* fleshy, trigonous-ovoid, 3-celled. *Seeds* numerous, horizontal, obovoid. ORD. CX. SMILACEAE. *p.* 320.

††† Fruit *an Akene.*

RUMEX. Sometimes *dioicous: Perianth* calyx-like,—the 3 inner segments larger, valvately connivent, often with a grain-like tubercle on the back. *Stigmas* pencil-tufted. *Akene* triquetrous. ORD. LXXIX. POLYGONACEAE. *p.* 250.

[Lechea. ORD. XIII. CISTACEAE. *p.* 27.]

[Sambucus Canadensis. ORD. XLVII. CAPRIFOLIACEAE. *p.* 114.]

[Aletris farinosa. ORD. CVII. HAEMODORACEAE. *p.* 317.]

Order 4. Tetragynia.

SAURURUS. *Flowers* naked, pedicellate, in the axils of colored *bracts,* crowded in a slender subterminal raceme. *Ovaries* connate; *styles* recurved. *Fruit* follicular,—the carpels somewhat fleshy, united at base. *Seeds* usually solitary. ORD. LXXXVI. SAURURACEAE. *p.* 256.

Order 5. Polygynia.

ALISMA. *Perianth* deeply 6-parted,—the outer segments calyx-like, the inner ones petal-like, deciduous. *Ovaries* numerous, verticillate on a flatted receptacle; in *fruit* forming angular coriaceous *akenes.* ORD. CIII. ALISMACEAE. *p.* 304.

CLASS VII. HEPTANDRIA.

Order 1. Monogynia.

AESCULUS. *Calyx* tubular, somewhat ventricose, 5-lobed. *Petals* 4 or 5, unequal. *Capsule* mostly 1-seeded, by abortion. *Seed* large. ORD. XXIX. SAPINDACEAE. *p.* 47.

TRIENTALIS. *Calyx* mostly 7-parted. *Corolla* mostly 7-parted.—*Filaments* united in a ring, at base; *anthers* revolute after flowering. *Capsule* few-seeded. ORD. LVIII. PRIMULACEAE. *p.* 178.

[Prinos verticillatus. ORD. LV. AQUIFOLIACEAE. *p.* 175.]

Order 2. Digynia.

[Polygonum orientale, and Hydropiper. ORD. LXXIX. POLYGONACEAE. *p.* 246—7.]

[Ulmus fulva. ORD. LXXXV. ULMACEAE. *p.* 255.]

Order 3. Tetragynia.

[SAURURUS. ORD. LXXXVI. SAURURACEAE. *p.* 256.]

CLASS VIII. OCTANDRIA.

Order 1. Monogynia.

a. Ovary *inferior.*

EPILOBIUM. *Calyx*-tube not longer than the ovary; *limb* 4-parted, caducous. *Anthers* sub-ovate, erect; *pollen* not viscid. *Capsule* long, linear, 4-sided. *Seeds* comose. ORD. XXXVIII. ONAGRACEAE. *p.* 87.

OENOTHERA. *Calyx*-tube longer than the ovary; *limb* reflexed,—the segments partially cohering. *Anthers* linear, incumbent; *pollen* viscid. *Capsule* oblong, or clavate. *Seeds* not comose. ORD. XXXVIII. ONAGRACEAE. *p.* 88.

GAURA. *Calyx*-tube much longer than the ovary. *Petals* somewhat on one side, clawed. *Capsule* ovoid, ribbed, bony or nut-like, indehiscent, 1- or few-seeded. ORD. XXXVIII. ONAGRACEAE. *p.* 89.

[Vaccinium macrocarpon. ORD. LIV. ERICACEAE. *p.* 167.]

b. Ovary *superior*. †Flowers *perfect*.

RHEXIA. *Calyx*-tube urceolate; *limb* 4-cleft. *Petals* 4. *Anthers* long, curved, declinate. *Capsule* 4-celled. *Seeds* numerous, cochleate. ORD. XXXVI. MELASTOMACEAE. *p.* 86.

TROPAEOLUM. *Calyx* colored, 5-parted; the upper segment spurred at base. *Petals* 5, unequal,—the upper 2 sessile, the others clawed. *Fruit* 3 connate carpels, fleshy, or finally subcoriaceous, each 1-seeded. ORD. XXIV. TROPAEOLACEAE. *p.* 41.

DIRCA. *Calyx* colored, tubular, truncate,—the *limb* obscurely toothed. *Corolla* none. *Fruit* a drupe-like *Berry*, 1-seeded. ORD. LXXXI. THYMELEACEAE. *p.* 252.

†† Flowers *mostly polygamous*.

DIOSPYROS. *Dioicously polygamous: Calyx* mostly 4-parted.—*Corolla* urceolate, usually 4-lobed. *Stamens* (in the sterile flowers) 16. *Berry* globular, large, subtended by the persistent calyx, 4- to 8-seeded. ORD. LVI. EBENACEAE. *p.* 176.

ACER. *Monoicously*, or *dioicously polygamous: Calyx* 5-parted.—*Petals* 5, or none. *Stamens* 5, to 8 or 9. *Samaras* in pairs, diverging and separable, each 1-seeded. ORD. XXVIII. ACERACEAE. *p.* 44.

NEGUNDO. *Dioicous: Calyx* 5-cleft. *Petals* none. *Stamens* mostly 5. *Fruit* as in *Acer*. ORD. XXVIII. ACERACEAE. *p.* 46.

[Polanisia. ORD. XI. CAPPARIDACEAE. *p.* 24.]

[Hypopitys lanuginosa. Ord. LIV. ERICACEAE. *p.* 174.]

[Trientalis Americana. ORD. LVIII. PRIMULACEAE. *p.* 178.]

Order 2. Digynia.

[Chrysosplenium, *and* Hydrangea. ORD. XLII. SAXIFRAGACEAE. *p.* 97.]

[Ulmus Americana. ORD. LXXXV. ULMACEAE. *p.* 255.]

Order 3. Trigynia.

POLYGONUM. *Calyx* mostly 5-parted, often colored, persistent, embracing the fruit. *Corolla* none. *Akene* lenticular, or triquetrous, according as the *styles* are 2, or 3. ORD. LXXIX. POLYGONACEAE. *p.* 245.

FAGOPYRUM. *Calyx* equally 5-parted, colored, marcescent. *Stamens* alternating with hypogynous glands. *Stigmas* capitate. *Akene* triquetrous. ORD. LXXIX. POLYGONACEAE. *p.* 249.

CLASS IX. ENNEANDRIA.

Order 1. Monogynia.

SASSAFRAS. *Dioicous: Calyx* 6-parted, colored. *Corolla* none. STAM. FL. *Stamens* in 3 series,—the innermost each with a pair of stipitate glands at base; *anthers* 4-celled. PISTILL. FL. with 6 rudiments of stamens. *Drupe* ovoid, on a clavate fleshy *peduncle*. ORD. LXXX. LAURACEAE. *p.* 251.

BENZOIN. *Polygamo-dioicous: Calyx* 6-parted, colored. *Corolla* none. STAM. FL. *Stamens* in 3 series,—the innermost lobed at summit, and gland-bearing at base; *anthers* 2-celled. PISTILL. FL. with 15 to 18 alternating filiform and spatulate rudiments of stamens. *Drupe* oval. *Peduncle* not clavate. ORD. LXXX. LAURACEAE. *p.* 252.

Order 2. Trigynia.

RHEUM. *Calyx* 6-parted, colored, persistent. *Stamens* in pairs opposite the outer calyx-segments, single opposite the inner ones. *Stigmas* multifid. *Akene* triquetrous, winged at the angles. ORD. LXXIX. POLYGONACEAE. *p.* 251.

[Elodea Virginica. ORD. XV. HYPERICACEAE. *p.* 129.]

CLASS X. DECANDRIA.

Order 1. Monogynia.

A. OVARY INFERIOR: Corolla *monopetalous.*

GAYLUSSACIA. *Calyx* 5-toothed. *Corolla* ovoid or campanulate, 5-cleft. *Anthers* awnless, opening by a pore or chink at summit. *Fruit* a drupaceous *Berry*, containing 10 seed-like *nutlets*. ORD. LIV. ERICACEAE. *p.* 165.

VACCINIUM. *Calyx* 4- or 5-toothed. *Corolla* campanulate, or ovoid-oblong, 4- or 5-cleft,—the lobes spreading or revolute. *Stamens* twice as many as the lobes; *anthers* sometimes 2-awned on the back. *Berry* 4- or 5-celled; cells several-seeded. ORD. LIV. ERICACEAE. *p.* 166.

B. OVARY SUPERIOR: † Corolla *monopetalous.*

GAULTHERIA. *Calyx* 5-cleft, bibracteolate at base. *Corolla* ovoid-oblong, 5-toothed. *Anther*-cells each 2-awned at summit, opening by a terminal pore. *Capsule* depressed-globose, 5-celled, many-seeded, inclosed in the red, *berry-like calyx*. ORD. LIV. ERICACEAE. *p.* 168.

EPIGAEA. *Calyx* deeply 5-parted, tribracteolate at base. *Corolla* salver-form. *Anthers* awnless, opening lengthwise. *Capsule* depressed-globose, 5-angled, 5-celled, many-seeded. ORD. LIV. ERICACEAE. *p.* 168.

ANDROMEDA. *Calyx* 5-parted, sometimes bracteolate at base.—*Corolla* ovoid, or subcylindric, mostly 5-toothed. *Anthers* awnless, or awned, opening by terminal pores, or slits. *Capsule* 5-celled, many-seeded. ORD. LIV. ERICACEAE. *p.* 169.

KALMIA. *Calyx* 5-parted. *Corolla* between rotate and campanulate, 5-lobed, with 10 *depressions*, in which the 10 *anthers* are at first held. *Capsule* depressed-globose. ORD. LIV. ERICACEAE. *p.* 172.

RHODODENDRON. *Calyx* deeply 5-parted. *Corolla* subcampanulate, somewhat irregularly 5-lobed. *Stamens* declinate; *anthers* opening by terminal pores. *Capsule* ovoid-oblong. ORD. LIV. ERICACEAE. *p.* 171.

†† Corolla *polypetalous.*

CLETHRA. *Calyx* 5-parted. *Petals* 5, obovate-oblong. *Anthers* inversely sagittate, reflexed in the bud, opening by terminal pores or chinks. *Capsule* 3-celled, 3-valved. ORD. LIV. ERICACEAE. *p.* 170.

PYROLA. *Calyx* 5-parted. *Petals* 5, concave, more or less converging. *Anthers* partly 4-celled, scarcely horned at apex. *Style* long, mostly declinate; *stigma* 5-lobed, with a ring beneath.—*Capsule* depressed-globose, 5-valved from the base upward. ORD. LIV. ERICACEAE. *p.* 172.

CHIMAPHILA. *Calyx* 5-cleft. *Petals* 5, concave, spreading. *Anthers* 2-celled, somewhat 2-horned at apex. *Style* very short; *stigma* broad, orbicular, the margin 5-lobed. *Capsule* depressed, orbicular, 5-valved from the apex downward. ORD. LIV. ERICACEAE. *p.* 173.

MONOTROPA. *Calyx* none, or 2 to 4 scale-like *bracts*, below the corolla. *Petals* 5, fleshy, erect, narrowed below, with a *pit* at base. *Anthers* opening by transverse chinks. *Stigma* orbicular, the margin not bearded. *Capsule* ovoid, 5-celled. ORD. LIV. ERICACEAE. *p.* 174.

HYPOPITYS. *Calyx* of 4 or 5 bract-like sepals. *Petals* 4 or 5, fleshy, erect, with a *pit* at base. *Stamens* sometimes 8; *anthers* reniform, becoming 1-celled, opening by 2 very unequal valves. *Stigma* disk-like, with a bearded margin. *Capsule* roundish-ovoid, 4- or 5-celled. ORD. LIV. ERICACEAE. *p.* 174.

[Portulaca oleracea. ORD. XVII. PORTULACACEAE. *p.* 35.]

[Baptisia. Cercis. Cassia. ORD. XXXIV. LEGUMINOSAE. *p.* 67—8.]

Order 2. Digynia.

a. Ovary *entirely or partly inferior, or adnate to the calyx.*

HYDRANGEA. *Calyx*-tube hemispherical, 8- to 10-ribbed, entirely adherent to the ovary; limb 4- or 5-toothed. *Petals* 4 or 5, valvate in the bud. *Capsule* 2-celled, 2-beaked, opening between the beaks. ORD. XLII. SAXIFRAGACEAE. *p.* 97.

SAXIFRAGA. *Calyx* 5-parted, free, or sometimes adherent to the ovary. *Petals* 5, entire, with short claws, imbricated in the bud. *Capsule* 2-celled,—or rather 2 connate follicles. ORD. XLII. SAXIFRAGACEAE. *p.* 96.

CHRYSOSPLENIUM. *Calyx*-tube adherent to the ovary; limb 4- or 5-cleft, segments obtuse. *Petals* none. *Stamens* often 8, inserted on a fleshy disk. *Capsule* 1-celled, 2-lobed, 2-valved at apex. ORD. XLII. SAXIFRAGACEAE. *p.* 97.

MITELLA. *Calyx* campanulate, 5-cleft, partly adherent to the ovary. *Petals* 5, pinnatifid. *Capsule* 1-celled, 2-valved at apex. *Seeds* erect. ORD. XLII. SAXIFRAGACEAE. *p.* 96.

b. Ovary *superior.*

SAPONARIA. *Calyx* tubular, cylindric, 5-toothed, naked at base. *Petals* 5, clawed, sometimes crowned at throat with a petal-like appendage. *Capsule* partly 2-celled, opening with 4 teeth at apex. ORD. XVI. CARYOPHYLLACEAE. *p.* 30.

Order 3. Trigynia.

SILENE. *Calyx* tubular—inflated or cylindric—5-toothed, naked at base. *Petals* 5, clawed, mostly crowned at throat. *Capsule* partly 3-celled, opening with 6 teeth. ORD. XVI. CARYOPHYLLACEAE. *p.* 30.

STELLARIA. *Sepals* 5, slightly connected at base. *Petals* 5, deeply 2-cleft. *Stamens* varying from 3 to 8. *Styles* 3 or 4. *Capsule* 1-celled, 3- 6- or 8-valved. ORD. XVI. CARYOPHYLLACEAE. *p.* 32.

ARENARIA. *Sepals* 5. *Petals* 5, entire. *Capsule* 1-celled, 3- or 6-valved at apex. ORD. XVI. CARYOPHYLLACEAE. *p.* 31.

Order 4. Pentagynia.

CERASTIUM. *Sepals* 5. *Petals* 5, bifid or emarginate. *Capsule* elongated, mostly cylindrical, 1-celled, opening with 10 teeth, at apex. ORD. XVI. CARYOPHYLLACEAE. *p.* 32.

LYCHNIS. *Calyx* tubular, 5-cleft, naked at base. *Petals* 5, with slender claws, often crowned at throat. *Capsule* half- 5-celled, opening with 5- or 10-teeth, at apex. ORD. XVI. CARYOPHYLLACEAE. *p.* 31.

PENTHORUM. *Sepals* 5, slightly connected at base. *Petals* 5, or often wanting. *Carpels* 5, connate at base, forming a 5-beaked, 5-celled *capsule;* cells opening transversely, on the inner side. ORD. XLI. CRASSULACEAE. *p.* 95.

SEDUM. *Sepals* mostly 5, often fleshy and leaf-like. *Petals* mostly 5. *Carpels* 5, distinct, each with a little *scale* at base. ORD. XLI. CRASSULACEAE. *p.* 95.

[Geranium. ORD. XXI. GERANIACEAE. *p.* 39.]

[Oxalis. ORD. XXII. OXALIDACEAE. *p.* 40.]

Order 5. Decagynia.

PHYTOLACCA. *Sepals* 5, slightly connected at base, roundish-ovate, colored, persistent. *Petals* none. *Ovary* depressed, orbicular.—*Berry* 10-celled, 10-seeded. ORD. LXXVI. PHYTOLACCACEAE. *p.* 241.

CLASS XI. ICOSANDRIA.

☞ For the *Genera* properly of this Class. See ORD. XXXV. ROSACEAE. *p.* 70.

[Cuphea viscosissima. ORD. XXXVII. LYTHRACEAE. *p.* 87.]

CLASS XII. POLYANDRIA.

Order 1. Monogynia.

TILIA. *Sepals* 5, connected at base. *Petals* 5, spatulate-oblong. *Filaments* cohering in 5 parcels,—sometimes a *petal-like scale* within and opposite the real petals. *Fruit* a woody, or coriaceous, globose *nut*, 1-celled, 1-or 2-seeded. ORD. XIX. TILIACEAE. *p.* 38.

HELIANTHEMUM. *Sepals* 3, with 2 smaller bract-like ones below. *Petals* 5 (sometimes wanting), crumpled in the bud, caducous. *Capsule* trigonous, 3-valved. ORD. XIII. CISTACEAE. *p.* 26.

PORTULACA. *Sepals* 2, united below, and adhering to the base of the ovary. *Petals* mostly 5. *Capsule* 1-celled, circumscissed, many-seeded. ORD. XVII. PORTULACACEAE. *p.* 34.

TALINUM. *Sepals* 2, free and deciduous. *Petals* 5. *Capsule* 3-valved, many-seeded. ORD. XIII. PORTULACACEAE. *p.* 35.

POLANISIA. *Sepals* 4, unequal. *Petals* 4, unequal, clawed. *Capsule* elongated, subcompressed, siliquose, 1-celled, 2-valved. ORD. XI. CAPPARIDACEAE. *p.* 24.

CHELIDONIUM. *Sepals* 2. *Petals* 4. *Stigma* 2-lobed. *Capsule* elongated, subterete, smooth, resembling a *silique;* valves 2, opening from the base. ORD. VIII. PAPAVERACEAE. *p.* 13.

ARGEMONE. *Sepals* mostly 3, concave, mucronate, aculeate. *Petals* 4 to 6. *Stigma* radiately 3- to 6-lobed. *Capsule* obovoid-oblong, prickly; valves 3 to 6, opening at apex. ORD. VIII. PAPAVERACEAE. *p.* 13.

PAPAVER. *Sepals* mostly 2, concave, hairy, or sometimes smooth. *Petals* 4. *Stigmas* sessile, united in a flat radiate crown. *Capsule* obovoid, imperfectly many-celled, opening by chinks under the edge of the crown. ORD. VIII. PAPAVERACEAE. *p.* 12.

SANGUINARIA. *Sepals* 2, smooth. *Petals* 8 to 12, spatulate-oblong. *Stigma* 2-grooved. *Capsule* oblong, turgid, tapering at each end; valves 2. ORD. VIII. PAPAVERACEAE. *p.* 13.

PODOPHYLLUM. *Sepals* 6, thin and caducous, not expanding,—subtended by 3 caducous *bracts*. *Petals* 6 to 9. *Stigma* subsessile, undulate-crested. *Fruit* a large, oval, fleshy or pulpy *Berry*. ORD. V. BERBERIDACEAE. *p.* 11.

NUPHAR. *Sepals* 5 or 6, orbicular. *Petals* numerous, narrow and stamen-like,—and, with the stamens, inserted on a *disk*, at the base of the ovary. *Stigma* compound, sessile, radiated. *Fruit* an ovoid subcoriaceous many-celled *Capsule*. ORD. VII. NYMPHAEACEAE. *p.* 12.

ACTAEA. *Sepals* 4 or 5, colored. *Petals* 4 to 10, small, spatulate. *Stigma* 2-lobed, depressed. *Fruit* an oval many-seeded *Berry*. ORD. I. RANUNCULACEAE. *p.* 7.

CIMICIFUGA. *Sepals* mostly 4. *Petals* (or *Staminodia*) 3 to 5 or 8, sometimes wanting. *Carpels* 1 to 8, follicular, many-seeded. ORD. I. RANUNCULACEAE. *p.* 8.

[Diospyros. ORD. LVI. EBENACEAE. *p.* 176.]

[Asarum. ORD. LXXV. ARISTOLOCHIACEAE. *p.* 240.]

Order 2. Di-Pentagynia.

AQUILEGIA. *Sepals* 5, regular, colored. *Petals* 5, each with a short spreading lip, and produced backward into a long tubular spur. *Follicles* 5, connivent, acuminate, many-seeded. ORD. I. RANUNCULACEAE. *p.* 6.

DELPHINIUM. *Calyx* of 5 irregular petaloid deciduous sepals,—the upper one spurred at base. *Petals* 4, irregular,—the 2 upper ones spurred, and introduced into the spur of the calyx. *Carpels* 1 to 5, follicular, many-seeded. ORD. I. RANUNCULACEAE. *p.* 7.

ASCYRUM. *Sepals* 4,—the 2 outer ones large and leaf-like, the inner much smaller. *Petals* 4. *Stamens* somewhat polyadelphous. *Capsule* 1-celled, 2- or 3-valved. ORD. XV. HYPERICACEAE. *p.* 28.

HYPERICUM. *Sepals* 5, nearly equal. *Petals* 5, oblique. *Stamens* united in 3 to 5 parcels, without interposed glands. *Capsule* 1- to 3- or 5-celled. ORD. XV. HYPERICACEAE. *p.* 28.

ELODEA. *Sepals* 5, equal. *Petals* 5, equal-sided. *Stamens* mostly 9, triadelphous, with an ovoid *gland* between each parcel. *Capsule* 3-celled. ORD. XV. HYPERICACEAE. *p.* 29.

Order 3. Polygynia.

A. FLOWERS COMPLETE. † Carpels *fleshy, or pulpy.*

ASIMINA. *Sepals* 3. *Petals* 6, spreading,—the 3 inner ones smaller. *Stamens* in a globular cluster. *Carpels* 3 (by abortion often 1, or 2), oblong or ovoid, pulpy, several-seeded. ORD. III. ANONACEAE. *p.* 9.

†† Carpels *subcoriaceous, dehiscent; with fleshy-coated seeds.*

MAGNOLIA. *Sepals* 3. *Petals* 6 to 12. *Anthers* introrse, or lateral. *Carpels* forming a strobile-like fruit, dehiscent by the dorsal suture. *Seeds* baccate, and pendulous from the carpels, at maturity. ORD. II. MAGNOLIACEAE. *p.* 8.

††† Carpels *dry, indehiscent.*

LIRIODENDRON. *Sepals* 3, reflexed. *Petals* mostly 6, in 2 rows.—*Anthers* extrorse. *Carpels* samara-like, densely imbricated in a cone, 1- or 2- seeded. ORD. II. MAGNOLIACEAE. *p.* 9.

BRASENIA. *Sepals* 3 or 4, persistent, purple inside. *Petals* 3 or 4, linear, persistent. *Anthers* innate. *Carpels* oblong, or clavate, coriaceous, 1- or 2-seeded. ORD. VI. CABOMBACEAE. *p.* 11.

RANUNCULUS. *Petals* usually 5,—each with a little *scale*, or *pore*, at base inside. *Carpels* akene-like, numerous in a head, compressed, pointed. ORD. I. RANUNCULACEAE. *p.* 4.

B. FLOWERS INCOMPLETE: Calyx *corolla-like.*

a. Carpels *dry.*

HEPATICA. *Involucre* of 3 entire leaflets, close to the flower and resembling a calyx. *Sepals* 6 to 9, in 2 or 3 series. ORD. I. RANUNCULACEAE. *p.* 3.

ANEMONE. *Involucre* of 3 dissected leaves, distant from the flower. *Sepals* 5 to 15. ORD. RANUNCULACEAE. *p.* 2.

THALICTRUM. Often *dioicous*, or *polygamous: Involucre* none. *Sepals* 4 or 5. *Carpels* 4 to 15, ribbed or grooved, without *tails*. ORD. I. RANUNCULACEAE. *p.* 3.

CLEMATIS. Sometimes *dioicous: Sepals* 4,—the valvate margins more or less bent inwards. *Carpels* akene-like, tailed with the persistent and mostly plumose styles. ORD. I. RANUNCULACEAE. *p.* 3.

CALTHA. *Sepals* 5 to 9. *Carpels* without tails, follicular, spreading, many-seeded. ORD. I. RANUNCULACEAE. *p.* 6.

b. Carpels *baccate.*

HYDRASTIS. *Sepals* 3, caducous. *Pistils* in a dense roundish head; *stigmas* subsessile, dilated, 2-lipped. *Carpels* 1- or 2-seeded, succulent, cohering, and becoming a kind of compound *Berry*. ORD. I. RANUNCULACEAE. *p.* 7.

CLASS XIII. DIDYNAMIA.

Order 1. Gymnospermia.

☞ The *Genera* of this Order all belong to the natural Family of LABIATAE.—ORD. LXV. *p.* 196.

Order 2. Angiospermia.

A. Flowers *usually Diandrous.*

[Catalpa bignonioides. ORD. LXI. BIGNONIACEAE. *p.* 182.]

[Gratiola, and Ilysanthes. ORD. LXIII. SCROPHULARIACEAE. *p.* 187—8.]

B. Flowers *almost constantly Didynamous.*

MARTYNIA. *Calyx* 5-cleft, with 2 or 3 *bractlets* at base. *Corolla* irregular, subcampanulate, gibbous at base. *Capsule* finally woody, with a sub-coriaceous deciduous coat, ovoid-oblong, terminating in a long beak, which splits into 2 hooked claw-like horns. ORD. LXI. BIGNONIACEAE. *p.* 182.

GERARDIA. *Calyx* campanulate, 5-toothed or 5-cleft. *Corolla* subcampanulate, or somewhat funnel-form, with 5 unequal rounded lobes. *Stamens* included, hairy. *Capsule* ovoid, acute, 2-celled. ORD. LXIII. SCROPHULARIACEAE. *p.* 191.

MIMULUS. *Calyx* tubular, prismatic, 5-toothed. *Corolla* tubular, somewhat personate; upper lip 2-lobed, reflexed at the side, lower lip 3-lobed, with the palate prominent. *Capsule* lance-ovoid.—ORD. LXIII. SCROPHULARIACEAE. *p.* 187.

LINARIA. *Calyx* 5-parted. *Corolla* spurred, or saccate at base, personate, the prominent palate closing the throat; upper lip bifid,

the lobes folded back. *Capsule* oval, thin, 2-celled, opening by lateral chinks, or several teeth at apex. ORD. LXIII. SCROPHULARIACEAE. *p.* 185.

CHELONE. *Calyx* of imbricated sepals. *Corolla* inflated-tubular,—the upper lip arched, emarginate, lower lip villous within, 3-lobed. *Stamens* with a fifth *sterile* filament, smooth, and *shorter* than the others; *anthers* woolly. *Seeds* margined. ORD. LXIII. SCROPHULARIACEAE. *p.* 186.

PENTSTEMON. *Calyx* of 5 nearly distinct sepals. *Corolla* inflated-tubular, contracted below. *Stamens* with a fifth *sterile* filament, bearded above, and *longer* than the rest; *anthers* smoothish. *Seeds* not margined. ORD. LXIII. SCROPHULARIACEAE. *p.* 186.

SCROPHULARIA. *Calyx* 5-parted. *Corolla*-tube globular-ventricose; *limb* irregularly bilabiate,—the upper lip longer, 2-lobed, lower lip 3-lobed, with the middle lobe reflexed. *Stamens* with a *scale-like* rudiment of a fifth at the base of the upper lip. ORD. LXIII. SCROPHULARIACEAE. *p.* 185.

BUCHNERA. *Calyx* ovoid-tubular, 5-toothed. *Corolla* salver-form; *tube* slender, slightly curved, *limb* with 5 nearly equal cuneate-obovate lobes. *Anthers* 1-celled. *Style* clavate, entire at summit. ORD. LXIII. SCROPHULARIACEAE. *p.* 190.

CASTILLEJA. *Calyx* ovoid-tubular, compressed above, bifid or 4-cleft. *Corolla*-tube included in the calyx; upper lip longer, linear, laterally compressed, lower lip short, 3-lobed. *Anther*-cells unequal. ORD. LXIII. SCROPHULARIACEAE. *p.* 192.

PEDICULARIS. *Calyx* ovoid-tubular, or campanulate, 2- 3- or 5-cleft. *Corolla* ringent; upper lip laterally compressed, often toothed at apex, lower lip spreading, 3-lobed, with the middle lobe narrower. ORD. LXIII. SCROPHULARIACEAE. *p.* 193.

MELAMPYRUM. *Calyx* campanulate, 4-cleft. *Corolla*-tube enlarging above; upper lip laterally compressed, with the margins folded back, lower lower lip grooved, nearly equally 3-lobed. ORD. LXIII. SCROPHULARIACEAE. *p.* 193.

PHRYMA. *Calyx* tubular, bilabiate; upper lip with 3 subulate teeth, lower lip with 2, shorter. *Corolla* bilabiate; upper lip short, emarginate, lower lip much longer, 3-lobed. *Capsule* thin and evanescent, 1-seeded. ORD. LXIV. VERBENACEAE. *p.* 195.

VERBENA. *Calyx* tubular, 5-toothed, one tooth often shorter.—*Corolla* tubular, often curved, salverform, rather unequally 5-lobed. *Stamens* included,—the upper pair of *anthers* often abortive. *Fruit* splitting into 4 seed-like nutlets. ORD. LXIV. VERBENACEAE. *p.* 194.

LIPPIA. *Calyx* 2- to 4-toothed, often compressed, and becoming bilabiate. *Corolla* tubular, unequally 5-lobed, more or less bilabiate. *Fruit* 2-celled, 2-seeded. ORD. LXIV. VERBENACEAE. *p.* 195.

EPIPHEGUS. *Monoicously polygamous:* STERILE FL. *Calyx* 5-toothed. *Corolla* tubular, compressed, bilabiate. FERTILE FL. *Corolla* small, rarely expanding. ORD. LX. OROBANCHACEAE. *p.* 181.

CONOPHOLIS. *Calyx* irregularly 5-cleft, with 2 *bractlets* at base. *Corolla* ventricose below, unequally 5-lobed and ringent, upper lip arched. *Stamens* exserted. ORD. LX. OROBANCHACEAE. *p.* 181.

APHYLLON. *Calyx* regularly 5-cleft, without bractlets. *Corolla*-tube longish, and a little curved; limb sub-bilabiate,—upper lip deeply bifid, lower 3-lobed. *Stamens* included. ORD. LX. OROBANCHACEAE. *p.* 181.

CLASS XIV. TETRADYNAMIA.

☞ The *Genera* belonging to this Class will all be found in the *natural* ORDER X. CRUCIFERAE. *p.* 15.

CLASS XV. MONADELPHIA.

Order 1. Triandria.

[Sisyrinchium. ORD. CVIII. IRIDACEAE. *p.* 318.]

Order 2. Pentandria.

[Lobelia. ORD. LII. LOBELIACEAE. *p.* 163.]

Order 3. Decandria.

GERANIUM. *Sepals* 5, imbricated. *Petals* 5, convolute, deciduous. *Pistils* 5; *styles* cohering round a central axis, from which they separate at maturity by curving up from the base. *Carpels* 1-seeded. ORD. XXI. GERANIACEAE. *p.* 39.

OXALIS. *Sepals* 5. *Petals* 5, marcescent. *Styles* free. *Capsule* oblong, 5-angled, 5-celled, opening at the angles. *Seeds* few in each cell, loosely coated. ORD. XXII. OXALIDACEAE. *p.* 40.

Order 4. Polyandria.

☞ For the *Genera* belonging here, see ORD. XVIII. MALVACEAE. *p.* 35.

CLASS XVI. DIADELPHIA.

Order 1. Hexandria.

☞ The *Genera* of this Order will be found in the *natural* ORDER IX. FUMARIACEAE. *p.* 14.

Order 2. Octandria.

POLYGALA. *Sepals* 5, irregular,—the 3 outer ones smaller, bract-like, the 2 inner ones larger (called *wings*), petal-like. *Petals* 3 to 5, somewhat cohering, united with the stamens,—the lower one keel-form, and often crested on the back. *Capsule* compressed.—*Seeds* with an arillus-like caruncle. ORD. XXXIII. POLYGALACEAE. *p.* 51.

Order 3. Decandria.

☞ For the *Genera* belonging here, See ORD. XXXIV. LEGUMINOSAE. *p.* 53.

CLASS XVII. SYNGENESIA.

☞ The *Genera* of this Class all belong to ORD. LI. COMPOSITAE. *p.* 121.

CLASS XVIII. GYNANDRIA.

Orders 1. and 2. Monandria, and Diandria.

☞ The *Genera* belonging to these two Orders, will be found in ORD. CV ORCHIDACEAE. *p.* 307.

Orders 3. and 4. Hexandria, and Polyandria.

☞ The *Genera* of these two Orders will be found in ORD. LXXV. ARISTOLOCHIACEAE. *p.* 240.

CLASS XIX. MONOECIA.

Order 1. Monandria.

EUPHORBIA. *Flowers* in a cup-shaped 4- or 5-lobed *involucre*, with glands at its sinuses. STAM. FLOWERS numerous, each from the axil of a little *bract*, and consisting of a single stamen jointed on a pedicel. PISTILL. FL. solitary in the middle of the involucre, consisting of a naked 3-lobed 3-celled pedicellate *ovary*. *Capsule* separating into 3 1-seeded carpels, which split elastically. ORD. XC. EUPHORBIACEAE. *p.* 259.

ZANNICHELLIA. *Flowers* sessile, naked, usually both kinds in the same axil. STAM. FL. a single stamen with a slender filament, bearing a 2- to 4-celled anther. PISTILL. FL. usually 4 pistils in the same cup-shaped involucre,—becoming oblong coriaceous *nutlets*. *Styles* 4. ORD. CII. NAIADACEAE. *p.* 302.

CALLITRICHE. *Flowers* associated in the axils of the upper leaves, usually between a pair of fistular whitish *bracts*. Proper *perianth* none. *Fruit* a somewhat fleshy *nut-like capsule*, indehiscent, 4-lobed, 4-celled. *Styles* 2. ORD. LXXXVIII. CALLITRICHACEAE. *p.* 257.

[Arum. ORD. XCIX. ARACEAE. *p.* 297.]

[Najas. ORD. CII. NAIADACEAE. *p.* 302.]

Order 2. Diandria.

[Fraxinus. ORD. LXXIV. OLEACEAE. *p.* 238.]

[Podostemum. ORD. LXXXIX. PODOSTEMACEAE. *p.* 258.]

[Lemna. ORD. C. LEMNACEAE. *p.* 300.]

Order 3. Triandria.

TYPHA. *Flowers* in a long dense cylindric terminal interrupted *spike*, with an intervening caducous *spathe*,—the upper portion *staminate*. Proper *perianth* none. *Ovaries* surrounded by clavate bristles, becoming small pedicellate *nutlets*. ORD. CI. TYPHACEAE. *p.* 301.

SPARGANIUM. *Flowers* in dense globose *heads*, in the axils of leaf-like *bracts*,—proper *perianth* none. Upper heads *staminate*. Lower heads consisting of sessile *pistils*, each surrounded by 3 to 6 calyx-like scales. *Fruit* a sort of dry *drupe*, or *nutlet*. ORD. CI. TYPHACEAE. *p.* 301.

COMPTONIA. STAM. FL. *Aments* cylindric; *bracts* 1-flowered, reniform-cordate, each with 2 bractlets. *Stamens* 3 to 6. PISTILL. FL. *Aments* globose, becoming bur-like, by the persistent subulate scales which invest the ovaries. *Fruit* an ovoid-oblong smooth indehiscent *nut*. ORD. XCIII. MYRICACEAE. *p.* 274.

[Phyllanthus. ORD. XC. EUPHORBIACEAE. *p.* 261.]

[Carya. ORD. XCI. JUGLANDACEAE. *p.* 263.]

[Pilea. ORD. XCVII. URTICACEAE. *p.* 288.]

[Scleria, *and* Carex. ORD. CXVII. CYPERACEAE. *p.* 343—4.]

[Zea, *and* Tripsacum. ORD. CXVIII. GRAMINEAE. *p.* 385-6]

Order 4. Tetrandria.

BETULA. STAMINATE AMENTS cylindric, with the *bracts* peltate,—each with 2 *bractlets*, and 3 *flowers*. *Calyx* a *scale*, with 4 *stamens* at base. PISTILLATE AMENTS ovoid-oblong, with the *bracts* 3-lobed, imbricated. *Calyx* none. *Ovaries* 3 under each *bract; stigmas* 2. *Fruit* a lenticular, winged, or *samaroid nutlet*. ORD. XCIV. BETULACEAE. *p.* 275.

ALNUS. STAMINATE AMENTS cylindric, pendulous; *bracts* 1- to 3-flowered, peltate, each with 5 *bractlets*. *Calyx* 4-parted. PISTILLATE AMENTS ovoid-oblong; *bracts* 2-flowered, somewhat fleshy. *Calyx* of 4 scale-like sepals. *Fruit* a compressed angular *nut;* not winged. ORD. XCIV. BETULACEAE. *p.* 276.

MORUS. *Flowers* in cylindric *spikes*, occasionally *androgynous*, sometimes *dioicous*. *Calyx* 4-parted. PISTILL. FL. in short dense spikes. *Ovary* 2-celled, sessile; *styles* 2. *Akene* compressed, covered by the persistent succulent calyx,—the *whole spike* becoming a kind of compound oblong terete *berry*. ORD. XCVII. URTICACEAE. *p.* 285.

BOEHMERIA. *Flowers* in simple axillary *spikes*, sometimes *androgynous*, often *dioicous*. STAM. FL. in small bracteate clusters, in slender interrupted spikes. *Sepals* 4 or 5. PISTILL. FL. bracteate, in shorter and thicker continuous spikes. *Calyx* tubular-ventricose, 4-toothed or entire, inclosing the *ovary*. *Stigma* simple. *Akene* elliptic-ovate. ORD. XCVII. URTICACEAE. *p.* 288.

URTICA. STAM. FL. Sepals mostly 4, valvate. PISTILL. FL. *Sepals* 4, in opposite pairs,—the outer pair smaller, sometimes abortive. *Akene* compressed, ovate-oblong. ORD. XCVII. URTICACEAE. *p.* 287.

PILEA. STAM. FL. *Sepals* 3 or 4. PISTILL. FL. *Calyx* of 3 unequal segments, with an incurved scale (or abortive *stamen*) before each. *Stigma* pencil-tufted. *Akene* minutely warty. ORD. XCVII. URTICACEAE. *p.* 288.

[Carya. ORD. XCI. JUGLANDACEAE. *p.* 263.]

[Maclura, Broussonetia, *and* Parietaria. ORD. XCVII. URTICACEAE. *p.* 284—6.]

Order 5. Pentandria.

AMARANTHUS. *Flowers* imbricated with dry scarious persistent *bracts*. *Calyx* of 3 or 5 *sepals*, mostly colored, and connected at base. *Corolla* none. *Stigmas* 2 or 3. *Utricle* circumscissed, or indehiscent, 1-seeded. ORD. LXXVIII. AMARANTHACEAE. *p.* 244.

[Ambrosia, *and* Xanthium. ORD. LI. COMPOSITAE. *p.* 138—9.]

[Celtis. ORD. LXXXV. ULMACEAE. *p.* 256.]

[Quercus. ORD. XCII. CUPULIFERAE. *p.* 265.]

Order 6. Hexandria.

[Comptonia. ORD. XCIII. MYRICACEAE. *p.* 274.]

[Melanthium, *and* Veratrum. ORD. CXII. MELANTHACEAE. *p.* 323.]

[Zizania. ORD. CXVIII. GRAMINEAE. *p.* 356.]

Order ?. Polyandria.

CERATOPHYLLUM. *Flowers* axillary, solitary, inconspicuous. *Calyx* none,—but an 8- to 10- or 12-cleft *involucre*. STAM. FL. *Anthers* sessile. PISTILL. FL. *Ovary* 1-celled; *style* filiform; *stigma* simple. *Akene* beaked. ORD. LXXXVII. CERATOPHYLLACEAE. *p.* 257.

ARUM. *Flowers* naked, on a *spadix*, often *dioicous*. *Spathe* hooded at summit. *Spadix* naked at summit. *Stamens* crowded, subverticillate; *anthers* subsessile, 2- to 4-celled. *Pistils* below the stamens, crowded. *Berries* 1- or several-seeded. ORD. XCIX. ARACEAE. *p.* 297.

PELTANDRA. *Flowers* naked, on a *spadix*. *Spathe* elongated, convolute. *Spadix* entirely covered with flowers. *Anthers* sessile, with 5 or 6 cells surrounding the margin of a thick peltate *connective*. *Pistils* below the stamens. *Berries* 1- to 3-seeded. ORD. XCIX. ARACEAE. *p.* 298.

SAGITTARIA. *Sepals* 3, connected at base, persistent. *Petals* 3, deciduous. PISTILLATE FLOWERS below; *ovaries* numerous, in depressed-globose *heads*,—becoming flatted margined *akenes*. ORD. CIII. ALISMACEAE. *p.* 305.

JUGLANS. STAM. FL. *Aments* simple, lateral, from buds without leaves. *Calyx* adnate to an entire 1-flowered *bract*, 3- to 6-parted. PISTILL. FL. terminal, solitary, or few and clustered. *Calyx* 4-cleft, with 4 small *petals* alternating with the segments. *Fruit* drupaceous, —the *epicarp* somewhat fleshy, not opening; *nut* woody, rugose. ORD. XCI. JUGLANDACEAE. *p.* 261.

CARYA. STAM. FL. *Aments* mostly in threes, lateral, from buds with leaves. *Calyx* adnate to an entire 1-flowered *bract*, 2- or 3-parted. *Stamens* few; *anthers* hairy. PISTILL. FL. terminal, in small clusters. *Calyx* 4-cleft, without *petals*. *Fruit* drupaceous,—the *epicarp* coriaceous, opening by 4 valves; *nut* bony, smooth, usually 4- to 6-angled. ORD. XCI. JUGLANDACEAE. *p.* 263.

QUERCUS. STAM. FL. *Aments* simple, slender, without *bracts*.—*Calyx* mostly 5-parted. *Corolla* none. PISTILL. FL, in small clusters, sometimes on a long common peduncle; each flower with an *involucre* formed of numerous little imbricated *scales* united into a *cup*. *Calyx* 6-toothed. *Corolla* none. *Nut*, or *Acorn*, ovoid or oblong, seated in the indurated involucre. ORD. XCII. CUPULIFERAE. *p.* 265.

CASTANEA. STAM. FL. interruptedly clustered in long naked spike-form *aments*. *Calyx* 5- or 6-parted. PISTILL. FL. usually in threes, within ovoid squarrose clustered *involucres*. *Calyx* urceolate,—the *limb* 5- or 6-cleft. *Nuts* coriaceous, 1 to 3, inclosed in the globose prickly *involucre*, which opens by 4 valves at maturity. ORD. XCII. CUPULIFERAE. *p.* 270.

FAGUS. STAM. FL. in globose clusters, pendulous on long peduncles. *Calyx* campanulate, 5- or 6-cleft. PISTILL. FL. usually in pairs, within an ovoid pedunculate *involucre* formed of numerous coalesced subulate flexible *bracts*, *Calyx* urceolate,—the *limb* elongated, 4- or 5-cleft. *Nuts* ovoid-triquetrous, usually 2 in the coriaceous muricate 4-valved *involucre*. ORD. XCII. CUPULIFERAE. *p.* 271.

CORYLUS. STAM. FL. imbricated in cylindric *aments; scales* 3-parted,—the middle segment covering the two lateral ones. *Calyx* none. PISTILL. FL. in terminal clusters. *Nut* bony, roundish-ovoid, subcompressed, solitary in the enlarged leathery-foliaceous lacerate-dentate *involucre*. ORD. XCII. CUPULIFERAE. *p.* 272.

CARPINUS. STAM. FL. *Aments* lateral, with simple ovate scale-like *bracts*. *Calyx* none. PISTILL. FL. in pairs, with small deciduous *bracts*, and enlarging foliaceous *involucres*, arranged in terminal loose *ament-like spikes*. *Calyx* urceolate,—the *limb* cup-like, denticulate. *Nuts* in pairs, bony, ovoid, subcompressed, striate-ribbed. ORD. XCII. CUPULIFERAE. *p.* 273.

OSTRYA. STAM. FL. nearly as in *Carpinus*. PISTILL. FL. solitary or in pairs, in short slender terminal *aments*, with small caducous *bracts;* each flower (or pair of flowers) inclosed in a membranous *sac-like involucre*, which enlarges and forms a bladdery closed bag, in fruit,—and these are imbricated in a *strobile*, like that of the common *Hop*. *Calyx* somewhat urceolate,—the *limb* tubular, entire. *Nuts* solitary, compressed, lance-oblong. ORD. XCII. CUPULIFERAE. *p.* 273.

PLATANUS. STAM. FL. in small pendulous globose deciduous heads. *Stamens* mixed with subclavate *scales*. PISTILL. FL. in larger pendulous globose persistent heads. *Fruit* a clavate coriaceous *nutlet*, beset at base by tawny pappus-like hairs. ORD. XCVI. PLATANACEAE. *p.* 283.

Order 8. Monadelphia.

PINUS. STAMINATE AMENTS spiked, subterminal. *Stamens* numerous, inserted on the axis; *anthers* subsessile, covered by the peltate scale-like *connective*,—the *cells* opening lengthwise. FERTILE AMENTS terminal, solitary or clustered,—the *carpellary scales* with deciduous *bracts*. *Fruit* a woody *strobile*, formed of the persistent imbricated carpellary *scales*, which are thickened, and often mucronate at apex,—each scale with an excavation at base containing 2 naked nutlike *seeds*, which are margined by a deciduous *wing*. ORD. XCVIII. CONIFERAE. *p.* 290.

ABIES. STAMINATE AMENTS scattered, or clustered near the ends of the branches. FERTILE AMENTS lateral or terminal,—the *carpellary scales* with persistent, or evanescent *bracts*. *Strobile* with the *scales* rounded, thin and not mucronate at apex, nor excavated at base.—*Seeds* with a persistent wing. ORD. XCVIII. CONIFERAE. *p.* 291.

LARIX. STAMINATE AMENTS lateral and scattered, bud-like. FERTILE AMENTS lateral,—the *carpellary scales* with colored persistent *bracts*. *Strobile* erect, ovoid,—the *scales* as in *Abies*, but somewhat excavated at base. *Seeds* with a persistent *wing*. ORD. XCVIII.—CONIFERAE. *p.* 292.

TAXODIUM. STAMINATE AMENTS numerous, in a terminal pyramidal spike, or racemose cluster. *Stamens* few,—the *anther*-cells covered by a peltate scale-like *connective*. FERTILE AMENTS roundish-obovoid, usually in pairs at the base of the staminate spike—the *carpellary scales* without *bracts*, acute, recurved-spreading at apex. *Strobile* subglobose,—the *scales* angular, subpeltate, scarcely opening.—*Seeds* angular. ORD. XCVIII. CONIFERAE. *p.* 294.

THUJA. STAMINATE AMENTS ovoid, terminal, small. *Stamens* with a scale-like *connective*, bearing 4 anther-cells. FERTILE AMENTS subovoid, tuberculate, terminal, small,—the *carpellary scales* fixed by the base, without *bracts*, dry and spreading at maturity. *Seeds* with a narrow *wing* at each end. ORD. XCVIII. CONIFERAE. *p.* 293.

PHYLLANTHUS. *Calyx* 5- or 6-parted. *Corolla* none. *Stamens* mostly 3, with 5 or 6 glands at base. *Ovary* seated on a glandular disk, 3-celled; cells 2-seeded; *styles* 3. *Capsule* separating into 3 carpels. ORD. XC. EUPHORBIACEAE. *p.* 261.

ACALYPHA. STAMINATE FLOWERS very small, clustered in minute pedunculate *spikes*, with the PISTILLATE FLOWER mostly at their base, in an axillary leaf-like *involucre*. *Calyx* of the *Stam. fl.* 4-parted, of the *pistillate fl.* 3-parted. *Corolla* none. *Styles* 3, fringed. *Capsule* 3-lobed, separating into 3 globular carpels. ORD. XC. EUPHORBIACEAE. *p.* 261.

SICYOS. *Calyx* campanulate, 5-toothed. *Corolla* 5-parted. *Ovary* inferior, 1-celled; *stigma* thickish, trifid. *Fruit* compressed, ovate, dry and membranous, 1-seeded, armed with barbed prickly bristles. ORD. XL. CUCURBITACEAE. *p.* 93.

CUCUMIS. *Calyx* tubular-campanulate, 5-toothed. *Petals* 5, nearly distinct, and free. *Fruit* a fleshy 3- to 6-celled *berry*. *Seeds* smooth, obovate-oblong, acute at base, and on the margin. ORD. XL. CUCURBITACEAE. *p.* 92.

CITRULLUS. *Calyx* tubular-campanulate, 5-parted. *Petals* 5, adnate to the calyx. *Fruit* a subglobose smooth *berry*. *Seeds* obovate-oblong, truncate at base, obtuse on the margin. ORD. XL. CUCURBITACEAE. *p.* 93.

CUCURBITA. *Corolla* campanulate,—the *petals* cohering with each other, and adnate to the calyx. STAM. FL. *Calyx* campanulate, with a short tube. PISTILL. FL. *Calyx*-tube obovoid, circumscissed below the limb, after flowering. *Fruit* a fleshy, or subligneous *berry* of various form. *Seeds* obovate, smooth, with the margin scarcely tumid. ORD. XL. CUCURBITACEAE. *p.* 94.

LAGENARIA. *Calyx* campanulate, or turbinate. *Petals* 5, obovate, adnate to the calyx-tube. *Fruit* at first fleshy, finally a dry ligneous *berry*. *Seeds* arillate, with tumid margin. ORD. XL. CUCURBITACEAE. *p.* 92.

CLASS XX. DIOECIA.

Order 1. Monandria.

NAIAS. *Flowers* axillary and solitary. *Stamen* in a membranous *spathe; anther* at first subsessile, the *filament* finally elongated.—*Ovary* tapering to a short style; *stigmas* 2 to 4, subulate. *Fruit* a loosely-coated seed-like *nutlet*. ORD. CII. NAIADACEAE. *p.* 302.

Order 2. Diandria.

SALIX. *Flowers* all *amentaceous; bracts* entire, 1-flowered. *Calyx* none. *Ovary* 1-celled; *stigmas* 2, subsessile, 2-lobed. *Fruit* a follicular kind of small *capsule*, opening at apex. *Seeds* numerous, silky-comose. ORD. XCV. SALICACEAE. *p.* 276.

[FRAXINUS. ORD. LXXIV. OLEACEAE. *p.* 238.]

[VALLISNERIA. ORD. CIV. HYDROCHARIDACEAE. *p.* 306.]

Order 3. Triandria.

VALLISNERIA. STAM. FL. crowded on a conical *receptacle*, which is inclosed in a 3-valved *spathe*, and borne on a short *scape*. *Calyx* 3-parted. *Corolla* none. PISTILL. FL. solitary, in a tubular bifid *spathe*, on a long slender flexuose *scape*. *Calyx-tube* adherent to the *ovary*, not extended beyond it; *limb* 3-lobed, with 3 small linear *petals* alternating with the obovate lobes. *Fruit* long, linear, indehiscent, fleshy and berry-like, several-seeded. ORD. CIV. HYDROCHARIDACEAE. *p.* 306.

Order 4. Tetrandria.

VISCUM. STAM. FL. *Calyx* subcoriaceous, 3- or 4-parted. *Corolla* none. PISTILL. FL. *Calyx-tube* adherent to the *ovary; limb* 3- or 4-toothed, or obsolete. *Petals* 3 or 4, minute. *Fruit* a *globular* 1-seeded *berry*. ORD. LXXXIV. LORANTHACEAE. *p.* 254.

MACLURA. STAM. FL. racemose. *Calyx* 4-parted. *Corolla* none. PISTILL. FL. densely crowded, and coalesced, on a globose receptacle. *Sepals* 4, in opposite pairs, oblong, somewhat cucullate and fleshy. *Ovary* 1-celled; *stigmas* 2, one large and feathery, the other mostly abortive. *Akenes* embraced by the sepals, and all coalesced into a large compound globose lactescent *berry*. ORD. XCVII. URTICACEAE. *p.* 284.

BROUSSONETIA. STAM. FL. in ament-like *spikes*, bracteate. *Calyx* 4-parted. *Corolla* none. PISTILL. FL. in dense capitate clusters, mixed with hairy scales. *Calyx* urceolate, 3- or 4-toothed. *Ovary* 1-celled, pedicellate. *Akene* softly fleshy, elevated on the *baccate pedicel*, which is surrounded at base by the calyx. ORD. XCVII. URTICACEAE. *p.* 286.

[Ilex opaca. ORD. LV. AQUIFOLIACEAE. *p.* 175.]

[Morus, Urtica, *and* Boehmeria. ORD. XCVII. URTICACEAE. *p.* 285-7-8.]

Order 5. Pentandria.

CANNABIS. STAM. FL. *Calyx* of 5 sepals. *Corolla* none. PIS-

TILL. FL. *Calyx* urceolate, acuminate, consisting of a single persistent sepal folded rounded the subglobose ovary. *Corolla* none. *Nut* 1-seeded, indehiscent. ORD. XCVII. URTICACEAE. *p.* 286.

HUMULUS. STAM. FL. *Calyx* of 5 sepals. *Corolla* none. PISTILL. FL. in ovoid-oblong *aments*; *bracts* imbricated, enlarging, 2-flowered. *Calyx* urceolate, consisting of a single scale-like persistent sepal, its folded margin embracing the ovate ovary. *Corolla* none. *Nut* resinous-glandular. ORD. XCVII. URTICACEAE. *p.* 287.

SPINACIA. STAM. FL. *Calyx* of 4 or 5 sepals. *Corolla* none.—PISTILL. FL. *Calyx* ventricose-tubular, 2- to 4-toothed, persistent. *Corolla* none. *Akene* compressed, included in the indurated (and sometimes muricated) calyx-tube. ORD. LXXVII. CHENOPODIACEAE. *p.* 244.

[Rhus. ORD. XXVII. ANACARDIACEAE. *p.* 43.]

[Negundo. ORD. XXVIII. ACERACEAE. *p.* 46.]

[Vitis. ORD. XXXII. VITACEAE. *p.* 49.]

[Panax trifolium. ORD. XLV. ARALIACEAE. *p.* 110.]

[Nyssa. ORD. LXXXII. NYSSACEAE. *p.* 253.]

Order 6. Hexandria.

DIOSCOREA. STAM. FL. *Calyx* 6-parted. *Corolla* none. PISTILL. FL. *Calyx-tube* adherent to the 3-celled ovary; *limb* 6-parted.—*Corolla* none. *Capsule* prominently 3-winged. *Seeds* compressed, margined. ORD. CIX. DIOSCOREACEAE *p.* 318.

SMILAX. *Perianth* of 6 spreading sepals, deciduous. *Ovary* superior. *Berry* globose, 1- to 3-celled, 1- to 3-seeded. ORD. CX. SMILACEAE. *p.* 319.

[Gleditschia. ORD. XXXIV. LEGUMINOSAE. *p.* 69.]

[Prinos. ORD. LV. AQUIFOLIACEAE. *p.* 175.

[Rumex Acetosella. ORD. LXXIX. POLYGONACEAE. *p.* 250.]

[Chamaelirium. ORD. CXII. MELANTHACEAE. *p.* 329.]

Order 7. Octandria.

POPULUS. *Flowers* all *amentaceous*; *bracts* laciniate, 1-flowered.—*Calyx* subturbinate,—the *limb* oblique, entire. *Capsule* 2-valved.—*Seeds* comose. ORD. XCV. SALICACEAE. *p.* 281.

[Acer. ORD. XXVIII. ACERACEAE. *p.* 44.]

[Diospyros. ORD. LVI. EBENACEAE. *p.* 176.]

Order 8. Enneandria.

UDORA. *Flowers polygamo-dioicous*, solitary, from a tubular bifid *spathe*. STAM. FL. minute. *Sepals* and *petals* each 3, nearly alike. PERFECT. FL. *Calyx-tube* long and very slender, adherent to the ovary at base; *limb* 3-parted. *Petals* 3. *Fruit* oblong coriaceous, indehiscent, few-seeded. ORD. CIV. HYDROCHARIDACEAE. p. 305.

[Sassafras *and* Benzoin. ORD. LVIII. LAURACEAE. *p.* 251-2.]

Order 9. Decandria.

AILANTHUS. *Polygamo-dioicous: Calyx* 5-cleft. *Corolla* 5-petaled. PERFECT, OR PISTILL. FL. *Ovaries* 3 to 5, free, compressed, 1-celled;

Stigmas radiately 5-lobed. *Stamens* 2, or 3, in the *perfect* flower (10 in the *sterile*). *Fruit* samara-like, oblong, tumid in the centre. Ord. XXVI. Xanthoxylaceae. *p.* 42.

[Gymnocladus. Ord. XXXIV. Leguminosae. *p.* 69.]

Order 10. Polyandria.

Menispermum. *Sepals* and *petals* arranged in fours, in 2 or 3 series. Stam. Fl. *Anthers* 4-celled. Pistill. Fl. *Ovaries* 2 to 4, superior, subpedicellate. *Drupes* roundish-reniform; *nut* lunate.—Ord. IV. Menispermaceae. *p.* 10.

Salisburia. Stam. Fl. in axillary filiform pedunculate *aments*.—Fertile Fl. terminal, solitary, or fasciculate,—each consisting of a *naked ovule* seated in a cupshaped *disk*, in the thickened apex of the peduncle. *Seed* nut-like, its base embraced by the fleshy disk.—Ord. XCVIII. Coniferae. *p.* 296.

[Clematis, *and* Thalictrum. Ord. I. Ranunculaceae. *p.* 2 & 3.]

[Diospyros. Ord. LVI. Ebenaceae. *p.* 176.]

[Arum. Ord. XCIX. Araceae. *p.* 297.]

Order 11. Monadelphia.

Taxus. Stam. Fl. in axillary globose *aments*, exserted from the scaly buds. Fertile Fl. scaly-bracteate at base,—each consisting of a *naked ovule* seated in a cupshaped *disk*, which finally becomes pulpy, and incloses the lower half of the *nut-like seed*. Ord. XCVIII. Coniferae. *p.* 295.

Juniperus. Staminate aments axillary, or subterminal, ovoid, small. *Filaments* bearing an excentrically peltate *connective*,—to the lower edge of which the *anther*-cells are attached. Fertile aments axillary, globose, consisting of 3 to 6 fleshy, 1- to 3-ovuled, coalescent *scales*. *Fruit* drupe-like, small, tuberculate, umbilicate at apex, scaly-bracteate at base. Ord. XCVIII. Coniferae. *p.* 295.

CLASS XXI. CRYPTOGAMIA.

☞ The *Genera* of this Class are all arranged in the Series of Flowerless Plants; and will be found distributed in the *natural orders* to which they severally belong.

NATURAL ARRANGEMENT

OF THE

GROUPS AND ORDERS IN THIS WORK.

THE VEGETABLE KINGDOM is arranged, by Prof. A. GRAY in his *Botanical Text Book* (which arrangement is here adopted), in two *Series* or grand Divisions—known as *Phaenógamous* or Flowering Plants, and *Cryptógamous* or Flowerless Plants. These, again, are subdivided; and the plants belonging to them are disposed, according to their structure and affinities, in *Classes, Sub-Classes, Divisions Groups, Orders, Sub-Orders, Tribes, Sub-Tribes, Genera, Sub-Genera, Species* and *Varieties.*

The following is a Synoptical View of the general arrangement and grouping of the *Natural Orders*, or Families, to which the plants enumerated in this work are referable; which, the intelligent reader will perceive, has been derived from the valuable *Text-book*, above mentioned. Such a *Conspectus*, it is believed, may be satisfactory and useful to the Student,—as affording a comprehensive glance at the general principles, or basis of the System, upon which the superstructure of details has been erected. Under this impression it has been here inserted.

SERIES I.

PHAENOG'AMOUS OR FLOWERING PLANTS.

PLANTS furnished with *flowers* (essentially consisting of *stamens and pistils*), and producing proper *seeds.*

CLASS I.

EXO'GENOUS OR DICOTYLÉDONOUS PLANTS.

STEM consisting of a distinct *bark* and *pith*, which are separated by an interposed layer of woody fibre and vessels, forming *wood* in all perennial stems; increase in diameter effected by the annual deposition of new layers between the old wood and the bark, which are arranged in concentric zones, and traversed by medullary rays. *Leaves* commonly articulated with the stem, their veins branching and reticulated. *Sepals* and *petals*, when present, more commonly in fives or fours, and very rarely in threes. *Embryo* with two or more *cotyledons.*

SUB-CLASS I.

ANGIOSPÉRMOUS EXO'GENOUS PLANTS.

Ovules produced in *a closed ovary*, and fertilized by the action of pollen through the medium of a *stigma*. *Embryo* with a pair of *opposite cotyledons*.

DIVISION I. DIALYPET'ALOUS EXO'GENOUS PLANTS.

FLORAL ENVELOPES consisting, generally, of both calyx and corolla,—with *the Petals distinct.**

GROUP 1. *Ovaries* several or numerous (in a few cases solitary), distinct, when in several rows sometimes cohering in a mass, but not united into a compound pistil. *Petals* and *stamens* hypogynous. *Seeds albuminous.*

† Stamens *or* pistils *(one or both) numerous or indefinite.*

Herbs, *without* stipules. RANUNCULACEAE. *p.* 1.

Shrubs *or* trees, *with* stipules. MAGNOLIACEAE. *p.* 8.

Shrubs *or* trees, *without* stipules. ANONACEAE. *p.* 9.

†† Stamens *few or definite*. Pistils *few or solitary.*

Climbing plants. Flowers *mono-dioicous.* MENISPERMACEAE. *p.* 10.

Shrubs *or* herbs. Flowers *all perfect.* BERBERIDACEAE. *p.* 10.

GROUP 2. *Ovaries* several, either distinct, or perfectly united into a compound pistil of several cells. *Stamens* definite or indefinite, inserted on the receptacle. *Embryo* inclosed in a sac at the end of the albumen. Aquatic herbs.

Carpels *distinct and free.* CABOMBACEAE. *p.* 11.

Carpels *united in a several-celled ovary.* NYMPHAEACEAE. *p.* 12.

GROUP 3. *Ovary* compound, with parietal placentae. *Calyx* and *corolla* 2- 4-merous, deciduous. *Stamens* hypogynous. *Flowers* unsymmetrical. *Embryo* small in copious *albumen*, or coiled when there is *no albumen.*

Seeds *albuminous.*

Polyandrous; flower *regular.* PAPAVERACEAE. *p.* 12.

Diadelphous *or* hexandrous; fl. *irregular.* FUMARIACEAE. *p.* 14.

Seeds *without albumen.*

Pod 2-*celled:* radicle *folded on the cotyledons.* CRUCIFERAE. *p.* 15.

Pod 1-*celled:* embryo *rolled up.* CAPPARIDACEAE. *p.* 24.

GROUP 4. *Ovary* compound, with parietal placentae. *Floral envelopes* mostly 5-merous; *calyx* persistent. *Stamens* hypogynous.—*Seeds albuminous.*

Corolla *irregular:* anthers *introrse, connate.* VIOLACEAE. *p.* 24.

Corolla *regular:* anthers *extrorse, or innate, distinct.*

Vernation *circinnate.* Petals *marcescent.* DROSERACEAE. *p.* 27.

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* Some cases of DIALYPETALOUS FLOWERS also occur in the orders ERICACEAE, and AQUIFOLIACEAE, which are placed in the GAMOPETALOUS part of the series; and some genera of several Orders placed here, are *apetalous*,—such as *Anemone, Thalictrum*, &c.

Vernation *straight*. Petals *usually caducous*. CISTACEAE. *p.* 26.

GROUP 5. *Ovary* compound with the placentae parietal, or 2- 5-celled from their meeting in the axis. *Stamens* hypogynous.—*Embryo* straight, with little or no *albumen*.

Stipules none; *leaves* dotted. *Stamens* in parcels. HYPERICACEAE. *p.* 28.

GROUP 6. *Ovary* compound, 1-celled with a free central placenta, or 2- several-celled with the placenta in the axis. *Calyx* free or nearly so. *Embryo* peripheric, on mealy *albumen*.

Floral envelopes *symmetrical*. CARYOPHYLLACEAE. *p.* 30.

Floral envelopes *unsymmetrical*. PORTULACACEAE. *p.* 34.

GROUP 7. *Ovary* compound and several-celled, with the placentae in the axis; or the numerous carpels more or less coherent with each other or with a central axis. *Calyx* free from the ovary, with a valvate aestivation.

Anthers 1-*celled*. Stamens *monadelphous*. MALVACEAE. *p.* 35.

Anthers 2-*celled*. Polyandrous *or* 5-adelphous. TILIACEAE. *p.* 37.

GROUP 8. *Ovary* compound, or of several carpels adhering to a central axis, free from the *calyx*, which is mostly imbricated in aestivation. *Flowers* perfect.

† Flower *irregular and unsymmetrical*.

Stamens *connate*. Ovules *several in each cell*. BALSAMINACEAE. *p.* 40.

Stamens *distinct*. Ovules *single in each cell*. TROPAEOLACEAE. *p.* 41.

†† Flower *regular and symmetrical throughout*.

Calyx *valvate in aestivation*. LIMNANTHACEAE. *p.* 42.

Calyx *imbricated in aestivation*.

Embryo *conduplicate*. GERANIACEAE. *p.* 39.

Leaves *simple*. Stamens 5. LINACEAE. *p.* 38.

Leaves *compound*. Stamens 10. OXALIDACEAE. *p.* 40.

GROUP 9. *Ovary* compound, with 2 or several cells, or 1-celled by suppression,—or carpels distinct and barely connected by their styles. *Calyx* free. *Petals* as many as the sepals, or rarely wanting. *Stamens* once or twice as many as the sepals, distinct. *Embryo* large; *albumen* little or none. *Flowers* polygamo-dioicous.

Leaves *dotted*. Ovaries *or* cells 2-*ovuled*. XANTHOXYLACEAE. *p.* 42.

Leaves *dotless*. Ovary 1; ovule *long-pedicelled*. ANACARDIACEAE. *p.* 43.

GROUP 10. *Ovary* compound, 2- 3-lobed, 2- 3-celled, free from the calyx, which is imbricated in the bud. *Petals* often irregular, or 1 fewer than the sepals—or sometimes wanting. *Stamens* definite, distinct, inserted on or around a hypogynous disk. *Ovules* 1 or 2 in each cell. *Embryo* curved or coiled; *albumen* none. *Flowers* often polygamous.

Leaves *opposite*. Gynaecium *dimerous*. ACERACEAE. *p.* 44.

Leaves *chiefly alternate*. Gynaecium *trimerous*. SAPINDACEAE. *p.* 47.

GROUP 11. *Ovary* compound, 2- 5-celled. *Calyx* free, or adherent to the base of the ovary. *Petals* and *stamens* as many as the lobes of the calyx, and inserted either into its throat or base, or upon the disk that covers it. *Seeds* solitary, or few in each cell, *albuminous*. *Flowers* regular.

† Stamens *alternate with the petals.*

Ovaries *partly separated:* leaves *compound.* TRIBE STAPHYLEAE. *p.* 48.

Ovaries *wholly united.* Seeds *arillate:* leaves *simple.* CELASTRACEAE. *p.* 47.

†† Stamens *opposite the petals.*

Sepals *valvate.* Cells 1-*ovuled.* RHAMNACEAE. *p.* 49.

Petals *valvate, caducous.* Cells 2-ovuled. VITACEAE. *p.* 49.

GROUP 12. *Ovary* compound, 2-celled, free from the calyx. *Sepals* and *petals* very irregular. *Stamens* monadelphous,—the tube of filaments split on one side, and more or less united with the claws of the hypogynous petals; *anthers* 1-celled, opening by a pore at apex.

Seeds albuminous; embryo large. POLYGALACEAE. *p.* 51.

GROUP 13. *Ovary* simple and solitary, free from the calyx; *fruit* a pod. *Flower* 5-merous, the odd sepal anterior. *Corolla* mostly irregular and papilionaceous, sometimes regular. *Stamens* monadelphous, diadelphous, or distinct, mostly perigynous. *Seeds* destitute of albumen. LEGUMINOSAE. *p.* 53.

GROUP 14. *Ovaries* 1 or several, simple and distinct, or combined into a compound ovary with 2 or more cells and the placentae in the axis. *Petals,* and distinct *stamens,* perigynous. *Seeds* destitute of albumen.

† Calyx *free, inclosing the* ovaries *in its tube,—or when the* ovaries *are united, adnate to them, and the* stamens *indefinite.*

Leaves *alternate,* stipulate. ROSACEAE. *p.* 70.

Leaves *mostly opposite, without* stipules.

†† Calyx *free from the* compound ovary. Stam. *definite.* LYTHRACEAE. *p.* 86.

††† Calyx-tube *adnate to the* compound ovary. Stamens *definite.*

Anthers *opening by a pore at apex.* MELASTOMACEAE. *p.* 86.

Anthers *opening longitudinally.* ONAGRACEAE. *p.* 87.

GROUP 15. *Ovary* compound, 1-celled, with parietal placentae. *Petals* and *stamens* mostly inserted on the throat of the calyx. *Flowers* mostly perfect.

Calyx *adherent to the* ovary. Stamens 5. GROSSULACEAE. *p.* 90.

GROUP 16. *Ovary* compound, 2- to several-celled (or 1-celled by obliteration); *placentae* parietal, arising from the axis, but carried outward to the walls of the pericarp. *Calyx* adnate. *Corolla* often *gamopetalous! Stamens* united either by their filaments or anthers. *Flowers* mostly monoicous. *Seeds* without *albumen.* CUCURBITACEAE. *p.* 91.

GROUP 17. *Ovaries* 2 or more, many-ovuled, distinct, or partly, and sometimes completely, united, when the ovary is 1-celled with parietal placentae, or 2- to many-celled with the placentae in the

axis. *Calyx* either free or adherent to the ovary. *Petals* and *stamens* inserted on the calyx. *Seeds albuminous*, numerous.

Pistils *as many as the sepals.* CRASSULACEAE. *p.* 95.

Pistils *fewer than the sepals, more or less united.* SAXIFRAGACEAE. *p.* 95.

GROUP 18. *Ovary* compound, 2- (rarely 3- or 5-) celled, with a single ovule suspended from the apex of each cell. *Stamens* usually as many as the petals, or lobes of the adherent calyx. *Embryo* small, in hard *albumen.*

† *Summit of the* ovary *free from the* calyx; petals *and* stamens *inserted on the throat of the* calyx. HAMAMELACEAE. *p.* 97.

†† Calyx-tube *entirely adherent to the* ovary. Stamens *and* petals *epigynous.*—Flowers *mostly umbellate.*

Fruit *separable into* 2 *dry* carpels. UMBELLIFERAE. *p.* 98.

Fruit *drupaceous, usually of more than* 2 carpels. ARALIACEAE. *p.* 108.

Flowers *cymose, or capitate.* Drupe 2-*celled.* CORNACEAE. *p.* 110.

DIVISION II. GAMOPET'ALOUS EXO'GENOUS PLANTS.

FLORAL ENVELOPES consisting of both calyx and corolla,—*the petals more or less united.**

GROUP 1. *Ovary* adherent to the calyx, 2- to several-celled, with 1 or many ovules in each cell. *Stamens* inserted on the corolla.—*Seeds albuminous; embryo* small.

Stipules *wanting.* CAPRIFOLIACEAE. *p.* 112.

Stipules *interpetiolar.* RUBIACEAE. *p.* 116.

GROUP 2. *Ovary* adherent to the calyx, 1-celled and 1 ovuled,—rarely 3-celled with 2 of the cells empty. *Seeds* with little or no albumen. *Stamens* inserted on the corolla. *Calyx*-limb a mere ring, crown, or pappus—or obsolete. *Fruit* akene-like.

Stamens *distinct.* Seed *suspended.*

Stamens 3, *or fewer.* VALERIANACEAE. *p.* 120.

Stamens 4. Heads *involucrate.* DIPSACEAE. *p.* 120.

Stamens *syngenesious.* Seed *erect.* COMPOSITAE. *p.* 121.

GROUP 3. *Ovary* adherent to the calyx, with 2 or more cells and numerous ovules. *Seeds* albuminous. *Stamens* inserted with the corolla (*epigynous*): *anthers* not opening by *pores.*

Corolla *irregular.* Stamens *united in a tube.* LOBELIACEAE. *p.* 162.

Corolla *regular.* Stamens *distinct.* CAMPANULACEAE. *p.* 164.

GROUP 4. *Ovary* sometimes adherent to the calyx, more commonly free,—with 2 or more cells and numerous ovules. *Seeds albuminous. Stamens* inserted with the corolla, or rarely adherent to its base,—as many, or twice as many, as its lobes: *anthers* mostly opening by *pores.*

* The plants belonging to ORD. XL. CUCURBITACEAE, although often *gamopetalous*, will be found in the *dialypetalous division:* and our native species of *Fraxinus*,—belonging to ORD. LXXIV. OLEACEAE, at the end of this division,—are *destitute of petals.*

Anthers 2-*celled*. ERICACEAE. *p.* 165.

GROUP 5. *Ovary* mostly free, several-celled, with a single ovule (at most a single seed) in each cell. *Seeds* mostly albuminous. *Stamens* definite,—as many as the lobes of the (sometimes almost dialypetalous) corolla, and alternate with them—or 2 to 4 times as many: *anthers* not opening by *pores*.

Stamens *as many as the* corolla-lobes. AQUIFOLIACEAE. *p.* 175.

Stamens *more numerous*; polygamo-dioicous. EBENACEAE. *p.* 176.

GROUP 6. *Ovary* mostly free, 1-celled, with a free central placenta. *Stamens* inserted into the regular corolla opposite its lobes, which they equal in number. *Seeds* albuminous.

Herbs: fruit *capsular*. PRIMULACEAE. *p.* 177.

GROUP 7. *Ovary* free, 1-celled with a single ovule,—or 2-celled with several ovules attached to a thick central placenta. *Stamens* as many as the lobes of the regular corolla. *Seeds albuminous.*

Ovary 2-*celled*; style *single*; stamens 4. PLANTAGINACEAE. *p.* 176.

GROUP 8. *Ovary* free, 1- or 2- (or spuriously 4-) celled, with numerous ovules. *Corolla* irregular (sub-bilabiate): *stamens* inserted upon its tube, and mostly fewer than its lobes.

Ovary 1-*celled*, *with a central* placenta. LENTIBULACEAE. *p.* 180.

Ovary *with parietal* placentae. OROBANCHACEAE. *p.* 180.

Ovary *spuriously* 4- *or* 5-*celled*. *Sub.Ord.* SESAMEAE. *p.* 182.

Ovary 2-*celled*; placentae *in the axis*.

Seeds *indefinite*, *winged*. BIGNONIACEAE. *p.* 182.

Seeds *few*, *wingless*. Corolla *convolute*. ACANTHACEAE. *p.* 183.

Seeds *mostly indefinite*. Corolla *imbricative*. SCROPHULARIACEAE. *p.* 183.

GROUP 9. *Ovary* free, 2- to 4-lobed, splitting into as many 1-seeded nutlets, or drupaceous. *Corolla* irregular or regular; *stamens* inserted on its tube, fewer than its lobes or as many. *Albumen* little or none.

Stamens 4, *didynamous*, *or* 2. Corolla *more or less irregular*.

Ovary *not* 4-*lobed*. VERBENACEAE. *p.* 194.

Ovary 4-*lobed*, *forming* 4 nutlets. LABIATAE. *p.* 196.

Stamens 5. Corolla *regular*. BORAGINACEAE. *p.* 214.

GROUP 10. *Ovary* free, compound, or the carpels mostly 2 and distinct; the ovules several or numerous. *Corolla* regular; *stamens* inserted upon its tube, as many as the lobes and alternate with them. *Seeds albuminous.*

† Ovary *compound* (*of* 2 *or more united* carpels).

Placentae 2, *parietal*. Embryo *minute*.

Leaves *lobed*. Seeds *few*. HYDROPHYLLACEAE. *p.* 218.

Leaves *entire*. Seeds *indefinite*. GENTIANACEAE. *p.* 229.

Placentae *in the axis*. Ovary 2- *or* 3-*celled*.

Embryo *large*, *bent or coiled*. CONVOLVULACEAE. *p.* 220.

Embryo *straight or arcuate*. Styles *united*.

Ovary 3-*celled*. Corolla *convolute*. POLEMONIACEAE. *p.* 218.

Ovary 2-*celled*. Corolla *plicate or valvate*. SOLANACEAE. *p.* 224.

†† Ovaries *mostly* 2 *and distinct—at least in fruit.*

Anthers *introrse;* pollen *granular*. APOCYNACEAE. *p.* 232.

Anthers *extrorse;* pollen *in waxy masses*. ASCLEPIADACEAE. *p.* 233.

GROUP 11. *Ovary* free, 2-celled, few-ovuled; cells of the fruit 1-seeded. *Corolla* regular—often wanting; *stamens* fewer than its lobes (usually 2).

Seeds *suspended*. Corolla (*when present*) *valvate*. OLEACEAE. *p.* 237.

DIVISION III. APETALOUS EXOGENOUS PLANTS.

COROLLA none: the *floral envelopes* consisting of *a single series* (*calyx*),—or sometimes entirely wanting.*

GROUP 1. *Flowers* perfect, with a conspicuous or colored mostly adnate calyx. *Ovary* several-celled and many-ovuled. *Capsule* fleshy or berry-like. ARISTOLOCHIACEAE. *p.* 240.

GROUP 2. *Flowers* perfect, or rarely polygamous, with a regular and often colored calyx. *Ovary* free; ovules solitary in each ovary or cell. *Embryo* curved or coiled around mealy *albumen*,—rarely in the axis, or exalbuminous.

Ovary *several-celled,—consisting of a verticil of several* 1-*ovuled* carpels. PHYTOLACCACEAE. *p.* 241.

Ovary 1-*celled, with a single* ovule.

Stipules *none*. Calyx *herbaceous*. CHENOPODIACEAE. *p.* 241.

" Calyx *and* bracts *scarious*. AMARANTHACEAE. *p.* 244.

Stipules *sheathing*. Calyx *colored*. POLYGONACEAE. *p.* 245.

GROUP 3. *Flowers* perfect, polygamous, or dioicous, not disposed in aments; calyx regular and often colored. *Ovary* 1-celled,—or rarely 2-celled, with 1 or few ovules in each cell; but the fruit 1-celled and 1-seeded. *Embryo* not coiled around *albumen*.

† Style *or* stigma *one*.

Calyx *free from the* ovary.

Flowers *polygamo-dioicous*. Anthers *opening by valves*. LAURACEAE. *p.* 251.

Flowers *perfect*. Anthers *opening lengthwise*. THYMELEACEAE. *p.* 252.

Calyx *adnate to the* ovary.

Ovules *several, pendulous*. SANTALACEAE. *p.* 253.

Ovules *solitary, suspended*.

Parasitic shrubs. Ovule *without integuments*. LORANTHACEAE. *p.* 254.

Trees. Fruit *a drupe*. NYSSACEAE. *p.* 253.

†† Styles *or* stigmas 2, *divergent*. ULMACEAE. *p.* 255.

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*Numerous plants of the DIALYPETALOUS ORDERS are *apetalous*,—such as *Clematis*, *Anemone*, and other RANUNCULACEAE; some RHAMNACEAE, ONAGRACEAE, ROSACEAE, ACERACEAE, &c., &c. Some of the GAMOPETALOUS ORDERS, also, are *apetalous;* as our species of *Fraxinus*, in OLEACEAE.

GROUP 4. *Flowers* perfect, entirely destitute of calyx as well as corolla. *Embryo* minute, inclosed in a persistent embryo-sac at the apex of the *albumen*. SAURURACEAE. *p.* 256.

GROUP 5. *Flowers* perfect or diclinous, often destitute of both calyx and corolla. Submersed or floating herbs.

Flowers *monoicous*.

Fruit 1-*celled*, 1-*seeded*. CERATOPHYLLACEAE. *p.* 257.

Fruit 4-*celled*, 4-*seeded*. CALLITRICHACEAE. *p.* 257.

Flowers *mostly perfect*.

Capsule *several-celled*, *several-seeded*. PODOSTEMACEAE. *p.* 258.

GROUP 6. *Flowers* monoicous or dioicous, not amentaceous. *Fruit* capsular or drupaceous, with 2 or more cells, and mostly 1 seed in each cell.

Fruit *mostly capsular*. Juice *milky*. EUPHORBIACEAE. *p.* 258.

GROUP 7. *Flowers* monoicous or dioicous; the sterile, and often the fertile ones, in aments,—or in heads, clusters, or spikes. *Ovary* often 2- to several-celled, but the *fruit* always 1-celled.

† Fruit *drupaceous*. Calyx *adherent*. JUGLANDACEAE. *p.* 261.

†† Fruit *a nut*, *involucrate*. Calyx *adherent*. CUPULIFERAE. *p.* 265.

††† Fruit *indehiscent*, 1-*seeded*. Flowers *all in* aments.

Ovary 1-*celled*; ovule *solitary*, *erect*. MYRICACEAE. *p.* 274.

Ovary 2-*celled*, 2-*ovuled*; ovule *pendulous*. BETULACEAE. *p.* 274.

†††† Fruit *dehiscent*, *many-seeded*. Seeds *comose*. Flowers *all in* aments, *destitute of* calyx. SALICACEAE. *p.* 276.

††††† Fruit *a nutlet*, *or capsule*. Flowers *in heads*, *or ament-like clusters*, *destitute of calyx*.

Nutlet *clavate*, 1-*seeded*. PLATANACEAE. *p.* 283.

†††††† Fruit *an akene*; *often inclosed in a baccate calyx*. Juice *milky*, *when* trees *or* shrubs. URTICACEAE. *p.* 283.

SUB-CLASS II.

GYMNOSPÉRMOUS EXO'GENOUS PLANTS.

OVULES, and consequently the *seeds*, naked,—i. e. *not inclosed in an ovary*; the *carpel* being represented either by an *open scale*, as in the *Pines*; or by a more evident *leaf*, as in *Cycas*; or else *wanting altogether* (the *ovule* seated in a *disk*), as in the *Yew*. *Flowers* monoicous or dioicous, commonly *amentaceous*.—the *stamens* often monadelphous. Of course there is neither *style* nor *stigma*. CONIFERAE. *p.* 289.

CLASS II.

ENDO'GENOUS PLANTS.

STEM not distinguishable into *bark*, *pith*, and *wood*; but the latter consisting of bundles of fibres and vessels irregularly imbedded in cellular tissue; the rind firmly adherent; no medullary rays, and no appearance of concentric layers: increase in diameter effected by the deposition of new fibrous bundles which, at their commence-

ment at least, occupy the central part of the stem. *Leaves* seldom falling off by an articulation, commonly sheathing at the base, usually alternate, entire, and with simple nearly parallel veins (or nerves, so called). *Floral envelopes*, when present, mostly in threes; the calyx and corolla often undistinguishable in texture and appearance. *Embryo* with a single cotyledon; or if a second is present, it is much smaller than the other and alternate with it.

GROUP 1. *Flowers* on a spadix,—with the perianth simple, scale-like, or commonly altogether wanting.

Terrestrial plants:

Mostly with a spathe: fruit *baccate.* ARACEAE. *p.* 297.

Fruit *nut-like,* 1-*seeded.* TYPHACEAE. *p.* 301.

Aquatic plants:

Flowers *in the edge of the frond.* LEMNACEAE. *p.* 300.

Flowers *axillary, or on a spadix.* NAIADACEAE. *p.* 302.

GROUP 2. *Flowers* not spadiceous. furnished with calyx and corolla. *Ovaries* several, distinct or sometimes united, free from the calyx. ALISMACEAE. *p.* 304.

GROUP 3. *Flowers* with a simple or double *Perianth,* adherent to the *ovary,* either completely or partially.

† Perianth *regular.* Ovary 1-*celled with parietal* placentae, *or rarely* 3- *to* 6-*celled with the* placentae *in the axis.*

Flowers *dioicous, or polygamous.* HYDROCHARIDACEAE. *p.* 305.

†† Perianth *irregular.* Ovary 1-*celled with parietal* placentae, Stamens 1 *or* 2.

Flowers *gynandrous.* ORCHIDACEAE. *p.* 307.

††† Perianth *mostly regular.* Ovary 3-*celled, many-ovuled.* Stamens 3 *or* 6.

Anthers *introrse.* Stamens *mostly* 6.

Bulbous. AMARYLLIDACEAE. *p.* 316.

Not bulbous. HAEMODORACEAE. *p.* 317.

Anthers *extrorse.* Stamens 3. IRIDACEAE. *p.* 317.

†††† Perianth *regular.* Ovary 3-*celled with* 1 *or* 2 *ovules in each cell.*

Flowers *dioicous.* Stamens 6. DIOSCOREACEAE. *p.* 318.

GROUP 4. *Flowers* with a regular *Perianth,* which is free from the *ovary,* more or less petaloid, or rarely glumaceous. *Embryo* inclosed in *albumen.*

Perianth *not glumaceous.*

Anthers *introrse.* styles *or* stigmas *distinct.* SMILACEAE. *p.* 319.

Anthers *introrse.* Styles *united into one.*

Terrestrial: *not spathaceous.* Flowers *regular.* LILIACEAE. *p.* 321.

Aquatic: *spathaceous.* Fl. *often irregular.* PONTEDERIACEAE. *p.* 332.

Anthers *mostly extrorse.* MELANTHACEAE. *p.* 327.

Perianth *glumaceous.* JUNCACEAE. *p.* 330.

GROUP 5. *Flowers* with a double or imbricated *perianth;* the exterior herbaceous, or glumaceous; the inner petaloid, free from the 1- to 3-celled *ovary. Seeds* orthotropous; the *embryo* at the extremity of the *albumen* farthest from the hilum.

Flowers *perfect*. Sepals *herbaceous*. COMMELYNACEAE. *p.* 333.
" Sepals *and* bracts *glumaceous*. XYRIDACEAE. *p.* 334.

GROUP 6. *Flowers* imbricated with glumaceous bracts and disposed in spikelets; proper *perianth* none or rudimentary. *Ovary* 1-celled, 1-ovuled. *Embryo* at the extremity of the *albumen* next the hilum.

Sheaths *closed*. Glume *or* bract *single*. CYPERACEAE. *p.* 335.
Sheaths *open on one side*. Glumes *in pairs*. GRAMINEAE. *p.* 354.

SERIES II.

CRYPTOG'AMOUS OR FLOWERLESS PLANTS.

PLANTS destitute of proper *flowers* (*stamens* and *pistils*), and propagated by *spores* instead of *seeds*.

CLASS III.

ACRO'GENOUS PLANTS.

VEGETABLES with a *distinct axis*, growing fromthe *apex*, with no provision for subsequent increase in diameter (containing both *woody* and *vascular tissue*), and usually with distinct *foliage*.

Leafless: Stems *jointed, striated*. EQUISETACEAE. *p.* 390.
Leafy: Leaves *mostly from* rhizomas, *and circinate*. FILICES. p. 391.
" Stems *creeping, or erect, mostly branching*. LYCOPODIACEAE. *p.* 399.
Aquatic: Spores *borne at the base of the leaves*. HYDROPTERIDES, *p.* 402.

CLASS IV.

AN'OPHYTES OR SUPEPIOR CELLULAR PLANTS.

VEGETABLES composed *entirely of cellular tissue* or parenchyma, with *acrogenous growth*, usually with distinct foliage,—sometimes the stem and foliage confluent into a frond.

Tufted: leafy; spore-cases *opening by a lid*. MUSCI. *p.* 403.
Often frondose; spore-cases *rupturing at apex*. HEPATICAE. *p.* 422.

CLASS V.

THAL'LOPHYTES OR VEGETABLE EXPANSIONS.

PLANTS wholly *cellular*,—developing themselves (often indefinitely) in *leaf-like expansions*, or in *rounded masses*, or congeries of cells,—but with no clear indication of a distinct root, stem, or foliage.

Frondose subcoriaceous or crustaceous expansions. LICHENES. *p.* 431.

FLORA CESTRICA.

Virtud es, respondió Sancho, conocer esas Yerbas, que segun yo me voy imaginando, algun dia será menester usar de ese conocimiento.—CERVANTES.

SERIES I.

PHAENOG'AMOUS OR FLOWERING PLANTS.

VEGETABLES bearing proper *flowers*, with stamens and pistils, and producing *seeds* which contain an *embryo*, or rudimentary plantlet.

CLASS I.

EXO'GENOUS OR DICOTYLÉDONOUS PLANTS.

STEMS distinctly formed of *bark*, *wood* and *pith*; *leaves* mostly netted-veined; *embryo* with 2 (or rarely more) opposite *cotyledons*.

SUB-CLASS I.

ANGIOSPÉRMOUS EXO'GENOUS PLANTS.

PISTIL a closed ovary, containing ovules and becoming the fruit; *pollen* applied to a *stigma*; *cotyledons* 2.

DIVISION I. DIALYPET'ALOUS EXO'GENOUS PLANTS.

FLORAL ENVELOPES consisting generally of both calyx and corolla, with *the petals mostly distinct.**

ORDER I. RANUNCULÀCEAE.

Herbs, or *woody vines*, with a colorless and often acrid juice; *leaves* usually dissected; *stipules* none; *petals* sometimes wanting, and the *calyx* corolla-like, hypogynous; the sepals, petals, numerous stamens, and many or few (rarely single) pistils, *all distinct* and unconnected; *seeds* with firm fleshy *albumen*; *embryo* minute.

This family comprises a number of plants of considerable beauty; but few that interest the mere utilitarian.

* The *petals*, however, will be found more or less *connected*, in many species of ORDER XXXIV. LEGUMINOSAE, and ORDER XL. CUCURBITACEAE. A few instances of *Dialypetalous* flowers occur in ORD. LIV. ERICACEAE (viz. in the *Suborders*, PYROLEAE and MONOTROPEAE),—which Order is, nevertheless, placed in the *Gamopetalous* Division of the Series. The petals are also *nearly distinct*, in some plants of ORD. LV. AQUIFOLIACEAE (viz. in *Ilex*, and *Prinos*); and in *Chionanthus*, ORD. LXXIV. OLEACEAE.

TRIBE I. CLEMATID'EAE.

Sepals valvate in the bud, or with the edges bent inward; *petals* wanting. *Perennial herbs* or *vines; leaves* all opposite.

1. CLEM'ATIS, *L.*

[Greek, *Klematis*, a vine, or runner; in allusion to its pliant stem.]

Sepals 4, colored, the valvate margins more or less bent inward.—*Carpels* tailed with the long persistent plumose *styles*. Our native species *climbing* by the *petioles*.

† Flowers *solitary, large:* Calyx *thickish or leathery.*

1. C. Viórna, *L.* Leaves pinnately dissected, the leaflets in 2 or 3 distant pairs, ovate, entire, or 2- or 3-lobed; floral leaves simple; sepals connivent, acuminate, recurved at apex.

WAY-ADORNING (?) CLEMATIS. Leather-flower.

Stem 6 to 8 or 10 feet long, pubescent, purplish, finally suffruticose. *Flowers* axillary; *peduncles* 3 to 6 inches long, with a pair of ovate *bracts* near the middle. *Sepals* violet-purple. *Carpels* tailed with the tawny plumose styles.

Hab. Borders of woods; Londongrove: rare. *Fl.* July. *Fr.* September.

†† Flowers *in paniculate clusters: dioicous.*

2. C. Virginiàna, *L.* Leaves ternately dissected, the leaflets lance-ovate, acuminate, coarsely incised-dentate or lobed, often subcordate at base; sepals obovate-oblong, spreading.

VIRGINIAN CLEMATIS. Virgin's Bower. Traveler's Joy.

Stem 8 to 12 or 15 feet long, with axillary divaricate branches, green, finally smoothish and suffruticose. *Sepals* white. *Carpels* tailed with the greenish-white, silky-plumose styles.

Hab. Moist thickets; fence-rows, &c. frequent. *Fl.* July, Aug. *Fr.* Sept.

TRIBE 2. ANEMO'NEAE.

Sepals imbricated in the bud; *petals* wanting; *leaves* sometimes radical, and opposite or whorled on the stem, forming an *involucre. Perennial herbs.*

2. ANEMO'NE, *L.*

[Gr. *Anemos*, wind; the flowers being supposed to open only when the wind blows.]

Sepals 5 to 15, petal-like. *Carpels* without tails. *Involucre* of 3 or 4 divided petiolate leaves at the base of the flower-stalks. *Radical leaves* dissected.

1. A. nemoròsa, *L.* Smooth; flower single on a naked peduncle; carpels few, pilose.

WOOD or GROVE ANEMONE. Wind-flower.

Stem, or scape, 3 to 6 inches high, slender. *Radical leaves* often wanting. *Sepals* usually 5 to 7, elliptic, white, often tinged with purple.

Hab. Moist woodlands, and thickets: frequent. *Fl.* April. *Fr.* June.

Obs. This delicate little harbinger of the Floral season is thus referred to, by Doctor DARWIN, in his Botanic Garden:—

> "All wan and shivering in the leafless glade,
> The sad ANEMONE reclined her head;
> Grief on her cheek had paled the roseate hue,
> And her sweet eye-lids dropp'd with pearly dew."

2. A. Virginiàna, *L.* Hairy; flowers on elongated involucellate peduncles; carpels numerous, tomentose, in dense cylindric heads.

VIRGINIAN ANEMONE.

Stem 9 to 12 or 18 inches high. *Radical leaves* on petioles 6 to 12 inches long, parted into 3 subsessile trifid leaflets. *Sepals* greenish-white. *Carpels* clothed with a whitish dense wool, by which, at maturity, they are often suspended from the receptacle in ragged dangling clusters.

Hab. Borders of woods; fence-rows, &c. frequent. *Fl.* June, July. *Fr.* Sept.

3. HEPAT'ICA, *Dillen.*

[Gr. *Hepar*, the liver; from a fancied resemblance in the leaves.]

Involucre of 3 simple leaflets, close to the flower, resembling sepals. *Flowers* like *Anemone*, single, on hairy scapes. *Leaves* all radical.

1. H. triloba, *Chaix.* Leaves subreniform-cordate, with 3 ovate obtuse or rounded lobes.

THREE-LOBED HEPATICA. Liver-wort. Liver-leaf.

Leaves on petioles 3 to 5 inches long. *Scapes* several, 4 to 6 inches long, silky-villous. *Involucre* villous externally. *Sepals* petal-like, blue or purplish, rarely white.

Hab. Open woodlands: common. *Fl.* April. *Fr.* May, June.

Obs. This plant acquired some notoriety among the nostrum-mongers, a few years since, as a remedy for pulmonary consumption; but it seems to have fallen into that neglect which awaits every medicine of exaggerated virtues.

4. THALIC'TRUM, *L.*

[A name of obscure derivation.]

Often *dioicous* or *polygamous: Sepals* 4 or 5, to 8 or 10, petal-like, caducous. *Carpels* 4 to 15, ribbed or grooved, tipped by the short style. *Perennials*, with decompound *leaves*.

† Stem-leaves *forming an involucre at summit;* root *a cluster of tubers;* flowers *perfect;* sepals 8 *or* 10.

1. T. anemonoides, *Mx.* Leaflets obtusely 3-lobed; flowers few in a simple umbel.

ANEMONE-LIKE THALICTRUM. Rue Anemone.

Root bearing a fascicle of 4 or 5 fleshy oblong tubers. *Radical leaves* biternate. *Scapes* 2 or 3, slender, often purple, 4 to 6 or 8 inches long. *Umbel* 3- to 6-rayed.—*Sepals* white, or tinged with purple.

Hab. Open woodlands, and clearings: common. *Fl.* April, May. *Fr.* June.

†† Stem-leaves *scattered;* root *fibrous;* flowers *dioicous or polygamous; sepals* 4 *or* 5.

2. T. dioicum, *L.* Leaves all with common petioles; leaflets 5 to 7-lobed; flowers dioicous; filaments capillary.

DIOICOUS THALICTRUM. Early Meadow-Rue.

Plant often purplish. *Stem* 12 to 18 inches high, sparingly branched at summit. *Leaves* mostly triternate; *leaflets* roundish-reniform, thin. *Flowers* in terminal compound panicles. *Sepals* mostly 4, pale violet-purple.

Hab. Rich, rocky, hilly woods: frequent. *Fl.* April, May. *Fr.* June.

3. T. Cornùti, *L.* Stem-leaves without common petioles; leaflets 3-lobed; flowers polygamous; filaments subclavate.

Also, T. rugosum, *Ait.* and *Fl. Cestr. ed.* 2. *p.* 334.

CORNUTUS'S THALICTRUM. Meadow Rue.

Stem 3 or 4 to 6 feet high, rather stout, branching, furrowed and fistular. *Leaves* pinnately decompound. *Flowers* in large and very compound panicles, greenish white.

Hab. Wet meadows, and along rivulets: frequent. *Fl.* June, July. *Fr.* Sept.

Obs. There are some *varieties* of this, which have heretofore passed for *species*.

TRIBE 3. RANUNCULE'AE.

Sepals imbricated in the bud; *petals* conspicuous, flat; *carpels* numerous, 1-seeded. *Stem-leaves* alternate. Mostly *perennial herbs*.

5. RANUN'CULUS, *L.*

[Latin, *Rana*, a frog; the plant often growing where frogs abound.]

Sepals 5. *Petals* usually 5, mostly longer than the sepals,—each with a little scale, or pit, at base inside. *Carpels* in a head, compressed, pointed.

§ 1. Petals *pitted at base, whitish;* Carpels *transversely rugose: Plants aquatic.*

1. R. aquátilis, *L.* Stem floating; leaves usually all immersed and filiformly dissected.

WATER RANUNCULUS. River Crow-foot.

Stems several, immersed and procumbently floating, 9 to 18 inches long, slender, radicating at the nodes. *Leaves* di- or tri-chotomously multifid,—the filiform segments aggregated in little dark-green bundles or tufts. *Peduncles* opposite the leaves.

Hab. Flowing waters; Brandywine: frequent. *Fl.* June, Aug. *Fr.* Aug. Sept.

§ 2. Petals *with a little scale at base, yellow:* Carpels *smooth.*

† Leaves *all undivided: Plants glabrous.*

2. R. Flámmula, *L.* Stem reclining, rooting at the lower nodes; leaves lanceolate; carpels with a slender beak.

LITTLE FLAME, OR FIERY RANUNCULUS. Spear-wort.

Stem 1 to 2 feet long, assurgent, sparingly branched, often dichotomous at summit. *Leaves* 2 or 3 to 6 or 7 inches long. *Peduncles* axillary, or opposite the leaves.

Hab. Ditches, and miry places: frequent. *Fl.* July. *Fr.* Aug. Sept.

Obs. This is a very acrid plant. The bruised herb has been used to raise blisters; and the distilled water is said to be a prompt and efficacious emetic. I am not quite sure it is indigenous here.

3. R. réptans, *L.* Stem slender, prostrate, rooting at the nodes; leaves linear-lanceolate; carpels few, with a minute blunt point.

CRAWLING RANUNCULUS.

Stem 6 to 12 inches long, very slender and thread-like, geniculate, or forming undulating curves of about an inch in span. *Leaves* few, half an inch to an inch long. *Flowers* solitary at the nodes, on slender peduncles.

Hab. Muddy margin of Schuylkill: rare. *Fl.* July, Aug. *Fr.* Sept.

4. R. pusillus, *Poir.* Stem ascending or erect; root-leaves ovate or roundish, upper leaves lance-oblong; carpels scarcely pointed.

PUNY RANUNCULUS.

Stem 6 to 12 inches high, flimsy, but generally erect, dichotomously branching.

growing in bunches, but only one stem from a root. *Peduncles* often thickish.—*Petals* scarcely longer than the calyx.
Hab. Wet meadows, along French Creek: rare. *Fl.* May. *Fr.* June, July.

†† Lower leaves *undivided, or merely cleft:* Petals *scarcely as long as the sepals.*

5. R. abortivus, *L.* Glabrous; radical leaves roundish-cordate, or reniform, stem-leaves mostly 3-parted; carpels with a minute curved beak.
ABORTIVE RANUNCULUS.

Stem usually 9 to 15 inches high—sometimes 2 feet, or more,—branched above. *Radical leaves* on petioles 4 to 6 inches long. *Peduncles* opposite the leaves, stout, 1 to 3 or 4 inches long. *Flowers* small.
Hab. Moist woods, and meadows: common. *Fl.* April, May. *Fr.* June, July.

6. R. recurvàtus, *Poir.* Hirsute; radical and stem-leaves nearly alike, deeply 3-cleft; carpels conspicuously beaked by the recurved style.
RECURVED RANUNCULUS.

Stem 9 to 15 inches high, branched and leafy at summit. *Leaves* somewhat pentagonal in their outline,—the *radical* ones on petioles 3 to 6 inches long. *Flowers* inconspicuous, at first nearly sessile among the leaves.
Hab. Moist woodlands: frequent. *Fl.* May. *Fr.* June.

7. *R. sceleràtus,* L. Glabrous; radical leaves 3-cleft, rounded, the segments cuneate,—upper stem-leaves with sub-linear lobes; carpels pointless, in cylindric heads.
HURTFUL RANUNCULUS. Celery-leaved Crow-foot.

Stem 12 to 18 inches high, thickish, fistular, branching and often dichotomous at summit. *Flowers* small.
Hab. Wet ditches, &c. Nat. of Europe. *Fl.* May, Aug. *Fr.* July, Sept.

Obs. A very acrid species, which Dr. GRAY suggests may have been introduced; and I strongly incline to the same opinion.

††† Leaves *ternately divided:* Petals *much longer than the sepals.*

8. R. fasciculàris, *Muhl.* Silky-pubescent; root a fascicle of thick fleshy fibres; radical leaves ternately or quinately dissected, appearing pinnate; carpels scarcely margined, tipped with a slender, rather curved, beak.
FASCICLED RANUNCULUS. Early, or Cluster-rooted Crow-foot.

Stem 3 or 4 to 12 or 15 inches high, cespitose, commencing to flower young, subsequently elongated. *Radical leaves* on petioles 3 to 8 inches long; *leaflets* cuneate-oblong, the lateral ones mostly petiolulate, and rather remote from the 3-parted terminal one.
Hab. Rocky, open woodlands: frequent. *Fl.* April, May. *Fr.* June.

9. R. rèpens, *L.* Stems ascending, often forming runners; carpels strongly margined, pointed with a stout straightish beak.
CREEPING RANUNCULUS.

Stem 1 to 2 feet long, at first erect, finally extending into procumbent runners with assurgent branches, more or less hairy. *Leaves* ternate, on long hairy petioles; *leaflets* trifid, on short petiolules. *Carpels* obovate, with a margined beak.
Hab. Moist, shaded grounds: frequent. *Fl.* May. *Fr.* June.

10. *R. bulbòsus*, L. Hairy; stem erect from a solid bulb; radical leaves 3-parted, the terminal division petiolulate; peduncles sulcate; calyx reflexed.

BULBOUS RANUNCULUS. Butter-cups. Crow-foot.

Stem 9 to 15 inches high, often cespitose, more or less branched. *Radical leaves* ternate and quinate-pinnate, on petioles 2 or 3 to 6 inches long; *stem-leaves* deeply and pinnatifidly incised. *Peduncles* terminal, or opposite the leaves, 1 to 3 or 4 inches long, furrowed and angular. *Carpels* with a short recurved beak.

Hab. Meadows, and pastures. Nat. of Europe. *Fl.* May. *Fr.* June, July.

Obs. This foreigner is becoming extensively naturalized, and is often very abundant in pasture lots. It is considered as very much of a nuisance, by the owners of meadows along the Brandywine.—The fleshy bulb is highly acrid; and, it is said, is often used by artful beggars, in Europe, to produce ulcers, &c., and thereby excite sympathy.

11. *R. acris*, L. Hairy; stem erect, not bulbous at base: leaves 3-parted, the divisions all sessile; peduncles not sulcate: calyx spreading.

ACRID RANUNCULUS. Tall Crow-foot.

Stem 1 to 2 feet high, rather slender, branched above, sparingly leafy. *Radical leaves* on long petioles.

Hab. Meadows, near Chadd's ford. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This unwelcome intruder has also found its way into our County; but is yet comparatively rare. It was detected in 1841, by Mr. JOSHUA HOOPES.

TRIBE 4. HELLEBORIN'EAE.

Sepals colored or petal-like; *petals* tubular, irregular or labiate (called *nectaries*),—often wanting; *carpels* mostly few, rarely single, few- or several-seeded. *Leaves* alternate. *Perennial herbs.*

6. CAL'THA, *L.*

[Gr. *Kalathos*, a cup, or basket; from the form of the flower.]

Sepals 5 to 9, petal-like. *Petals* none. *Pistils* 5 to 10, without styles. *Carpels* follicular, compressed, spreading, many-seeded.

1. C. palústris, *L.* Stem nearly erect, hollow, sulcate; leaves orbicular-cordate or sub-reniform, crenate, or nearly entire.

MARSH CALTHA. Marsh Marygold.

Plant glabrous. *Stem* 5 to 8 or 10 inches high, succulent, sometimes dichotomously branched. *Radical leaves* on petioles 3 to 6, and finally often 12 or 15, inches long. *Flowers* rather large, few, somewhat corymbose, bright yellow.

Hab. Swampy springs, and wet meadows: frequent. *Fl.* April. *Fr.* May, June.

7. AQUILE'GIA, *L.*

[Latin, *Aquila*, an Eagle; the spurs somewhat resembling Eagles' claws.]

Sepals 5, regular, colored. *Petals* 5, labiate, produced backwards into as many long tubular spurs. *Pistils* 5, with slender styles.—*Follicles* connivent, many-seeded.

1. A. Canadénsis, *L.* Spurs nearly straight; stamens and styles longer than the sepals.

CANADIAN AQUILEGIA. Wild Columbine.

Stem 12 to 18 inches high, slender and paniculately branching. *Leaves* once or twice ternate, glaucous beneath. *Flowers* nodding, red and yellow.
Hab. Rocky banks of streams: frequent. *Fl.* May. *Fr.* July.

8. DELPHIN'IUM, *L.*

[Gr. *Delphin*, a Dolphin; from a fancied resemblance in the flower.]

Sepals 5, irregular,—the upper one produced into a spur at base.—*Petals* 4, sometimes united, irregular,—the upper pair spurred and inclosed in the spur of the upper sepal. *Pistils* 1 to 5, mostly 3.—*Follicles* many-seeded.

1. *D. Consólida*, L. Leaves many-parted, the segments linear; racemes few-flowered; petals united; follicles solitary, smooth.
SOLDER DELPHINIUM. Lark-spur.

Annual. Stem about 2 feet high, and with the foliage and flowers somewhat pubescent. *Flowers* blue, or violet-purple.
Hab. Gardens, and cultivated grounds. Nat. of Europe. *Fl.* July. *Fr.* August.

Obs. This introduced plant is usually to be met with in gardens; and occasionally finds its way into the grain-fields of thoughtless people who are in the practice of carrying garden-rubbish into the barn-yard. In such cases, it threatens to become a nuisance.

TRIBE 5. CIMICIFU'GEAE.

Sepals colored, caducous; *petals* none, or small and flat (*staminodia*); *pistils* 1 or several; *fruit* baccate, or follicular, 1- 2- or many-seeded. *Leaves* alternate. *Perennial herbs.*

† Petals *none:* Carpels *baccate, clustered in a head.*

9. HYDRAS'TIS, *L.*

[Perhaps from the Gr. *Hydor*, water, and *drao*, to act; its juices being active.]

Sepals 3, petal-like, caducous. *Pistils* numerous, in a dense roundish head; *stigmas* dilated, 2-lipped. *Carpels* 1- or 2-seeded, becoming succulent and red, forming a kind of compound *berry.*

1. H. Canadénsis, *L.* Leaves cordate-orbicular, palmate-lobed and doubly serrate.
CANADIAN HYDRASTIS. Yellow-root.

Stem 6 to 12 inches high, simple, usually 2-leaved at summit (sometimes a *radical leaf* on a petiole nearly as long as the stem). *Flower* solitary, terminal, white.
Hab. Rich woodlands: not very common. *Fl.* April, May. *Fr.* July.

Obs. The *root* is bitter and tonic,—and was used by the aborigines as a *yellow dye.*

†† Petals *small, spatulate (resembling stamens).*

* Fruit *a many-seeded Berry.*

10. ACTAE'A, *L.*

[Gr. *Akte*, the Elder-bush; from a resemblance in the foliage.]

Sepals 3 to 5, colored, caducous. *Petals* (or *staminodia*) 4 to 10, small, flat, very entire, spatulate. *Pistil* single, becoming an oval *Berry.*

1. A. álba, *Bigel.* Raceme oblong; petals truncate at apex; pedicels thickened; berries white.
WHITE ACTAEA. White Cohosh. Baneberry.

Stem 1 to 2 feet high, slender, smooth. *Leaves* ternately decompound, petiolate; *leaflets* ovate-lanceolate, acuminate, incised-serrate. *Raceme* terminal, 1 to 2 or 3 inches long. *Flowers* white. *Berry* milk white, often tipt with purple.
Hab. Rocky woodlands: rather rare. *Fl.* May. *Fr.* Aug. Sept.

** Fruit 1 *or more dry follicular pods.*

11. CIMICIFUGA, *L.*

[Latin, *Cimex*, a bug, and *fugo*, to drive away; from its use.]

Sepals mostly 4. *Petals* (or *staminodia*) 1 to 8, minute, pedicellate, 2-horned at apex. *Pistils* 1 to 8.

1. C. racemòsa, *Ell.* Racemes very long; carpels mostly solitary, ovoid, obliquely beaked by the short thick style.
Actaea racemosa. *L.* and *Fl. Cestr. ed.* 2. *p.* 319.
Racemose Cimicifuga. Bug-bane. Tall, or Black Snake-root.

Stem 4 to 6 feet high, rather slender, leafy near the middle, naked above and below, with 1 or 2 *radical leaves* on long erect petioles. *Leaves* triternate, petiolate; *leaflets* ovate-oblong, acute or acuminate, incised-dentate. *Racemes* terminal, compound, virgate, 6 to 12 inches long, bearing many white flowers. *Seeds* flatted, packed horizontally in 2 rows.
Hab. Rich woodlands: common. *Fl.* June. *Fr.* Sept.

Obs. The white racemes of this plant, when in flower, are quite conspicuous in our woodlands. The stem and leaves, when bruised, have a disagreeable odor. The large root is somewhat mucilaginous and astringent; and an infusion of it is quite a popular medicine, for both man and beast,—without much regard to the nature of the disease!

ORDER II. MAGNOLIÀCEAE.

Trees or *shrubs; leaf-buds* sheathed by membranous *stipules; leaves* alternate, entire, or lobed (never serrate); *flowers* solitary, hypogynous, polyandrous, polygynous, usually large; both *sepals* and *petals* colored, arranged in series of threes, imbricated in the bud; *anthers* long, adnate; *pistils* mostly packed together, and covering the prolonged receptacle; *seeds* 1 or 2 in each carpel; *albumen* fleshy; *embryo* minute.

A small but superb family of ornamental trees and shrubs,—about equally divided between Eastern Asia and America.

12. MAGNO'LIA, *L.*

[Named in honor of Professor *Magnol*, a French Botanist.]

Sepals 3. *Petals* 6 to 9 or 12. *Anthers* introrse, or sometimes lateral. *Carpels* imbricated in a strobile-like spike, dehiscent by the dorsal suture. *Seeds* baccate; when mature, pendulous from the open carpel by a long slender *funiculus*. *Buds* terete and conical.

1. M. glaùca, *L.* Leaves lance-oblong, obtuse, glaucous beneath; petals roundish-obovate; cones ovoid.
Glaucous Magnolia. Sweet Bay. Swamp Sassafras.

Stem 10 to 15 (or rarely twice that many) feet high, branching, with a smooth glaucous aromatic bark. *Leaves* 4 to 6 or 8 inches long; *petioles* about ¾ of an inch in length. *Flowers* white, on thick clavate peduncles, very fragrant.
Hab. Swamps, and along rivulets: rare. *Fl.* June. *Fr.* Sept.

Obs. This delightful little tree, though abundant in the swamps of New-Castle county, on the south of us, is rare in Chester county.

KALM, in his Travels, written a century since, says—"Both the Swedes and English call it *Beaver tree*, because the root of this tree is the dainty of Beavers, which are caught by its means."

2. M. ACUMINÀTA, L. Leaves oval, shortly acuminate, green beneath; petals oblong; cones cylindric-oblong.

ACUMINATE MAGNOLIA. Cucumber Tree. Mountain Magnolia.

Stem 60 to 80 feet, or more, in height. *Leaves* 6 to 10 or 12 inches long. *Flowers* bluish-white, with tinges of yellow; *petals* scarcely expanding. *Cones* subcylindric, 3 to 5 or 6 inches long.

Hab. Yards, and lawns: cultivated. *Fl.* June. *Fr.* Oct.

Obs. This majestic and symmetrical species (a native of our mountains) is beginning to be appreciated, and introduced here, as an ornamental *shade tree*. No one could behold the noble specimens in the old *Marshall Botanic Garden*, without feeling its value, in that respect. Other ornamental species are also cultivated.

13. LIRIODEN'DRON, *L.*

[GR. *Leirion*, a lily, and *Dendron*, a tree; from its lily-like flowers.]

Sepals 3, reflexed. *Petals* mostly 6. *Anthers* extrorse. *Carpels* samara-like, indehiscent, densely imbricated in a cone. *Buds* flattish.

1. L. tulipifera, *L.* Leaves dilated, rounded or sub-cordate at base, usually 3-lobed, the middle lobe broad and emarginately truncate.

TULIP-BEARING LIRIODENDRON. Tulip-Poplar. Tulip-tree.

Stem 80 to 120 feet high. *Leaves* 4 to 6 or 8 inches long, and about as wide as long, becoming yellow in autumn; *petioles* 2 to 3 inches in length. *Flowers* tulip-shaped, greenish-yellow, with dashes of reddish-orange. *Carpels* produced at apex into a lance-oblong wing, and closely imbricated on the fusiform receptacle.

Hab. Rich woodlands, and fence-rows: common. *Fl.* May. *Fr.* October.

Obs. The wood of this magnificent tree is highly valued in many branches of the mechanic art,—especially the *variety* called *yellow poplar*, which is generally to be known by its thicker and more deeply furrowed bark. The bark of the root, and young tree, is a good aromatic bitter. "Many people," says KALM, "believe its roots to be as efficacious against the fever as the Jesuit's Bark."—Persons of taste are beginning to discover, that this, and some others of our splendid forest trees, are quite as worthy of cultivation, for shade and ornament, as many of the far-fetched exotics. The same may be said, also, of our brilliant native shrubs,—such as the *Kalmias, Azaleas*, &c. &c.

ORDER III. ANONÀCEAE.

Trees or *shrubs*, with naked buds and no *stipules; leaves* alternate, entire, feather-veined; *sepals* 3; *petals* 6, in 2 series, nearly valvate in the bud, hypogynous, polyandrous; *fruit* fleshy or pulpy; *seeds* large, with a minute embryo at the base of ruminated *albumen*.

The luscious *Custard apples* of the Indies, the *Chirimoya* of Peru, &c., are afforded by trees of this order.

14. ASIM'INA, *Adans.*

[A name coined from *Asiminier*, of the French colonists.]

Petals with their margins slightly overlapping in the bud,—the outer

series larger, and spreading. *Stamens* in a globular cluster, covering the receptacle of the few pistils. *Carpels* 3 (by abortion often 1 or 2), oblong or ovoid, pulpy, several-seeded; *seeds* arillate.

1. A. triloba, *Dunal.* Leaves obovate-oblong and cuneate, pointed; outer petals 3 or 4 times as long as the calyx, roundish-ovate.

THREE-LOBED ASIMINA. Papaw. Custard-apple.

Stem 10 to 15 or 20 feet high, branched. *Leaves* 6 to 9 inches long; *petioles* scarcely ½ an inch in length. *Flowers* solitary, lateral, appearing rather before the leaves; *petals* dark brownish-purple, with tinges of yellow within. *Carpels* connate, becoming a 2 or 3-lobed yellowish pulpy *berry*,—or more usually (by abortion) a simple ovoid-oblong berry, 2 to 3 inches in length.

Hab. Banks of streams; Schuylkill: not common. *Fl.* May. *Fr.* Sept.

Obs. The fruit of this small tree is esculent, and not unpalatable, under cultivation.

ORDER IV. MENISPERMACEAE.

Woody or *suffruticose climbers; leaves* peltate, or palmate, alternate, without *stipules; sepals* and *petals* similar, in 3 or more series, imbricated in the bud, hypogynous; polygamo-dioicous; *pistils* 3 to 6; *fruit* a *drupe; seed* 1, with a large curved *embryo*, and little *albumen*.

The well-known narcotic fruit, called *Cocculus Indicus*, or Fishing-berries, is furnished by this order.

15. MENISPERM'UM, *L.*

[Gr. *Mene*, moon, and *sperma*, seed; from the form of the nut.]

Flowers dioicous: Sepals and *petals* arranged in fours, in 2 or 3 series. *Stamens* 12 to 20; *anthers* 4-celled. *Pistils* 2 to 4, somewhat stipitate. *Drupes* roundish-reniform.

1. M. Canadénse, *L.* Leaves peltate near the base, 3- to 7-angled, or sub-lobed; flowers in axillary paniculate racemes.

CANADIAN MENISPERMUM. Moon-seed.

Perennial. Stem 8 to 12 or 15 feet long, slender, nearly simple, twining or climbing over shrubs and fences. *Leaves* 3 to 5 inches long, and rather wider than long, subcordate at base; *petioles* 3 or 4 inches in length. *Flowers* small, of a dingy yellowish-green tinged with purple; *petals* 8, smaller than the sepals. *Drupes* black with a bloom, when mature; *nut* wrinkled, lunate.

Hab. Rocky woods; thickets and fence-rows: frequent. *Fl.* June. *Fr.* Sept.

ORDER V. BERBERIDACEAE.

Shrubs, or *herbs; leaves* alternate, compound, or lobed; *stipules* small, caducous; *sepals* and *petals* both imbricated in the bud, in 2 or more series of 2 to 4 each; *stamens* hypogynous, as many, or twice as many, as the petals, and opposite them; *pistil* single; *fruit* mostly baccate; *seeds* albuminous.

Herbs: Perennial: Embryo small; *cotyledons* thick.

† Anthers *opening by uplifted valves.*

16. CAULOPHYL'LUM, *Mx.*

[Gr. *Kaulos*, a stem, and *Phyllon*, a leaf; the petiole being stem-like.]

Sepals 6, with 3 *bractlets*. *Petals* 6, gland-like, dilated and somewhat hooded or incurved at summit, much smaller than the sepals. *Stamens* 6. *Pistil* gibbous; *ovary* bursting early by the pressure of the 2 enlarging *ovules*, and soon disappearing,—the globular *seeds* naked on their erect thick seed-stalks, becoming drupe-like.

1. C. thalictroides, *Mx.* Leaves compound, the lower one triternate, the upper biternate; leaflets cuneate-obovate, mostly 3-lobed; panicle racemose, from the base of the upper petiole.
Leontice thalictroides, *L. and Fl. Cestr. ed.* 2. *p.* 213.
THALICTRUM-LIKE CAULOPHYLLUM. Blue Cohosh. Pappoose-root.

Plant glabrous, purplish and glaucous when young. *Stem* 12 to 18 inches high, generally 2-leaved. *Lower leaf* mostly triternate (bearing 27 leaflets), upper one biternate (bearing 9 leaflets); *leaflets* 2 to 3 inches long. *Flowers* yellowish-green. *Seeds* with a fleshy integument, and a solid horny albumen, deep blue at maturity. *Hab.* Rich woodlands: frequent. *Fl.* April. *Fr.* Aug.

Obs. This curious plant was one of the numerous articles of the *aboriginal materia medica*, now fallen into neglect. Though nearly allied to the *Leontice*, of Europe, I entirely concur with Prof. A. GRAY, that it may "very probably resume its generic rank"; and have accordingly acted upon the suggestion.

†† Anthers *not opening by uplifted valves.*

17. PODOPHYL'LUM. *L.*

[Gr. *Pous, podos*, a foot, and *Phyllon*, a leaf; the leaf resembling a web foot.]

Sepals 6, thin and caducous, not expanding, subtended by 3 caducous *bracts*. *Petals* 6 to 9. *Stamens* 12 to 18; *anthers* linear-oblong, adnate, opening lengthwise, as by a laterally-hinged valve. *Ovary* 1-celled, crowned by a thick peltate undulate-crested *stigma*. *Berry* oval, pulpy, many-seeded.

1. P. peltàtum, *L.* Leaves peltate, deeply lobed, terminal, in opposite pairs or solitary; flower solitary, dichotomal.
PELTATE PODOPHYLLUM. May apple. Hog apple.

Rhizoma creeping. *Stem* 8 to 12 inches high, 1- or 2-leaved at summit. *Leaves* 4 to 6 inches in diameter, 5- or 7-lobed. *Flower* white, rather large, appearing only on the 2-leaved plants, on a curved peduncle in the fork of the petioles. *Berry* yellowish.
Hab. Woodlands, and meadows: common. *Fl.* May. *Fr.* August.

Obs. The *rhizoma* possesses cathartic properties; and affords, when dried and pulverized, a tolerable substitute for *Jalap*.

ORDER VI. CABOMBÀCEAE.

Aquatic herbs, like *water-lilies*,—but the *flowers* composed of *fewer parts*, and *definite* in number; the parts all *distinct* and separate; *seeds* albuminous.

18. BRASE'NIA, *Schreber.*

[The derivation of this name seems to be unknown.]

Sepals 3 or 4, oblong, colored inside, persistent. *Petals* as many as the sepals, and alternate with them, persistent. *Stamens* 12 to 36; *anthers* innate. *Pistils* 4 to 18, capitate-crowded. *Ovary* 1-celled; *ovules* 2. *Carpels* oblong or obovoid, coriaceous, indehiscent, 1- or 2-seeded; *seeds* pendulous, from the dorsal suture! *Perennial. Leaves* alternate.

1. B. peltàta, *Pursh.* Leaves oval, entire, centrally peltate, floating on petioles of various length.
Hydropeltis purpurea. *Mx. and Fl. Cestr. ed.* 2. *p.* 601.
PELTATE BRASENIA. Water-shield.

Plant purplish green, the parts in the water very slimy. *Stem* 1 to several feet long, according to the depth of water. *Leaves* 2 to 4 inches in the longest diameter

somewhat crowded near the summit of the stem, all floating on the surface of the water; *petioles* 6 to 12 or 15 inches long. *Flowers* axillary, solitary, brownish purple; *peduncles* 2 or 3 to 5 or 6 inches long.
Hab. Lakes and pools; Schuylkill: rare. *Fl.* June, July. *Fr.* Aug.

ORDER VII. NYMPHAEÀCEAE.

Aquatic herbs, with a large *rhizoma; leaves* roundish, cordate or cordate-cleft at base, floating or erect; *flowers* solitary,—the *sepals*, the numerous *petals* and *stamens*, imbricated in several series; *pistils* numerous, combined into a many-celled compound ovary; *seeds* suspended, sometimes arillate, *albuminous; embryo* small.

To this Order belong the beautiful and fragrant *Water Lilies;* also the magnificent *Victoria regia*, of tropical America,—which was first successfully cultivated in the U. States in 1851, by the enterprising and public-spirited President of the Pennsylvania Horticultural Society, CALEB COPE, Esq.

19. NU'PHAR, *Smith.*

[Formed from *Neufar*, the Arabic name for the Pond-Lily.]

Sepals 5 or 6, orbicular. *Petals* numerous, narrow and stamen-like, and with the numerous *stamens* inserted on a disk at the base of the ovary. *Stigma* compound, sessile, radiated. *Fruit* an ovoid subcarnose *capsule*. *Seeds* not arillate.

1. N. ádvena, *Ait.* Leaves cordate, with diverging lobes; petioles semi-cylindric; sepals 6, unequal; fruit sulcate.
STRANGE NUPHAR. Spatter-dock. Yellow Pond-Lily.

Stemless *perennials; rhizoma* creeping, thick and often several feet long.—*Leaves* 8 to 10 or 12 inches long, erect in shallow water, floating in deep water, coriaceous; *petioles* thick, varying in length. *Flowers* dull yellow, on *peduncles* 6 to 12 or 18 inches long.
Hab. Pools, and still waters: frequent. *Fl.* May, Sept. *Fr.* Aug. Oct.

ORDER VIII. PAPAVERÀCEAE.

Herbs, with a milky or colored juice: *flowers* regular, polyandrous, hypogynous: *sepals* caducous; *fruit* mostly a 1-celled pod or capsule, with 2 or more parietal placentae, which sometimes form imperfect partitions; *seeds* numerous, often crested; *embryo* small, at the base of fleshy and oily *albumen*.

This Order is chiefly remarkable, as affording that solacing drug, called *Opium*,—or what an eminent Physician termed the "*magnum Dei donum*."

† Herbs *with a white juice:* Seeds *not crested.*

20. PAPA'VER, *L.*

[Derivation of the name not well ascertained.]

Sepals mostly 2. *Petals* 4. *Stigmas* 4 to 20, sessile, united in a flat radiated crown on the summit of the ovary. *Capsule* obovoid, with imperfect partitions, opening by chinks or pores under the edge of the stigmatic crown.

1. *P. dùbium*, L. Leaves pinnatifid, hairy; peduncles clothed with appressed bristles; capsules clavate, smooth.
DUBIOUS PAPAVER. Poppy. Field-Poppy.

Annual. Stem 1 to 2 feet high, somewhat branching. *Leaves* 2 to 5 inches long. *Flowers* dull red, on flexuous peduncles 6 to 12 inches in length, nodding before they expand.
Hab. Cultivated grounds. Nat. of Europe. *Fl.* May. *Fr.* July.

Obs. This foreigner has made its appearance, within a few years,

in some of our cultivated grounds; and if not attended to, may become a troublesome weed. The *P. somníferum*, L,—the sleep-bringing, or Opium Poppy, is to be seen in almost every garden, and nearly naturalized. Dr. DARWIN thus notices it, in his gorgeous poem:—

"Sopha'd on silk, amid her charm-built towers,
Her meads of asphodel, and amaranth bowers,
Where Sleep and Silence guard the soft abodes,
In sullen apathy PAPAVER nods."

†† Herbs *with a yellow or orange-colored juice.* * Seeds *pitted.*

21. ARGEMO'NE, *L.*

[Gr. *Argema*, a disease of the eye,—supposed to be relieved by this plant.]

Sepals mostly 3, aculeate. *Petals* 4 to 6. *Stigmas* 3 to 6, sub-sessile, radiately reflexed. *Capsule* muricate, 1-celled, opening at apex by 3 to 6 valves. *Seeds* reticulate, with the *raphe* naked.

1. *A. Mexicàna*, L. Leaves blotched with white, obovate-oblong, sinuate-lobed, with prickly teeth; juice yellowish.

MEXICAN ARGEMONE. Prickly Poppy.

Annual. Stem about 2 feet high, branching. *Leaves* 3 to 5 inches long, sessile and sub-amplexicaul. *Flowers* yellow, on leafy peduncles, or branches. *Sepals* cucullate at apex, and terminated by a stout spine.

Hab. About gardens, and waste places. Nat. of Mexico. *Fl.* June. *Fr.* Aug.

Obs. Partially naturalized; but does not appear to extend itself as rapidly as some other intruders.

** Seeds *crested.*

22. CHELIDO'NIUM, *L.*

[Gr. *Chelidon*, a swallow; its flowers appearing with that bird.]

Sepals 2. *Petals* 4. *Stigma* 2-lobed, subsessile. *Capsule* 1-celled, elongated, slender, smooth, resembling a *silique;* valves 2, opening from the base. *Seeds* with the *raphe* conspicuously crested.

1. *C. május*, L. Leaves bipinnatifid, glaucous; peduncles sub-umbellate; juice orange-colored.

GREATER CHELIDONIUM. Celandine.

Root perennial. *Stem* about 2 feet high, branched. *Leaves* 3 to 5 inches long.—*Flowers* yellow, umbellate on a *common peduncle* which is 2 to 4 inches long. *Capsules* about an inch in length, torulose.

Hab. Fence-rows, and waste places. Nat. of Europe. *Fl.* May. *Fr.* July.

Obs. The colored juice of this foreigner has long been a popular (and very *innocent*) application to *warts.*

23. SANGUINA'RIA, *L.*

[Latin, *Sanguis*, blood; in reference to the color of the juice.]

Sepals 2. *Petals* 8 to 12, spatulate-oblong. *Stigma* 2-grooved, sub-sessile. *Capsule* oblong, ventricose, tapering at each end; valves 2, deciduous. *Seeds* horizontal, the *raphe* strongly crested.

1. S. Canadénsis, *L.* Leaf mostly solitary, cordate-reniform, sinuate-lobed, on a long petiole; juice reddish-orange color.

CANADIAN SANGUINARIA. Red-root. Turmeric. Indian Paint.

Stemless *perennial*; *rhizoma* thickish, fleshy, reddish-brown, about 2 inches long. *Leaf* about 3 inches long, and wider than long; *petiole* erect, finally 6 to 8 or 10

inches in length. *Scape* 4 to 6 or 8 inches high, 1-flowered; *flower* white, rather large.

Hab. Rich woodlands: common. *Fl.* April. *Fr.* June.

Obs. The *rhizoma* possesses emetic and other medicinal properties, which have been favorably spoken of by respectable physicians.

ORDER IX. FUMARIÀCEAE.

Herbs; smooth, glaucous and delicate, with a watery juice; *leaves* compoundly dissected; *stipules* none; *flowers* irregular; *petals* 4, somewhat united; *stamens* 6, diadelphous; *fruit* and *seeds* much resembling those of some *Papaveraceae.*

† Capsule *slender, siliquose, opening by* 2 *valves.*

24. ADLU'MIA, *Rafin.*

[Dedicated to Major *John Adlum,* a zealous American cultivator of the Vine.]

Sepals 2, deciduous. *Petals* cohering in an ovate-oblong corolla, bigibbous at base, withering-persistent and spongy, including the silique-like capsule. *Seeds* not crested.

1. A. cirrhòsa, *Rafin.* Stem slender, climbing by means of the tendril-like petioles; leaves tripinnately dissected.

CIRRHOSE ADLUMIA. Climbing Fumitory.

Biennial. Stem 8 to 15 or 20 feet long, branching and climbing. *Leaves* 4 to 6 or 8 inches long, loosely dissected or branched, the common *petiole* twining like a tendril. *Flowers* in compound axillary racemes; *corolla* pale violet-purple, or flesh-color,—finally a dirty white, and of a fungous texture, including the stamens and capsule.

Hab. Thickets; West Brandywine: rare. *Fl.* July. *Fr.* Aug.

Obs. This is often and deservedly cultivated, as a delicate ornamental climber, over arbors, &c.

25. DICEN'TRA, *Borkh.* [DICLYTRA. DC.]

[Gr. *Dis,* double, and *kentron,* a spur; in allusion to the flower.]

Sepals 2, small and membranaceous. *Petals* connivent, but scarcely united, deciduous,—the 2 outer ones spurred or gibbous at base.—*Filaments* slightly united. *Capsule* siliquose. *Seeds* with a lateral crest. *Tuberous-rooted, stemless perennials; leaves* radical, ternately multifid; *flowers* racemose, on simple *scapes.*

1. D. Cucullària, *DC.* Root granulate-bulbous; raceme 4- to 10-flowered; spurs divergent, straight, rather acute, longer than the pedicel; inner petals minutely crested.

Dielytra Cucullaria. *Hook. & Fl. Cestr. ed.* 2. *p.* 398.

HOOD-LIKE DICENTRA. Dutchman's Breeches. Breeches-flower.

Bulbs usually trigonous-ovoid and acuminate, pale red and purple-dotted, surrounded at base by smaller ones. *Scape* 6 to 10 inches high, slender, naked.—*Flowers* white, yellowish or cream-color at apex, destitute of fragrance.

Hab. Moist shaded grounds: frequent. *Fl.* April. *Fr.* May.

Obs. The name of this *genus* seems to have been written *Diclytra,* and *Dielytra,* by different authors, in consequence of a *typographical error,* resulting from a misconception of the *original manuscript,* intended for *Dicentra.*

2. D. Canadénsis, *DC.* Root tuberiferous; raceme about 4-flowered; spurs nearly parallel, incurved, obtuse, short; inner petals conspicuously crested.

Dielytra eximia. *Hook. & Fl. Cestr. ed.* 2. *p.* 399.
CANADIAN DICENTRA. Squirrel-Corn.

Tubers depressed-globose, tawny-yellow, clustered and concatenated. *Flowers* greenish-white, tinged with purple, fragrant.
Hab. Moist grounds, near Kimberton: rare. *Fl.* April. *Fr.* May.

26. CORYD'ALIS, *L.*

[The ancient Greek name of the *Fumitory*, a kindred plant.]

Sepals 2, minute, resembling bractlets. *Petals* somewhat cohering, one only spurred or gibbous at base. *Capsule* siliquose. *Seeds* globular-reniform, with a concave or shell-shaped crest. *Biennials.*

1. C. aùrea, *Willd.* Stems low, spreading; racemes simple; spur incurved; capsules pendent.
GOLDEN CORYDALIS.

Stem 3 to 6 or 8 inches long, often diffusely branching from the base. *Leaves* 3- to 5-parted, the divisions pinnatifid; radical or lower leaves mostly numerous, on long petioles. *Racemes* usually opposite the leaves. *Flowers* bright yellow.—*Seeds* with a scalloped crest.
Hab. Banks of the Schuylkill: rare. *Fl.* May. *Fr.* June.

2. C. glaùca, *Pursh.* Stem upright; racemes subpaniculate: spur short, rounded; capsules erect.
GLAUCOUS CORYDALIS.

Plant remarkably glaucous. *Stem* 12 to 18 inches high, angular and branching. *Leaves* somewhat biternately dissected; radical or lower leaves on long petioles.—*Racemes* terminal. *Flowers* ochroleucous, with a slight shade of green, and tinged with purple. *Seeds* with a small entire crest.
Hab. Hills, near the Schuylkill: rare. *Fl.* May. *Fr.* June.

†† Capsule *globular, fleshy, indehiscent.*

27. FUMA'RIA, *L.*

[Latin, *Fumus*, smoke; perhaps from its dingy glaucous hue.]

Sepals 2, lance-ovate, acuminate. *Petals* 4, the lower one linear, free, the others cohering at base,—the upper one spurred. *Capsule* small, 1-seeded. *Seed* not crested.

1. *F. officinàlis,* L. Stem sub-erect, branching; leaves much and finely dissected; racemes terminal, or opposite the leaves; pedicels clavate.

OFFICINAL FUMARIA. Common Fumitory.

Annual. Stem 9 to 18 inches high, diffusely branching. *Leaves* petiolate, bipinnately branching, the divisions petiolulate. *Flowers* slender, pale violet-purple with a leaden tinge, deeper purple at summit, with green keels.
Hab. Naturalized in Gardens, &c. Nat. of Europe. *Fl.* May. *Fr.* July.

ORDER X. CRUCIF'ERAE.

Herbs, with a pungent watery juice; *leaves* alternate, without *stipules; flowers* corymbose, or racemose; *pedicels* without *bracts; sepals* 4, deciduous; *petals* 4, cruciate; *stamens* 6, tetradynamous; *fruit* a *silique*, or *silicle; seeds* without *albumen; embryo* mostly curved,—the *cotyledons* bent over, with either their *edges*, or *back*, to the *radicle.*

A remarkably *natural* or homogeneous family,—both in the sensible properties, and botanical characters, of the plants belonging to it. It furnishes, moreover, a large and valuable portion of our culinary vegetables.

DIVISION 1. SILIQUO'SAE.

Fruit a *silique*—i. e. a slender elongated jointless pod, or capsule of 2 valves, rendered 2-celled by a false *septum*, or partition, stretched between the *parietal placentae*, from which the valves separate.

TRIBE 1. ARABID'EAE.

Seeds compressed, sometimes margined; *cotyledons* plane, parallel with the septum, accumbent (o =)—i. e. with their *edges* to the radicle.

28. NASTUR'TIUM, *R. Br.*

[Latin, *Nasus tortus*, a convulsed nose; from its pungent effect.]

Silique rather short and turgid, usually curved upwards. *Seeds* irregularly in 2 rows in each cell, not margined.

1. *N. officinàle*, R. Br. Stem radicating; leaves odd-pinnately divided, with rounded or oblong segments.

OFFICINAL NASTURTIUM. Water-Cress.

Perennial. Stem 6 to 12 or 18 inches long, branching. *Leaves* dissected into 3 to 7 or 9 segments, the terminal one largest. *Petals* white.
Hab. Rivulets, and ditches. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. This foreign plant—which is the true *Water-Cress*, of Europe—was found (in 1838, since the publication of the preceding edition), near Downingtown, by Mr. JOSHUA HOOPES. It is easily propagated, and is now naturalized in several localities in the County. Being a wholesome Salad, it deserves to be generally introduced into suitable springs and brooks, for table use.

29. CARDAM'INE, *L.*

[Gr. *Kardamon*; an ancient name for Cress.]

Silique linear, flattened; valves nerveless, usually opening elastically from the base. *Seeds* in a single row in each cell, not margined.

† BIENNIAL: leaves *pinnatifid*; flowers *small*.

1. C. hirsùta, *L.* Smoothish; stem erect; leaves pinnately dissected or lyrate-pinnatifid,—segments of the lower ones rounded, of the upper ones lance-oblong.

HIRSUTE CARDAMINE. Common Bitter-Cress.

Stem 3 or 4 to 12 or 18 inches high, branching, and often several from the same root. *Leaves* 1 to 3 or 4 inches long, petiolate. *Racemes* 2 to 4 or 6 inches long.—*Petals* white, narrow, twice as long as the calyx, but rather inconspicuous.
Hab. Springs, and swampy rivulets: frequent. *Fl.* May. *Fr.* June.

Obs. Our plant is usually so much less hairy than the European one of the same name, that it has been regarded as a distinct species, by many botanists, and called *C. Pennsylvanica.*

†† PERENNIAL: leaves *nearly entire*; flowers *conspicuous*.

2. C. rotundifòlia, *Mx.* Stem weak and decumbent, with creeping runner-like branches; leaves all orbicular and petiolate; root fibrous.

ROUND-LEAVED CARDAMINE. American Water-Cress.

Stem 6 to 12 or 15 inches long, with slender procumbent axillary branches.—*Leaves* all similar in form,—the lower ones about two inches long, sometimes with a pair of small lobes on the petiole,—the upper leaves gradually smaller as they

ascend. *Racemes* 1 to 3 inches long, sometimes proliferous. *Petals* white, or ochroleucous, cuneate-obovate, about twice as long as the calyx.
Hab. Shaded springs; Brandywine: not common. *Fl.* May. *Fr.* June.

Obs. My excellent friend, Prof. TORREY, finds it difficult to believe that our *Chester County* plant is the same as MICHAUX's: But I have a number of specimens from MICHAUX's locality (the mountains of N. Carolina), which I am very confident my friend would be puzzled to distinguish from ours.

3. C. rhomboidea, *DC.* Stem erect, mostly simple; lower leaves oval or rhombic-oblong, on long petioles,—upper ones lance-oblong, sessile; root tuberiferous.
RHOMBOID CARDAMINE. Spring-Cress.

Stem 9 to 18 inches high. *Racemes* 2 to 5 inches long. *Petals* white, conspicuous, 3 or 4 times as long as the calyx.
Hab. Along swampy rivulets: frequent. *Fl.* April. *Fr.* June.

30. DENTA'RIA, *L.*

[Latin, *Dens, dentis,* a tooth; from its tooth-like tubers.]

Silique compressed, lanceolate, acuminate. *Seeds* in a single series, ovate, not margined; *funiculus* dilated; *cotyledons* thick. *Perennials.*

1. D. laciniàta, *Muhl.* Leaves in threes, subverticillate, deeply 3-parted; segments lance-linear, laciniate.
LACINIATE DENTARIA. Cut-leaved Tooth-wort.

Rhizoma fleshy, tooth-shaped, moniliform. *Stem* 6 to 12 inches high, simple.—*Leaves* usually 3, near the summit of the stem, each mostly 3-parted to the base; *segments* 2 to 4 inches long. *Raceme* terminal, loose, at first corymbose. *Flowers* pale purple, or nearly white.
Hab. Rich woodlands: frequent. *Fl.* April. *Fr.* June.

31. AR'ABIS, *L.*

[Supposed to have been so named for an *Arabian* species.]

Silique long, linear, compressed; valves flattish, 1-nerved. *Seeds* in a single series, oval or orbicular, often margined. *Cotyledons* flat.

† Seeds *not margined.*

1. A. lyràta, *L.* Radical leaves lyrate-pinnatifid, hairy; stem-leaves spatulate-linear, entire, smoothish; siliques rather spreading, pointed with a short style; radicle often oblique.
Sisymbrium arabidoides, *Hook. Bor. Am.* and *Fl. Cestr. ed.* 2. *p.* 387.
LYRATE ARABIS. American Rock-Cress.

Perennial? *Stem* 6 to 12 inches high, branched, often several from the same root. *Radical leaves* numerous and tufted, 1 to 3 inches long, often dying early and disappearing. *Racemes* 2 to 5 inches long. *Flowers* white, rarely tinged with purple.
Hab. Dry, rocky hills; Serpentine ridge, abundant. *Fl.* April. *Fr.* May.

†† Seeds *partially margined.*

2. A. hirsùta, *Scop.* Hirsute; stem-leaves oblong or lanceolate, clasping and often sagittate; siliques erect, style very short, clavate.
HIRSUTE ARABIS. Hairy Rock-Cress.

Biennial? *Stem* 6 to 12 or 18 inches high, branched at base, or several from the root. *Radical leaves* about an inch long, roundish-ovate to obovate-oblong, with a flat petiole. *Raceme* 2 to 6 inches long. *Flowers* ochroleucous, or greenish white. *Hab.* Rocky banks; Schuylkill: not common. *Fl.* April. *Fr.* June.

††† Seeds *wholly and conspicuously margined.*

3. A. laevigàta, *DC.* Smooth and glaucous; stem-leaves lance-linear, clasping; siliques recurved-spreading, long and narrow.

POLISHED ARABIS. Smooth Rock-Cress.

Perennial? *Stem* 1 to 2 feet high, rather stout, somewhat branched above. *Radical leaves* 1 to 2 inches long, obovate or oblong, often purplish. *Racemes* 4 to 8 or 10 inches long. *Flowers* ochroleucous, rather small; *siliques* 2 to 3 inches in length. *Hab.* Low grounds, along Brandywine: frequent. *Fl.* April. *Fr.* June.

4. A. Canadénsis, *L.* Stem-leaves oblong-lanceolate, pointed at both ends, sessile, roughish-pubescent; siliques falcate, pendulous.

CANADIAN ARABIS. Sickle-pod. Turkey-pod.

Perennial? *Stem* 2 to 3 feet high, simple, or sparingly branched above, often sparsely hirsute at base. *Radical leaves* 2 or 3 inches long, obovate or oblong, dying early. *Raceme* 6 to 10 inches long. *Flowers* white; *siliques* 2 to 3 inches long, recurved,—the valves veined, and usually ancipital, with a keel-like mid-nerve.

Hab. Hilly, open woodlands: frequent. *Fl.* June. *Fr.* Aug.

32. BARBARE'A, *R. Br.*

[So named, from having been dedicated to *Santa Barbara.*]

Silique linear, somewhat 4-sided, the valves being strongly keeled by the mid-nerve. *Seeds* in a single series, not margined. *Cotyledons* flat, thickish.

1. *B. vulgàris,* R. Br. Lower leaves lyrate, the terminal lobe rounded; the upper leaves obovate, often pinnatifid at base; siliques acuminate.

COMMON BARBAREA. Winter Cress. Yellow Rocket.

Perennial. *Stem* 1 to 2 feet high, sulcate-striate, smooth, branched above. *Leaves* 1 to 3 or 4 inches long. *Flowers* yellow.

Hab. Low grounds, along Brandywine. Nat. of Europe. *Fl.* May. *Fr.* July.

Obs. I have no doubt of this being an introduced plant, though quite common in many places. There is a nearly allied species (*B. praecox, R. Br.*) cultivated around Philadelphia, for the market; and both are used as a Salad, under the name of "Scurvy-grass,"—but are, I think, decidedly inferior to *Nasturtium.*

TRIBE 2. SISYMBRIE'AE.

Seeds thickish, ovate or oblong, not margined; *cotyledons* plane, with their edges to the septum, incumbent (o||)—i. e. the *back* of one of them to the radicle.

33. SISYM'BRIUM, *L.*

[An ancient Greek name; applied to this genus.]

Silique subterete, or 4- to 6-sided; valves 1- to 3-nerved. *Seeds* in a single series, oblong. Mostly *annuals.*

1. *S. officinàle,* Scop. Lower leaves runcinate, upper ones subhastate; racemes slender and virgate; siliques subulate, subsessile, appressed to the rachis.

OFFICINAL SISYMBRIUM. Hedge Mustard.

Stem 2 to 4 feet high, with spreading branches. *Leaves* 3 to 6 or 8 inches long.—*Racemes* elongating, finally 6 to 12 or 15 inches in length. *Flowers* greenish-yellow, small.

Hab. Lanes, roadsides, and waste places. Nat. of Europe. *Fl.* May. *Fr.* Aug.

Obs. A worthless introduced *weed*,—now extensively naturalized.

2. *S. Thaliànum*, Gaud. Leaves obovate or oblong, entire or obscurely dentate; siliques linear, somewhat 4-sided.

THALIAN SISYMBRIUM. Mouse-ear Cress.

Biennial? *Stem* 3 or 4 to 12 inches high, often several from the same root, with slender axillary branches. *Radical leaves* rosulate, 1 to 2 inches long. *Racemes* 1 to 3 or 4 inches long. *Flowers* white, inconspicuous.

Hab. Old fields. Nat. of Europe. *Fl.* April. *Fr.* June.

3. S. canéscens, *Nutt.* Hoary-pubescent or glaucous; leaves bipinnatifid; siliques oblong or clavate, in long racemes, shorter than the pedicels.

HOARY SISYMBRIUM.

Stem 1 to 2 feet high, with a few coarse branches. *Leaves* 1 to 3 or 4 inches long, finely dissected, sparingly pilose. *Racemes* slender, 4 to 12 or 15 inches long.—*Flowers* ochroleucous.

Hab. Banks of the Schuylkill: rare. *Fl.* May. *Fr.* June.

TRIBE 3. BRASSICE'AE.

Silique elongated,—the *style* often with a seed-bearing cell at base; *seeds* globose, in a single series; *cotyledons* incumbent and conduplicate (⌒)—i. e. folded round the radicle.

34. BRAS'SICA, *L.*

[Formed from *Bresic*,—the Celtic name for the Cabbage.]

Silique subterete; *valves* 1-nerved; *style* short, obtuse.

1. B. OLERÀCEA L. Leaves orbicular or oblong, repand or lobed, strongly veined, fleshy, glabrous and glaucous.

OLERACEOUS or POT-HERB BRASSICA. Cabbage.

Biennial. *Stem* 9 to 18 inches high, clavate, simple, with long flowering branches the second year. *Leaves* large, those at the summit of the stem densely imbricated in a head. *Racemes* long, loose. *Flowers* greenish-yellow.

Hab. Gardens. Nat. of Europe. *Fl.* May. *Fr.* July.

☞ The following *Sub-species*, or *Varieties*, are more or less cultivated in our kitchen gardens:—

† *Racemes paniculate.*

Sub-species 1. ACÉPHALA, DC. Stem elongated; leaves not forming a head. Tree Cabbage.

2. BULLÀTA, DC. Young leaves subcapitate, finally expanding, bullate or crisped. Savoy Cabbage.

3. CAPITÀTA, DC. Leaves densely imbricated in a head before flowering. York Cabbage.

4. CAULO-RÀPA, DC. Stem bulbous at the origin of the leaves.—Bulb-stalked Cabbage. *Kohl Rabi.*

†† *Racemes corymbose.*

5. BOTRYT'IS, DC. Leaves oblong, connivent; peduncles coalesced before flowering.

Var. a. CAULIFLO'RA. Stem short; heads thick, compact. Cauliflower.

Var. b. ASPARAGOI'DES. Stem taller; leaves elongated; heads subramose. Broccoli.

Obs. Few plants have undergone greater modifications, by culture, than this esculent herb; and those *varieties* farthest removed from the original form, are the most esteemed. Cabbage, in every form, has always been a general favorite with the Germans; and from them we have borrowed not only the preparations of the herb, but their *names*,—such as *Sauer-kraut*; and *Kohl-Salàt*,—which latter (meaning literally *Cabbage Salad*,) has been anglicised into *Cole*—and even *Cold-Slaw!*

2. B. CAMPÉSTRIS, L. Leaves glaucous, the lower ones lyrate, dentate, ciliate, the upper ones amplexicaul, acuminate.

FIELD BRASSICA.

Annual, or *biennial*. *Root* thick, turnep-shaped, fleshy. *Stem* 1 to 2 feet high, smooth. *Racemes* long, loose. *Flowers* citron-yellow.

Hab. Gardens, and lots. Nat. of Europe. *Fl.* June. *Fr.* July.

☞ The following *varieties* have been occasionally cultivated; but have not become a regular crop:—

Sub-species 1. NAPO-BRAS'SICA, DC. Root tumid, turnep-shaped.

Var. a. COMMU'NIS. Root white or purplish. Turnep-rooted Cabbage.

Var. b. RUTABÀGA. Root yellowish, subglobose. Swedish Turnep.

3. B. RÀPA, L. Radical leaves lyrate, hirsute, not glaucous; upper ones entire, smooth.

Sub-species 1. DEPRÉSSA, DC. Root depressed-globose, abruptly contracted beneath. Common Turnep.

Biennial. *Root* fleshy, white or rarely yellow, orbicular, 3 to 6 inches across.—*Stem* 2 to 4 feet high. *Radical leaves* 6 to 12 inches long. *Racemes* corymbose-paniculate. *Flowers* greenish-yellow.

Hab. Fields, and gardens. Nat. of Europe. *Fl.* May. *Fr.* June.

35. SINA'PIS. *Tournef.*

[An ancient Greek name; of obscure meaning.

Silique subterete; *valves* 1- 3- or 5-nerved; *style* short and subulate, or ensiform.

1. *S. nìgra*, L. Siliques somewhat 4-angled, smooth, appressed to the rachis; style short, subulate.

BLACK SINAPIS. Black Mustard. Common Mustard.

Annual. *Stem* 3 to 6 feet high, much branched, smooth. *Leaves* variously lobed and toothed; lower ones lyrate, scabrous, upper ones smooth, narrow, pendulous, serrate or entire. *Racemes* 3 to 6 or 8 inches long. *Flowers* greenish-yellow. *Seeds* dark brown.

Hab. Gardens, and waste places. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This plant is pretty generally naturalized among us, but not much cultivated. It makes a rather troublesome weed, when fully introduced. In the West (especially in Ohio), it is extensively cultivated. The value of its highly acrid *seeds*, in the hands of the cook and physician—as a condiment and rubefacient—is well known.

2. S. ALBA, L. Siliques turgid, hispid, spreading, scarcely as long as the ensiform style.
WHITE SINAPIS. White Mustard.

Annual. *Stem* 2 to 5 feet high, rather stout, branched, sparsely hirsute. *Leaves* lyrately pinnatifid. *Racemes* 3 to 6 inches long. *Flowers* yellow. *Seeds* pale brown, larger than in the preceding species.
Hab. Gardens. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. The *seeds* are employed for similar purposes as the preceding; and are sometimes administered, whole, as a remedy for Dyspepsia, &c.

DIVISION II. SILICULO'SAE.

Fruit a silicle—i. e. a short pod or capsule (not much longer than broad), 2-celled, mostly opening by 2 valves; *cotyledons* plane, not folded lengthwise, nor spirally convolute.

TRIBE 4. ALYSSIN'EAE.

Silicle oval or oblong; *septum* broadly oval, parallel with the valves; *cotyledons* accumbent (o=), parallel with the septum.

36. DRA'BA, *L.*

[Gr. *drabe*, acrid, or biting; from the pungency of its leaves.]

Silicle oval, flattened; *stigma* sessile. *Seeds* numerous, in 2 rows in each cell, not margined.

1. D. Vérna, *L.* Leaves radical, oblong or lanceolate, hairy; scapes several; silicles elliptic-oblong, shorter than the pedicels; petals bifid.
Erophila vulgaris, *DC. & Fl. Cestr. ed.* 2. *p.* 378.
VERNAL DRABA. Whitlow-grass.

Annual? *Leaves* half an inch to an inch long. *Scapes* 1 or 2 to 4 or 5 inches high. *Flowers* small, white, on elongating pedicels. *Silicles* about one-third of an inch long; valves deciduous, leaving the seeds adhering to the margins of the septum.
Hab. Sandy banks, roadsides, &c.: common. *Fl.* March. *Fr.* May.

Obs. Of the Alpine species of this insignificant genus, the grandiloquent DARWIN, in his Botanic Garden, sings as follows:—

> "Where rears huge Tenerif his azure crest,
> Aspiring DRABA builds her eagle nest;
> Her pendant eyry icy caves surround,
> Where erst Volcanos mined the rocky ground.
> Pleased round the Fair *four* rival Lords ascend
> The shaggy steeps, *two* menial youths attend.
> High in the setting ray the beauty stands,
> And her tall shadow waves on distant lands."

37. COCHLEA'RIA, *Tournef.*

[Latin, *Cochlear*, a spoon; from the form of the leaves of some species.]

Silicle ovoid or oblong; valves very convex; *style* very short. *Seeds* as in *Draba.*

1. C. ARMORÀCIA, L. Radical leaves large, oblong, crenate, petiolate,—stem-leaves lanceolate, incised, sessile.
ARMORICAN COCHLEARIA. Horse-Radish.

Perennial. *Root* long, terete, fleshy, white, very acrid. *Stem* 2 to 3 feet high, with erect axillary branches. *Radical leaves* 8 to 15 inches long. *Racemes* corymbose, elongating. *Flowers* white. *Silicles* oval, usually abortive.

Hab. Gardens; along drains, &c. Nat. of Europe. *Fl.* May. *Fr.* June.

Obs. The pungent root of this plant is a favorite condiment, and one of the most valuable antiscorbutics. The true or common *Scurvy grass*, of Europe, is a species of this genus (*C. officinàlis*, L.); but is rarely, if ever, to be met with under culture, here.

TRIBE 5. CAMELIN'EAE.

Silicle obovoid or oblong; *septum* broad, parallel with the valves; *cotyledons* plane, incumbent (o‖), contrary to the septum.

38. CAMELINA, *Crantz.*

[Gr. *Chamai*, dwarf, and *Linon*, flax; from a fancied resemblance.]

Silicle obovoid or pyriform, turgid, mucronate, dehiscent and splitting the style. *Seeds* numerous, oblong, not margined.

1. C. *satîva*, Crantz. Leaves oblong-lanceolate, sagittate, sessile; silicles inflated, margined.

CULTIVATED CAMELINA. Wild Flax.

Annual. Stem about 2 feet high, paniculate at summit. *Leaves* 1 to 3 or 4 inches long. *Racemes* corymbose-paniculate, elongating. *Flowers* pale yellow, inconspicuous. *Style* about half as long as the silicle, persistent, splitting with the dehiscent valves. *Seeds* reddish yellow.

Hab. Cultivated grounds. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. This foreigner was formerly frequent among Flax, when that plant was generally cultivated; but since that culture has declined, the *Camelina* has become more rare, within my observation. I am informed, however, by H. JONES BROOKE, Esq., of Delaware county, Pennsylvania, that it had recently become a serious nuisance, in his wheat fields. Being an *annual*, the obvious remedy was to prevent it from maturing its seeds; but, being contemporaneous with the crops, and mingled with them, its extirpation seemed a hopeless task. Finding his grounds getting full of this pest, Mr. BROOKE—with the practical sagacity of an intelligent observer—adopted a plan which resulted in complete success: namely, keeping the ground ploughed or stirred, for a year or two, so often as to prevent the ripening of *new seeds*, and to promote the vegetation of all the *old ones* in the soil. Among the vulgar errors of benighted agriculture, was the belief that this plant was a kind of transmuted or degenerate *Flax*,—caused by burning the soil, in clearings.

TRIBE 6. LEPIDIN'EAE.

Silicle compressed contrary to the narrow septum; valves strongly boatshaped or keeled; *cotyledons* plane, mostly incumbent (o‖), parallel with the septum.

39. LEPID'IUM, *L.*

[Gr. *Lepidion*, a little scale; from the form and size of the silicles.]

Silicle oval, often winged and notched at apex; cells 1-seeded. *Cotyledons* sometimes accumbent (o=). *Annuals.*

† Cotyledons *incumbent* (o‖).

1. L. SATI'VUM, L. Leaves oblong, incised and pinnatifid; silicles winged and notched at apex, smooth.

CULTIVATED LEPIDIUM. Pepper-grass. Tongue-grass.

Stem 9 to 18 inches high, smooth, glaucous, corymbosely branched above. *Leaves* 1 to 3 inches long. *Flowers* white.
Hab. Gardens. Nat. of Persia. *Fl.* June. *Fr.* July.

2. *L. campéstre*, R. Br. Leaves sagittate, oblong, dentate; silicles winged and notched at apex, scaly-dotted.
FIELD LEPIDIUM.

Stem 6 to 10 inches high, pubescent, branched above. *Radical leaves* about 2 inches long, lyrate-pinnatifid. *Flowers* white.
Hab. Great Valley: rare. Nat. of Europe. *Fl.* June. *Fr.* July.

†† Cotyledons *accumbent* (o=).

3. L. Virginicum, *L.* Leaves linear-lanceolate, incised-serrate; silicles notched at apex, but not winged.
VIRGINIAN LEPIDIUM. Wild Pepper-grass.

Stem 9 to 15 inches high, corymbosely branched, roughish-pubescent. *Leaves* 1 to 2 inches long. *Racemes* cylindric. *Flowers* white, very small; *stamens* 2. *Seeds* reddish.
Hab. Fields, and road-sides: common. *Fl.* May. *Fr.* July.

40. CAPSEL'LA, *Vent.*

[Diminutive of *Capsula*, a capsule; alluding to the fruit.]

Silicle obcordate-cuneate; valves boat-shaped, not winged. *Seeds* numerous, oblong. *Cotyledons* incumbent (o‖).

1. *C. Bursa-pástoris*, Moench. Radical leaves mostly pinnatifid, stem-leaves sagittate, sessile.
SHEPHERD'S-PURSE CAPSELLA. Shepherd's Purse.

Annual. Stem 3 or 4 to 18 inches high, often branched, more or less hirsute. *Radical leaves* 2 or 3 to 6 or 8 inches long. *Racemes* at first corymbose, finally much elongated. *Flowers* white.
Hab. Fields, and road-sides. Nat. of Europe. *Fl.* April. *Fr.* June.

DIVISION III. LOMENTA'CEAE.

Fruit a *silique* or *silicle*, transversely 2- or several-celled, and separable into as many joints.

TRIBE 7. RAPHA'NEAE.

Silique indehiscent, partitioned into 1- or few-seeded cells; *seeds* globose; *cotyledons* incumbent and conduplicate, as in *Tribe* 3.

41. RAPH'ANUS, L.

[Gr. *Ra*, quickly, and *phaino*, to appear; from its quick germination.]

Silique elongated, many-celled by transverse suberose partitions, or by constrictions between the seeds. *Seeds* in a single series.

1. R. SATI'VUS, L. Lower leaves lyrate, upper ones ovate-oblong, subhastate; siliques torulose, acuminate.
CULTIVATED RAPHANUS. Radish. Garden Radish.

Annual. Stem 2 or 3 feet high, sparsely hispid. *Leaves* 8 to 12 or 15 inches long. hispid. *Flowers* purple and greenish white.
Hab. Gardens. Native of China. *Fl.* June. *Fr.* July.

☞ The following *varieties* are usually cultivated:—
Sub-species 1. RADICULA, DC. Root tender, red or white.
Var. a. rotunda. Root subglobose. Turnep Radish.
Var. b. oblonga. Root fusiform. Common Radish.

Sub-species 2. NIGER, DC. Root fleshy, firm, more or less acrid, black externally, white within.

Var. a. oblonga. Root oblong.
Var. b. rotundus. Root subglobose. } Spanish Radish.

Obs. The tender fleshy *root* of this plant is an universal favorite at table, in early spring.

ORDER XI. CAPPARIDÀCEAE.

Herbs; leaves alternate, mostly compound; *stipules* none, or spinescent; *flowers* cruciform, but not tetradynamous, hypogynous; *stamens* 6, or numerous; *ovary* 1-celled; *fruit* silique-like, with parietal placentae; *seeds* numerous, without *albumen*. The condiment known as *Capers*, is afforded by this Order,—being the pickled flower-buds of *Capparis spinosa, L.*

42. POLANIS'IA, *Rafin.*

[Gr. *Polys*, many, and *anisos*, unequal; in reference to the parts of the flower.]

Sepals 4. *Petals* 4, rather unequal, obcordate or emarginate, with long slender claws. *Stamens* 8 to 32, unequal. *Receptacle* not elongated. *Capsule* 2-valved, subsessile.

1. P. gravèolens, *Rafin.* Glandular-pilose and viscid; leaves digitate in threes, leaflets oblong, entire; stamens 8 to 12; capsule lance-oblong.

STRONG-SCENTED POLANISIA.

Annual. Stem 6 to 12 or 15 inches high, branching. *Leaflets* 1 to 2 inches long, subsessile. *Flowers* ochroleucous, in a leafy raceme. *Capsule* about 2 inches long; *seeds* reniform-orbicular.

Hab. Gravelly hills; along Schuylkill: rare. *Fl.* June. *Fr.* Aug.

ORDER XII. VIOLÀCEAE.

Herbs; mostly *perennials; leaves* alternate, with *stipules; sepals* 5, persistent; *corolla* somewhat irregular, one of the 5 petals gibbous or spurred at base; *stamens* 5, hypogynous, the *anthers* adnate, introrse, slightly united; *capsule* 1-celled, 3-valved, with 3 parietal placentae; *seeds* rather large, with a hard coat; *embryo* nearly as long as the *albumen*.

43. SOLE'A, *Ging.*

[Named in honor of *Wm. Sole*, an English Botanist.]

Sepals not eared at base. *Petals* unequal, the larger one merely gibbous at base, the others linear-oblong. *Style* hooked at summit.

1. S. cóncolor, *Ging.* Stem tall; leaves oblong, acute at both ends, entire; flowers axillary, on short recurved pedicels.

ONE-COLORED SOLEA.

Stem about 2 feet high, simple, leafy to the top. *Leaves* 2 to 3 inches long. *Flowers* pale yellowish green, small and inconspicuous, 1 to 3 in the axils of the leaves. *Capsules* near an inch long.

Hab. Woods, and banks of streams: rare. *Fl.* June. *Fr.* Aug.

Obs. This plant was collected, in 1841, on the banks of Red-clay Creek, in this County, by Mr. JOHN M'MINN.

44. VIOLA, *L.*

[The ancient Latin name of the genus.]

Sepals eared at base. *Petals* rather unequal, the larger one saccate

or spurred at base. Two lower *anthers* produced into the spur of the corolla.

† STEMLESS: *the leaves and scapes all proceeding from the rhizoma.* * Flowers *white.*

1. V. primulaefòlia, *L.* Leaves oblong-ovate, mostly acute, subcordate at base, decurrent on the petiole.
PRIMROSE-LEAVED VIOLA.

Leaves 2 to 4 inches long, on margined petioles 3 to 6 or 8 inches in length.—*Scapes* few, slender, rather shorter than the leaves. *Corolla* small, the lower petal with purple veins.
Hab. Moist, shaded grounds: frequent. *Fl.* May. *Fr.* June.

2. V. blánda, *Willd.* Leaves broad-cordate and acute, or roundish-reniform, thin, petioles slightly winged.
BLAND VIOLA. Sweet White Violet.

Leaves 1 to 2 or 3 inches long, on petioles 1 to 4 inches long. *Scapes* few, mostly longer than the leaves. *Corolla* small, odorous, the lower petal with dark purple stripes.
Hab. Wet, low grounds: frequent. *Fl.* April. *Fr.* June.

Obs. This is a remarkably delicate, fragrant little species,—well deserving the eulogy of SHAKESPEARE—who in his *Winter's Tale* speaks of

> "Violets, dim,
> But sweeter than the lids of Juno's eyes,
> Or Cytherea's breath."

** Flowers *violet, or purplish blue.*

3. V. sagittàta, *Ait.* Leaves oblong or lance-ovate, often sagittate and sometimes hastate, mostly hairy.
SAGITTATE VIOLA. Arrow-leaved Violet.

Leaves 1 to 2 or 3 inches long, on petioles 1 or 2 to 4 inches long. *Scapes* several, a little longer than the leaves. *Corolla* rather large; *petals* bearded.
Hab. Dry, slaty hills: frequent. *Fl.* April. *Fr.* June.

Obs. The *V. ovata, Nutt. & Fl. Cestr. ed.* 2. is now considered as nothing more than a *variety* of this.

4. V. cucullàta, *Ait.* Leaves cordate and cucullate, mostly acute, crenate-serrate, smoothish.
CUCULLATE VIOLA. Hood-leaved Violet.

Leaves 2 to 3 inches long, the angles mostly curled in at base, on long petioles. *Scapes* several, as long or longer than the leaves. *Corolla* often variegated; lower petals bearded.
Hab. Moist, low grounds: frequent. *Fl.* April. *Fr.* June.

Obs. The *V. sororia, Willd.* and *Fl. Cestr. ed.* 2. *p.* 144.—with flat orbicular-cordate hairy leaves, and short petioles,—is made a *variety* of this, by TORREY and GRAY: and a very *distinct* one, I think it is.

5. V. palmàta, *L.* Leaves mostly cordate in the outline, variously palmate-lobed, the middle lobe largest.
PALMATE VIOLA.

Leaves 2 to 4 inches long, enlarging, on petioles 4 to 6 inches long. *Scapes* several, shorter than the leaves. *Lower petals* bearded.
Hab. Moist woodlands: frequent. *Fl.* May. *Fr.* June.

6. V. pedàta, *L.* Leaves pedately lobed, the lobes linear or narrowly oblong; petals all beardless.
PEDATE VIOLA. Bird-foot Violet.

Leaves exactly pedate, about 7-parted. *Scapes* numerous, 3 to 6 or 8 inches high, finally a little longer than the leaves. *Flowers* large, pale blue, or sometimes variegated, and showy.
Hab. Dry, slaty hills: frequent. *Fl.* April. *Fr.* June.

†† LEAFY-STEMMED: * Flowers *pale purple, or whitish.*

7. V. Muhlenbérgii, *Torr.* Leaves roundish-cordate, or reniform, crenate; spur tapering, straight; petals pale violet.
V. Muhlenbergiana. *Ging. & Fl. Cestr. ed.* 2. *p.* 146.
MUHLENBERG'S VIOLA. Spreading Violet.

Stem 2 or 3 to 8 or 10 inches long, often much branched from the base, assurgent, finally procumbent. *Leaves* about an inch long, petiolate. *Peduncles* axillary, longer than the leaves; *flowers* rather small.
Hab. Low, swampy grounds: frequent. *Fl.* May. *Fr.* July.

8. V. striàta, *Ait.* Leaves cordate, acute, serrate; spur thickish, slightly curved; petals cream-colored.
V. ochroleuca. *Schw. & Fl. Cestr. ed.* 2. *p.* 146.
STRIATE VIOLA.

Stems 5 to 10 or 12 inches high, nearly erect, often growing in bunches. *Leaves* 1 to 2 inches long, on petioles of the same length, with large fringed *stipules.*— *Peduncles* axillary, twice as long as the leaves. *Flowers* rather large, the lateral petals densely bearded.
Hab. Low grounds; Brandywine: not common. *Fl.* May. *Fr.* July.

** Flowers *yellow.*

9. V. pubéscens, *Ait.* Softly pubescent; leaves broadly cordate or ovate, dentate; spur very short.
PUBESCENT VIOLA. Downy Yellow Violet.

Stem 6 to 12 inches high, generally erect and solitary, and leafless below the summit. *Leaves* 2 to 4 inches long, usually 3 of them at or near the summit of the stem, petiolate. *Peduncles* 2 or 3, rather shorter than the leaves.
Hab. Dry, open woodlands: common. *Fl.* May. *Fr.* July.

Obs. The *V. scabriuscula, Schw.* with straggling decumbent stems, is generally regarded as *a variety*, only, of this.

ORDER XIII. CISTÀCEAE.

Herbs, or *suffruticose plants; leaves* simple, the lower usually opposite, the upper alternate, with or without *stipules; flowers* regular; *stamens* many or few, distinct, hypogynous; *capsule* 1-celled, 3- to 5-valved, each valve bearing a parietal placenta in the middle; *seeds* orthotropous; *embryo* slender, in mealy *albumen.*

45. HELIAN'THEMUM. *Tournef.*

[Gr. *Helios*, the sun, and *anthemon*, a flower; sunshine flowers.]

Petals 5 (sometimes wanting), spirally imbricated or crumpled in the bud, fugacious. *Stamens* indefinite. *Capsule* 1-celled, 3-valved, many- or few-seeded.

1. H. Canadénse, *Mx.* Petal-bearing flowers large, solitary,— the others small, in axillary hoary clusters.
CANADIAN HELIANTHEMUM. Rock Rose. Frost-weed.

Perennial. *Stem* 6 to 12 or 18 inches high, slender, rigid, pubescent. *Leaves* alternate, about an inch long, elliptic-lanceolate. *Flowers* terminal, corymbose, with large yellow petals,—or apetalous, and crowded on short leafy lateral branches. *Hab.* Dry, slaty and rocky hills: not common. *Fl.* June. *Fr.* July.

Obs. This plant is very variable in habit. It has received the name of *Frost-weed*, from the circumstance of ice-chrystals shooting from the base of the stem, in freezing weather. The same phenomenon is often beautifully exhibited in the *Cunila Mariana*, or Dittany.

46. LECHE'A, *L.*

[Named in honor of *John Leche*, a Swedish Botanist.]

Petals 3, narrow, not longer than the sepals, marcescent. *Stamens* 3 to 12. *Stigmas* plumose-fimbriate. *Capsule* 3-valved, few-seeded. Suffruticose *perennials.*

1. L. màjor, *Mx.* Hairy; leaves elliptic, mucronate; flowers crowded in paniculate clusters.

L. villosa. *Ell. & Fl. Cestr. ed.* 2. *p.* 96.

GREATER LECHEA.

Stem 1 to 2 feet high, often with radical prostrate branches; the young branches villous with long whitish hairs. *Leaves* about an inch long. *Panicle* leafy; *flowers* inconspicuous, brown.

Hab. Woodlands, on slaty hills: not common. *Fl.* Aug. *Fr.* Sept.

2. L. minor, *Lam.* Pubescent; leaves lance-linear, acute; flowers loosely racemose on slender branches.

SMALLER LECHEA. Pin-weed.

Stem 9 to 15 inches high, often decumbent at base. *Leaves* nearly an inch long, alternate, narrow. *Panicle* rather large and diffuse. *Flowers* larger than in the preceding species, brown.

Hab. Dry, sandy banks: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. There is a *variety* (if not more distinct), which is apparently *intermediate* between the two preceding species,—with the *leaves* on the stem *ternate*, or nearly verticillate in threes, and the branches quite leafy.

ORDER XIV. DROSERÀCEAE.

Bog-herbs; mostly glandular-pilose: *leaves* radical, circinate, scarcely *stipulate; flowers* regular, hypogynous, pentamerous, the parts all marcescent; *capsule* 1-celled; *styles*, or *stigmas*, twice as many as the parietal placentae; *seeds* numerous; *embryo* at the base of the *albumen.*

47. DRO'SERA,

[Gr. *droseros*, dewy; from the appearance of the leaves.]

Calyx imbricated. *Petals* convolute. *Stamens* alternate with the petals. *Styles* 3 or 5, deeply 2-parted. *Capsule* globose, or oblong, 3- or 5-valved.

1. D. rotundifòlia, *L.* Leaves spatulate-orbicular, abruptly narrowed to hairy petioles; seeds loosely arillate.

ROUND-LEAVED DROSERA. Sun-dew.

Stemless. *Perennial?* *Leaves* about half an inch long, on *petioles* 1 to 2 inches long, fringed with purple hairs which exsude a clear fluid at apex. *Scapes* 4 to 6

or 8 inches high, slender and smooth. *Flowers* white, in a terminal *raceme* 1 to 2 inches long, at first circinate.

Hab. Swampy springs, on the slaty hills: rare. *Fl.* July. *Fr.* Aug.

Obs. The imaginative author of the *Botanic Garden* thus describes this curious little plant:—

"Queen of the marsh, imperial DRÓSERA treads
Rush-fringèd banks, and moss-embroidered beds;
Redundant folds of glossy silk surround
Her slender waist, and trail upon the ground;
Five sister-nymphs collect with graceful ease,
Or spread the floating purple to the breeze;
And *five* fair youths with duteous love comply
With each soft mandate of her moving eye.
As with sweet grace her snowy neck she bows,
A zone of diamonds trembles round her brows;
Bright shines the silver halo, as she turns;
And, as she steps, the living lustre burns."

ORDER XV. HYPERICÁCEAE.

Herbs, or *shrubs*, with a limpid or resinous juice; *leaves* opposite, entire, punctate, without *stipules*; *flowers* regular, hypogynous, polyadelphous; *petals* mostly convolute; *capsule* 1-celled, with 2 to 5 parietal placentae, and as many *styles*,—or 3- to 5-celled by the meeting of the placentae in the centre; *dehiscence* septicidal; *seeds* numerous, with little or no *albumen*.

48. AS'CYRUM, *L.*

[Gr. *a*, without, and *skiros*, roughness; the plants being smooth.]

Sepals 4, the 2 outer ones much larger. *Petals* 4. *Stamens* clustered in parcels, but scarcely united. *Capsule* 1-celled, 2- or 3-valved.—Low, *shrubby* plants.

1. A. Crux-An'dreae, *L.* Leaves obovate-oblong, narrowed at base; petals linear-oblong; styles 2.

ANDREW'S-CROSS ASCYRUM. St. Peter's-wort.

Stem 9 to 18 inches high, much branched from the base. *Leaves* half an inch to 3 quarters in length, with numerous dark-colored dots on both sides. *Flowers* yellow, in terminal few-flowered corymbs, and subterminal from the axils, on short peduncles.

Hab. Dry hills; North Valley hill; W. Nottingham: rare. *Fl.* July. *Fr.* Sept.

49. HYPER'ICUM, *L.*

[A name of obscure derivation and meaning.]

Sepals 5, nearly equal. *Petals* 5, oblique or unequal-sided. *Stamens* united in 3 to 5 parcels, without interposed glands. *Capsule* 1- 3- or 5-celled. *Herbs*, or *shrubs*; *flowers* yellow.

† Capsule 3-*celled:* petals *and* anthers *black-dotted. Perennial herbs.*

1. *H. perforàtum*, L. Stem somewhat ancipital; leaves linear-elliptic, sessile; corymb paniculate, leafy; styles diverging.

PERFORATED HYPERICUM. Common St. John's-Wort.

Stem 1 to 3 feet high, often several from the same root. *Leaves* an inch or inch and half long, rather obtuse, with numerous pellucid punctures like perforations. *Hab.* Fields and pastures. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. This foreigner is a worthless and rather troublesome weed, in Chester County. It was formerly supposed to be the cause of scabs, and cutaneous ulcers, among cattle,—especially *white* cows,

and horses with *white* feet and noses. The fact was taken for granted, by the farmers: But, it must be confessed, that although the *plant* continues to be abundant, the *disease* has nearly, if not entirely, disappeared. It may be worthy of remark, that in the year 1842, the St. John's-Wort totally failed to make its appearance (in this County—and I believe throughout Pennsylvania);—even in fields where it had been most abundant. The succeeding year, it was quite rare; but has since become about as common as ever, in neglected fields. Why a *perennial* should have been thus affected, seemed rather mysterious.

2. H. corymbòsum, *Muhl.* Stem terete; leaves elliptic-oblong, somewhat clasping, conspicuously dotted; corymb brachiate.
H. punctatum. *Lam.* and *Fl. Cestr. ed.* 2. *p.* 322.
CORYMBOSE HYPERICUM.

Stem 18 inches to 2 feet high, often nearly simple. *Leaves* 1 to 2 inches long.—*Flowers* in dense terminal corymbs. *Sepals* marked with black dots, and linear pellucid punctures. *Petals* with numerous oblong black dots.
Hab. Open woodlands, fields, &c. frequent. *Fl.* July. *Fr.* Sept.

†† Capsule (*brownish purple*) 1-*celled, with* 3 *strictly parietal placentae:* petals *not black-dotted. Annuals.*

3. H. mùtilum, *L.* Stem with spreading branches; leaves ovate-oblong, partly clasping, 5-nerved; corymbs leafy.
H. quinquenervium, *Walt. & Fl. Cestr. ed.* 2. p. 323.
MUTILATED HYPERICUM.

Stem 6 to 12 inches high, slender; branches quadrangular. *Leaves* half an inch to an inch long. *Flowers* small, in terminal leafy dichotomous corymbs.
Hab. Low grounds; along rivulets: frequent. *Fl.* July. *Fr.* Sept.

4. H. Canadénse, *L.* Branches erect; leaves sublinear, narrowed at base, 3-nerved; corymbs naked.
CANADIAN HYPERICUM.

Stem 9 to 18 inches high, slender, nearly simple, slightly 4-angled. *Leaves* about an inch long, minutely pellucid-punctuate, often with fascicles of small leaves in the axils. *Flowers* in an oblong paniculate corymb.
Hab. Margins of rivulets: frequent. *Fl.* Aug. *Fr.* Octo.

5. H. Saròthra, *Mx.* Stem short and bushy; leaves minute, subulate, appressed; flowers solitary.
BROOM HYPERICUM. Nit-weed. Pine-weed.

Stem 4 to 6 or 8 inches high, brachiately branched from near the base; branches nearly erect, angular or slightly winged. *Flowers* small, subsessile, axillary and terminal.
Hab. Sandy fields, and roadsides: frequent. *Fl.* July. *Fr.* Sept.

50. ELODE'A, *Adans.*

[Gr. *Elodes*, growing in marshes: from its usual *habitat.*]

Sepals 5, equal. *Petals* 5, equal-sided. *Stamens* mostly 9, triadelphous, with an ovoid gland between each parcel. *Capsule* 3-celled. *Perennial herbs*; *flowers* purplish.

1. E. Virginica, *Nutt.* Leaves ovate-oblong, very obtuse, subcordate at base and somewhat clasping.
Hypericum Virginicum, *L. & Fl. Cestr. ed.* 2. *p.* 322.

VIRGINIAN ELODEA.

Whole plant mostly of a purplish hue. *Stem* 18 inches to 2 feet high, smooth.—*Leaves* 1 to 2 inches long, pellucid-punctate, glaucous beneath. *Peduncles* terminal and axillary, mostly trichotomous. *Flowers* dull orange-purple, with parallel purple veins.

Hab. Swampy low grounds; Wynn's meadows: rare. *Fl.* July. *Fr.* Sept.

ORDER XVI. CARYOPHYLLA'CEAE.

Herbs; stems nodose, usually tumid at the nodes; *leaves* mostly opposite and entire, often subconnate, rarely *stipulate; flowers* symmetrical, terminal, of 4 or 5 parts,—the *petals* sometimes wanting; *stamens* as many, or often twice as many, as the sepals; *styles* 2 to 5; *capsule* 2- to 5-valved; *seeds* attached to the base or central column of the capsule: *embryo* curved around the outside of mealy *albumen*. A numerous order, which includes the pretty and fragrant *Pinks*, so much admired by Florists.

SUBORDER I. SILE'NEAE.

Sepals united into a tubular calyx; *petals* 5, each with a long slender claw, inserted, with the *stamens*, on the stipe (*carpophore*) of the ovary; *capsule* partially 2- to 5-celled; *stipules* none.

† Calyx 5-*toothed;* petals *sometimes crowned.*

51. SAPONA'RIA, *L.*

[Latin, *Sapo*, soap; its mucilage affording a substitute for that article.]

Calyx cylindric. *Stamens* 10. *Styles* 2. *Capsule* partly 2-celled at base, opening with 4 teeth at apex.

1. *S. officinàlis*, L. Leaves oval-lanceolate; flowers in corymbose fascicles; petals crowned at throat.

OFFICINAL SAPONARIA. Soap-wort. Bouncing Bet.

Perennial. Stem 12 to 18 inches high. *Leaves* an inch and a half to 3 inches long. *Flowers* pale red or reddish-white, often becoming somewhat *double.*

Hab. Gardens, and waste places. Nat. of Europe. *Fl.* July. *Fr.* Aug.

52. SILE'NE, *L.*

[Gr. *Sialon*, saliva; from the frothy, viscid matter, on some species.]

Calyx inflated, or subcylindric. *Stamens* 10. *Styles* 3. *Capsule* partly 3-celled at base, opening with 6 teeth at apex.

1. S. stellàta, *Ait.* Leaves verticillate in fours, oval-lanceolate, acuminate; calyx loose and bladder-like; petals cut into a fringe, not crowned.

STELLATE SILENE. Four-leaved Campion.

Plant pulverulently pubescent, *perennial. Stem* 2 to 3 or 4 feet high, slender and simple. *Leaves* 1 to 3 inches long, sessile. *Flowers* white, in an open terminal pyramidal panicle.

Hab. Woodlands: frequent. *Fl.* July. *Fr.* Aug.

2. S. antirrhina, *L.* Leaves opposite, linear-lanceolate, acute; calyx ovoid, 10-ribbed; petals bifid, minutely crowned, small and fugacious.

ANTIRRHINUM-LIKE SILENE. Catch-fly.

Annual. Stem 1 to 2 or 3 feet high, paniculately branching above, portions of the internodes at length coated with a dark-purple viscid matter. *Leaves* 1 to 2 inches long. *Flowers* white, often tinged with purple, on slender peduncles, in a loose terminal trichotomous panicle; petals often wanting, or missing.

Hab. Sandy fields, gardens, &c. frequent. *Fl.* Juue. *Fr.* July.

Obs. The *S. noctiflora, L.* seems to have disappeared, since last edition of this work.

†† Calyx *with* 5 *elongated foliaceous segments.*

[53. LYCH'NIS, *Tournef.*

[Gr. *Lychnos*, a lamp; the cottony leaves affording material for wicks.]

Calyx ovoid-oblong, coriaceous. *Stamens* 10. *Styles* 5. *Capsule* half 5-celled, opening with 5 or 10 teeth at summit.

1. *L. Githago*, Lam. Hairy; leaves lance-linear, acute; petals obovate, emarginate, not crowned.

Agrostemma Githago, *L. & Fl. Cestr. ed.* 2. *p.* 281.

GITH-LIKE LYCHNIS. Cockle. Rose Campion.

Plant greyish or glaucous green, *annual*. *Stem* 2 to 3 or 4 feet high, simple, dichotomously paniculate at summit. *Leaves* 3 to 5 inches long, sessile, connate by a scabrous membrane. *Flowers* violet-purple, on stout leafless *peduncles* 4 to 8 inches long.

Hab. Wheat and Rye fields. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. This foreign weed (specifically named *Githago*, from its fancied resemblance to "*Gith*," or Guinea-Pepper), though diligently rooted out by all neat farmers, obstinately maintains its ground in our grain fields. The rough black *seeds*, when abundant among wheat (and their size makes it difficnlt to separate them from it), are injurious to the quality and appearance of the manufactured *flour*.

SUBORDER II. ALSIN'EAE.

Sepals 5, nearly or quite distinct; *petals* without claws, inserted, with the *stamens*, at the base of the sessile ovary; *styles* 2 or 3 to 5; *capsule* 1-celled, few- or many-seeded; *stipules* none.

54. ARENA'RIA, *L.*

[Latin, *Arena*, sand; from its usual place of growth.]

Petals usually 5, entire. *Stamens* twice as many. *Styles* mostly 3. *Capsule* many-seeded, splitting at apex into 3 valves, the valves sometimes 2-cleft. *Flowers* white.

1. A. stricta, *Mx.* Cespitose; smooth; leaves subulate-linear, with axillary fascicles; panicle trichotomous.

UPRIGHT ARENARIA. Rock Sandwort.

Perennial. *Stems* 4 to 8 or 10 inches high, slender, with short internodes, trichotomously branched above. Leaves half an inch to three-quarters in length, rather rigid. *Panicle* terminal; branches filiform. *Petals* twice as long as the sepals.

Hab. Rocky banks; serpentine ridge: not common. *Fl.* May. *Fr.* June.

2. *A. serpyllifolia*, L. Diffusely branching; roughish-pubescent; leaves ovate, acute; peduncles solitary.

THYME-LEAVED ARENARIA. Common Sandwort.

Annual. *Stems* 3 to 6 or 8 inches long, more or less procumbent, dichotomously branched. *Leaves* 2 or 3 lines in length, ciliate, sessile. *Peduncles* axillary and terminal. *Petals* mostly shorter than the sepals.

Hab. Dry, sandy banks. Nat. of Europe. *Fl.* May. *Fr.* June.

3. A. laterifl̀ora, *L.* Sparingly branched; minutely pubescent; leaves oblong, obtuse; peduncles 2-flowered, lateral.

LATERAL-FLOWERING ARENARIA.

Perennial? Stem 4 to 6 inches high, very slender but rather rigid. *Leaves* half an inch to near an inch long, subsessile. *Peduncle* an inch or more in length, axillary, near the summit of the stem branching into 2 pedicels. *Petals* twice as long as the sepals.

Hab. Along rivulets; Great Valley: rare. *Fl.* June. *Fr.* July.

55. STELLA'RIA, *L.*

[Latin, *Stella*, a star; from the star-like corolla.]

Petals 5, deeply 2-cleft. *Stamens* 10, or sometimes fewer. *Styles* 3 or 4. *Capsule* opening at apex with as many, or twice as many, valves as styles, usually many-seeded. *Flowers* white.

1. *S. mèdia,* Sm. Stem procumbent; leaves ovate, petiolate; petals shorter than the calyx; stamens often 3 or 5.

MIDDLE STELLARIA. Common Chickweed.

Annual? Stems 8 to 12 or 15 inches long, dichotomously branching, the internodes with an alternating pubescent line. *Leaves* half an inch to an inch long.—*Peduncles* axillary, solitary, 1-flowered.

Hab. Every where, common. Nat. of Europe. *Fl.* March. *Fr.* May.

2. S. pùbera, *Mx.* Stems weak, rather erect; leaves ovate-oblong, sessile; petals longer than the calyx.

PUBESCENT STELLARIA. Great Chickweed.

Perennial. Stems 6 to 12 inches high, often numerous and straggling, and with 2 pubescent lines. *Leaves* 1 to 2 inches long. *Flowers* stellately spreading, rather large.

Hab. Banks of Schuylkill: rare. *Fl.* April. *Fr.* June.

3. S. longifòlia, *Muhl.* Stem very slender, acutely 4-angled; leaves lance-linear; panicle terminal, divaricate; petals finally longer than the calyx.

LONG-LEAVED STELLARIA. Stitch-wort.

Perennial. Yellowish-green. *Stem* 12 to 18 inches high, mostly erect, dichotomously branching. *Leaves* 1 to 2 inches long, narrow. *Flowers* in a loose slender panicle; pedicels filiform.

Hab. Swampy meadows and thickets: frequent. *Fl.* May. *Fr.* June.

4. S. aquática, *Pollich.* Stems decumbent, elongating; leaves lance-oval, veined; cymes lateral; petals the length of the calyx. S. borealis, *Fl. Cestr. ed.* 2. *p.* 274. not of *Bigel.*

AQUATIC STELLARIA. Water Stitchwort.

Perennial; pale green and smooth. *Stems* 6 to 12 inches long, weak, 4-angled, growing in diffuse bunches. *Leaves* half an inch to an inch long, nerveless, but with branching deeper green veins, often slightly ciliate at base.

Hab. Swampy springs, in the slaty hills: frequent. *Fl.* May. *Fr.* July.

Obs. The springs, which do not freeze up, often keep this plant green through the winter.

56. CERAS'TIUM, *L.*

[Gr. *Keras*, a horn; from the shape of the capsules.]

Petals mostly 5, bifid or emarginate. *Stamens* usually 10. *Styles*

as many as the sepals, and opposite them. *Capsule* elongated, opening at apex with 10 teeth, many-seeded. *Flowers* white.

† Petals *about as long as the calyx.*

1. *C. vulgàtum*, L. Very hairy; leaves oval and obovate, obtuse; sepals longer than the pedicels.
COMMON CERASTIUM. Mouse-ear Chickweed.

Annual? *Stems* 5 to 8 or 10 inches long, rather erect, mostly dichotomous at summit. *Leaves* half an inch to near an inch long, rounded at apex, sessile and subconnate. *Flowers* in terminal cymose clusters, with 1 dichotomal. *Capsule* subcylindric, slightly curved, twice as long as the calyx.
Hab. Grassy banks. Nat. of Europe. *Fl.* May. *Fr.* June.

2. *C. viscòsum*, L. Pubescent and somewhat clammy; leaves lance-oblong, rather acute; sepals shorter than the pedicels.
CLAMMY CERASTIUM. Larger Mouse-ear Chickweed.

Perennial? *Stems* 6 to 12 or 15 inches long, cespitose, spreading, dichotomously paniculate at summit. *Leaves* half an inch to an inch long, sessile. *Flowers* dichotomal and axillary. *Capsule* one half longer than the calyx.
Hab. Pastures, and open woods. Nat. of Europe. *Fl.* May. *Fr.* June.

Obs. This species has become much more common than the preceding.

† † Petals *much longer than the calyx.*

3. C. nùtans, *Rafin.* Viscid-pubescent; leaves linear-lanceolate, acute; flowers paniculate, nodding on long peduncles.
NODDING CERASTIUM.

Annual? *Stems* 8 to 12 or 15 inches high, usually several from the same root, nearly simple. *Leaves* 1 to 2 or 3 inches long, sessile and clasping. *Panicle* terminal, dichotomous, the branches finally much elongated. *Capsule* nearly three times as long as the calyx.
Hab. Moist low grounds: frequent. *Fl.* May. *Fr.* June.

Obs. This species ought to have been the *viscosum*,—as it is much more clammy than the preceding.

4. C. oblongifòlium, *Torr.* Densely villous; leaves oblong or ovate-lanceolate, subcoriaceous; peduncles spreading and somewhat viscid.
C. villosum. *Muhl. & Fl. Cestr. ed.* 2. *p.* 279.
OBLONG-LEAVED CERASTIUM.

Perennial. *Stems* 6 to 10 or 12 inches high, cespitose, erect or decumbent, mostly simple. *Leaves* about an inch long, sessile and subconnate. *Panicle* elongated, often three times dichotomous, with a longish 1-flowered pedicel in the forks.—*Flowers* rather conspicuous. *Capsule* about twice as long as the calyx.
Hab. Banks of Serpentine rock: frequent. *Fl.* May. *Fr.* June.

Obs. In 1811, Dr. BALDWIN sent this plant (collected on "the Barrens, Chester County") to Dr. MUHLENBERG, who pronounced it a *new species*, and proposed to call it *C. lanatum.* In 1813, he published it, in his *Catalogue*, by the name of *C. villosum.* In 1820, Prof. D. B. DOUGLASS collected it at Sandusky, Ohio; and a *description* (without a name), by Dr. TORREY, was published in 1822, in SILLIMAN'S *Journal, vol.* 4. *p.* 63. In his *Flora*, published in 1824, Dr. TORREY gave it the name of *C. oblongifolium.*

5. C. arvénse, *L.* Pubescent; leaves lance-linear, acute; panicle dichotomous, few-flowered, on a long peduncle.
C. tenuifolium. *Pursh. & Fl. Cestr. ed. 2. p.* 278.
FIELD CERASTIUM.

Perennial. Stems 4 to 6 or 8 inches high, numerous from the root, mostly simple, erect, or declined at base. *Leaves* an inch or inch and half long, sessile and subconnate, often with fascicles in the axils. *Panicle* usually twice dichotomous. *Capsule* about one-third longer than the calyx.
Hab. Banks of Schuylkill: not common. *Fl.* May. *Fr.* June.

Obs. This species may be indigenous to our continent; but I am not quite certain it is a native here.

SUBORDER III. ILLECE'BREAE.

Petals often rudimentary or wanting; *capsule* 1-celled, sometimes *utricular* and 1-seeded; *leaves* with scarious *stipules.*

57. ANY'CHIA, *Mx.*

[Gr. *Onyx, onychos,* a finger nail; being a supposed cure for whitlows.]

Sepals connected at base, connivent and subcucullate at apex. *Petals* none. *Stamens* 2 to 5, mostly 3. *Stigmas* 2, subsessile. *Utricle* membranaceous, larger than the calyx.

1. A. dichótoma, *Mx.* Slender and dichotomously branching; leaves lance-oblong, cuneate at base, subsessile.
DICHOTOMOUS ANYCHIA. Forked Chickweed.

Annual? Stems 4 to 8 or 10 inches high, very slender and diffusely branched, often purplish. *Leaves* about half an inch long, varying from lance-linear to obovate. *Flowers* inconspicuous, solitary in the forks, or in small terminal cymules. *Utricle* verrucose,
Hab. Dry, hilly woodlands: common. *Fl.* June. *Fr.* Aug.

SUBORDER IV. MOLLUGI'NEAE.

Petals none; *stamens* 3 to 5—when 3, alternating with the cells of the ovary; *capsule* completely 3-celled, many-seeded; stipules obsolete.

58. MULLU'GO, *L.*

[An old Latin name, coined from *mollis,* soft.]

Sepals 5, connected at base. *Stamens* usually 3, hypogynous. *Stigmas* 3, subsessile. *Capsule* 3-valved, loculicidal.

1. M. verticillàta, *L.* Prostrate and dichotomously branching; leaves verticillate, spatulate-oblanceolate; peduncles axillary, solitary, or subumbellate.
VERTICILLATE MOLLUGO. Carpet-weed. Indian Chickweed.

Annual. Stem branching from the root in all directions, 4 to 8 or 12 inches long, appressed to the earth. *Leaves* about an inch long, unequal, usually in verticils of 6, somewhat succulent. *Sepals* with the margins and inside white.
Hab. Cultivated grounds: common. *Fl.* July. *Fr.* Aug.

ORDER XVII. PORTULACA'CEAE.

Herbs; *leaves* entire, succulent; *flowers* regular but unsymmetrical, viz: the sepals fewer than the petals; *stamens* opposite the petals, or more numerous: *capsule* 1-celled, few- or many-seeded; *embryo* curved around mealy *albumen.*

59. PORTULA'CA, *Tournef.*

[A name of uncertain derivation and obscure meaning.]

Sepals 2, united, and adhering to the ovary, below. *Petals* mostly

5, perigynous. *Stamens* 8 to 20. *Styles* 3 to 6 or 8, united at base. *Capsule* circumscissed, many-seeded.

1. *P. oleràcea*, L. Prostrate; smooth; leaves cuneate-oblong, obtuse; flowers sessile.

POT-HERB PORTULACA. Common Purslane.

Annual. Stem 6 to 12 or 15 inches long, terete, fleshy, purplish, branched.—*Leaves* half an inch to an inch long, thickish, and fleshy, subsessile, alternate and opposite. *Flowers* yellow, in small clusters, axillary and terminal.

Hab. Gardens, and lots. Nat. of India. *Fl.* July. *Fr.* Sept.

60. TALI'NUM, *Adans.*

[Derivation of the name obscure.]

Sepals 2, free and deciduous. *Petals* 5, hypogynous. *Stamens* 10 to 30. *Style* 3-lobed. *Capsule* 3-valved. *Seeds* numerous, covering a free central placenta.

1. T. teretifòlium, *Muhl.* Leaves terete, acute; peduncles long, naked and scape-like, dichotomous and cymose at summit.

TERETE-LEAVED TALINUM.

Perennial; smooth. *Stem* 1 to 2 or 3 inches long, thickish, fleshy, several from the root, sometimes dichotomously branching. *Leaves* 1 to 2 inches long, succulent, alternate, numerous, rather crowded above, mostly a little incurved. *Peduncles* terminal, 3 to 6 or 8 inches long, slender. *Flowers* bright purple, appearing in succession, opening in sunshine, at mid-day, for three or four hours, then closing and shrivelling.

Hab. Serpentine rocks: very local. *Fl.* June. *Fr.* Aug.

Obs. This interesting and rather pretty little plant flourishes remarkably well, when transferred from its native rock to a flower-pot, and set where it can have a full share of all the sunshine that is going.

61. CLAYTO'NIA, *L.*

[Named in honor of *John Clayton*, an early Virginian Botanist.]

Sepals 2, free and persistent. *Petals* 5. *Stamens* 5, adhering to the claws of the petals. *Style* 3-lobed. *Capsule* 3-valved, 3- to 5-seeded.

1. C. Virginica, *L.* Root a deep tuber; leaves mostly 2, opposite, linear-lanceolate; raceme terminal, simple.

VIRGINIAN CLAYTONIA. Spring Beauty.

Perennial; smooth. *Stem* 6 to 10 inches long, simple. *Leaves* an opposite pair, near the middle of the stem, 3 to 5 inches in length. *Flowers* pale red, with purple veins, usually 6 to 12 or 15 in a loose simple raceme.

Hab. Moist, low grounds: common. *Fl.* April. *Fr.* June.

ORDER XVIII. MALVÀCEAE.

Herbs, or *shrubs* (those here described are all *herbaceous*); *leaves* alternate, *stipulate; flowers* regular,—the calyx valvate, the corolla convolute, in the bud; *stamens* numerous, monadelphous in a column,—the *anthers* 1-celled, reniform; *seeds* with little *albumen; embryo* curved, the foliaceous cotyledons variously doubled up.

The plants of this family are generally remarkable for their mucilaginous and demulcent properties; but the order is pre-eminently distinguished, as containing the *Cotton Plant* (*Gossypium herbaceum, L.*),—which enters so largely into the planting, commercial, and manufacturing concerns of the civilized world.

† Calyx *naked at base.*

62. ABUTILON, *Tournef.*

[A name supposed to be derived from the *Arabs.*]

Carpels mostly numerous, verticillate and coherent, forming a *compound Capsule,* spreading at summit, where each splits open along the inner edge. *Seeds* about 3 in each carpel.

1. *A. Avicénnae,* Gaertn. Leaves orbicular-cordate, acuminate, velvety; peduncles axillary, shorter than the petiole.
Sida Abutilon. *L. & Fl. Cestr. ed.* 2. *p.* 397.

AVICENNA'S ABUTILON. Indian Mallow. Velvet-leaf.

Annual. Stem 2 to 4 or 5 feet high, branched. *Leaves* 4 to 6 or 8 inches long, nearly circular, with a closed sinus, and slender acumination; *petioles* 3 to 5 inches long; *stipules* subulate, caducous. *Flowers* yellow. *Carpels* about 15, in a campanulate truncate head, with oblique radiating beaks at summit.
Hab. Cultivated grounds, and waste places. Nat. of Asia. *Fl.* July. *Fr.* Aug.

Obs. This foreign weed is becoming rather troublesome in our cultivated grounds.

63. SIDA, *L.*

[A name used by ancient Greek writers.]

Carpels 5, or more, 1-seeded, separable at maturity, each opening at summit. *Flowers* perfect.

1. *S. spinòsa,* L. Leaves ovate-lanceolate, with a subspinose tubercle at the base of the petiole.

SPINOSE SIDA.

Annual. Stem 9 to 18 inches high, slender, with a few spreading branches near the base. *Leaves* about 2 inches long, serrate-dentate; *petioles* half an inch to three-quarters in length; *stipules* filiform. *Flowers* yellow. *Peduncles* about half an inch long, 1 or 2 in each axil, articulated near the flower.
Hab. Road sides, and waste places. Nat. of India. *Fl.* July. *Fr.* Sept.

† † Calyx *involucellate at base.*

64. MALVA, *L.*

[An ancient Latin name, derived from the Greek.]

Involucel mostly of 3 linear bracts. *Carpels* numerous, verticillately arranged in a depressed orb, each mostly 1-seeded and indehiscent.

1. *M. rotundifòlia,* L. Procumbent; leaves cordate-orbicular, obtusely 5-lobed; lobes crenate dentate; flowers small.

ROUND-LEAVED MALVA. Running Mallow.

Perennial. Stem 9 to 18 inches long, branching only from the root. *Leaves* 1 to 2 or 3 inches long; *petioles* 2 to 6 or 8 inches in length. *Flowers* reddish-white, with purple veins. *Peduncles* axillary, mostly in pairs, 1 to 2 inches long, unequal, bent down in fruit.
Hab. Yards, gardens, &c. Nat. of Europe. *Fl.* May. *Fr.* Aug.

Obs. This foreigner is extensively naturalized, and a rather troublesome weed in gardens. The plant is mucilaginous,—and quite a popular ingredient in cataplasms, demulcent drinks, &c. The *M. crispa, sylvestris,* and *moschata,* are frequent about gardens; but are scarcely naturalized, yet.

65. ALTHA'EA, *L.*

[Gr. *altho*, to heal; from its reputed virtues.]

Involucel 5- to 10- or 12-parted. *Carpels* numerous, arranged as in *Malva*, each 1-seeded.

1. A. OFFICINÀLIS, L. Leaves ovate or sub-cordate, often 3-lobed, velvety; peduncles axillary, many-flowered.

OFFICINAL ALTHAEA. Marsh Mallow.

Perennial. Stem 2 to 4 feet high, simple. *Leaves* 2 to 4 inches long; *petioles* 1 to 2 inches long. *Flowers* pale-red, subpaniculate; *common peduncles* about as long as the petioles, 3- to 6-flowered.

Hab. Gardens, &c. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. This was formerly much (and is yet, occasionally) cultivated, for its mucilaginous qualities. The *A. rosea, Cavan.* or *Hollyhock*, is to be seen in almost every garden; but is scarcely to be regarded as fully naturalized.

66. HIBIS'CUS, *L.*

[An ancient classical name, for one of the mallow tribe.]

Involucel of many linear bracts. *Styles* united; *stigmas* 5 to 10, capitate. *Carpels* cohering in a 5- or 10-celled *capsule;* valves loculicidal.

1. *H. Triònum*, L. Leaves deeply 3-lobed; lobes lanceolate, the middle one much the longest; calyx inflated, membranaceous, with bristly ribs, 5-winged at summit.

THREE-LOBED HIBISCUS. Bladder Ketmia. Flower-of-an-hour.

Annual. Stem 9 to 18 inches high, somewhat branched. *Leaves* 1 to 2 or 3 inches long, petiolate. *Flowers* greenish-yellow, with a purple spot at base, axillary, solitary, fugacious; *peduncles* about as long as the petioles. *Stigmas* 5. *Capsule* 5-celled.

Hab. Gardens, and lots. Nat. of Italy. *Fl.* July. *Fr.* Sept.

2. H. ESCULÉNTUS, L. Leaves palmately 5-lobed, cordate at base; calyx bursting lengthwise; capsule pyramidal, sulcate-angled.

ESCULENT HIBISCUS. Okra.

Annual. Stem 2 to 3 or 4 feet high, stout, somewhat branched. *Leaves* 3 or 4 to 6 inches long, and wider than long, lobed half way to the base; *petioles* 3 to 6 inches long. *Flowers* pale greenish-yellow with a dark-purple spot at base, axillary, solitary, on short peduncles. *Stigmas* 8 or 10, purplish. *Capsules* 2 to 4 or 6 inches long, erect, 8- or 10-angled, 8- or 10-celled.

Hab. Gardens, and lots. Nat. of India. *Fl.* Aug. *Fr.* Sept.

Obs. This is cultivated for the sake of its young pods, or capsules,—which are remarkably mucilaginous, and esteemed by many persons as an ingredient in soups.

ORDER XIX. TILIÀCEAE.

Trees, or *shrubby* plants; *leaves* alternate, with deciduous *stipules; flowers* axillary, small; *sepals* valvate, and *petals* imbricated, in the bud; *stamens* somewhat polyadelphous; *anthers* 2-celled; *seeds* albuminous.

This, like the preceding, is a mucilaginous family of plants; and some of the species are also remarkable for the texture and strength of their *bark*. The *liber*, or inner bark of the *Tilias*, separates readily into thin layers, or strips, which are extensively woven into *matting*, in the North of Europe; and the *Gunny-bags*, of commerce, are manufactured from the fibrous bark of two species of *Corchorus*.

67. TIL'IA, *L.*

[The classical Latin name of the plant.]

Sepals 5, connected at base, deciduous. *Petals* 5. *Stamens* numerous, the *filaments* more or less cohering in 5 parcels,—sometimes (viz. in the *N. American* species) each parcel adnate, at base, to a spatulate *petaloid scale* (*staminodium*), opposite the real petals.—*Ovary* 5-celled; *style* single. *Fruit* a coriaceous or woody globose *nut*, 1-celled, 1- or 2-seeded. *Trees; flowers* in pendulous *cymes*, with the lower half of the *common peduncle* adnate to the lower half of a long membrano-foliaceous *bract*.

1. T. Europàea, L. Leaves orbicular-cordate, acuminate; flowers without petaloid scales.

European Tilia. Linden, or Lime tree.

Stem 30 to 50 feet high,—the numerous branches forming a handsome symmetrical top. *Leaves* 3 to 5 inches long; *petioles* 1 to 2 inches long. *Flowers* yellowish-white. *Peduncles* 3 to 5 inches in length.

Hab. Streets, &c. Nat. of Europe. *Fl.* Beginning of June. *Fr.* Sept.

Obs. An ornamental tree in early summer, and of rapid growth; but the leaves, soon after midsummer, assume a *scorched* appearance.

2. T. Americàna, *L.* Leaves obliquely cordate or truncate at base, abruptly acuminate, subcoriaceous; flowers with petaloid scales connected with the filaments.

T. glabra, *Vent. & Fl. Cestr. ed.* 2. *p.* 312.

American Tilia. Linden, or Linn. Bass-wood. White wood.

Stem 60 to 80 feet high, with large and rather straggling branches; the *bark* thick and ash-colored, the *wood* soft and white. *Leaves* 3 to 6 inches long; petioles 1 to 2 inches in length. Flowers ochroleucous.

Hab. Banks of streams; Brandywine: not common. *Fl.* Last of June. *Fr.* Sept.

Obs. The *wood* of this tree affords a good material for the manufacture of various domestic utensils. It is sometimes cultivated for *shade;* but the branches are not so symmetrical as those of the European species. Neither of them, however (*me judice*), is equal to the *Sugar Maple*, or *Horse Chestnut*, as ornamental shade trees.

ORDER XX. LINÀCEAE.

Herbs; leaves alternate, opposite, or verticillate, without *stipules; flowers* regular, hypogynous, all the parts in fives; *calyx* imbricated, *petals* convolute; *stamens* united into a ring at base; *capsule* globose, with twice as many cells as styles; *cells* 1-seeded; *seeds* fleshy and oily, with little or no *albumen*.

An Order pretty much limited to the important genus which is its *type*.

68. LI'NUM, *L.*

[The classical name for the plant.]

Capsule of 5 united carpels, each 2-seeded, but divided into 2 single-seeded cells, by a false septum projecting from the back of the carpels.

1. L. Virginiànum, *L.* Leaves oblong-lanceolate; flowers on short pedicels; capsules depressed-globose.

Virginian Linum. Wild Flax.

Perennial? *Stem* about 2 feet high, often 3 or 4 from the same root, corymbosely

branched above. *Radical leaves* short, spatulate-obovate; *stem-leaves* about an inch long, sometimes opposite. *Flowers* pale yellow, racemose on the branches.
Hab. Woods, and thickets: frequent. *Fl.* July. *Fr.* Aug.

2. L. USITATIS'SIMUM, L. Leaves lance-linear, very acute; flowers on long pedicels; capsules globose, mucronate.
MOST USED, OR USEFUL LINUM. Common Flax.

Annual. *Stem* 2 to 3 feet high, solitary. *Leaves* an inch to an inch and half long, numerous, scattered. *Flowers* blue, large, loosely corymbose. *Seeds* lance-ovate, brown, smooth and shining.
Hab. Fields. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. This plant—once considered so indispensable among the crops of our farmers—is now rarely cultivated. The *Cotton-plant*, of the South, has nearly banished the Flax from this region; though some attempts are now being made, among Manufacturers, to increase the use of Flax, by improving the manipulations of its *fibres*. The Farmers, however, will not be anxious to resume the culture; for the crop is one which involves a good deal of disagreeable labor,—and is, moreover, believed to be injurious to the soil: an opinion as old as the time of VIRGIL—who says:

"Urit enim *Lini* campum *Seges*, urit avenae."—*Georg.* 1. 71.

or, as rendered by SOTHEBY,

"Oats and the *Flaxen Harvest* burn the ground."

Doctor DARWIN refers to the Flax, in the following strains:—

"Inventress of the Woof, fair LINA flings
The flying shuttle through the dancing strings;
Inlays the broider'd weft with flowery dyes,
Quick beat the reeds, the pedals fall and rise:
Slow from the beam the lengths of warp unwind,
And dance and nod the massy weights behind.
Taught by her labors, from the fertile soil
Immortal ISIS clothed the banks of Nile;
And fair ARACHNE with her rival loom
Found, undeserved, a melancholy doom."

"ISIS was said to have invented spinning and weaving,—mankind before that time being clothed with the skins of animals. The fable of ARACHNE was to compliment this new art of spinning and weaving, supposed to surpass in fineness the web of the spider."

The *seeds* of this plant—beside yielding a most valuable oil—afford one of the best mucilaginous drinks, for coughs, and dysenteric affections.

ORDER XXI. GERANIÀCEAE.

Herbs, or *suffruticose* plants, with tumid nodes; *leaves* mostly opposite and palmate, lobed, *stipulate; flowers* symmetrical, hypogynous, pentamerous; *sepals* imbricated; *petals* convolute; *stamens* 10, slightly monadelphous at base, the alternate ones shorter; *pistils* 5, adhering to a central prolonged axis, from which they separate at maturity by curving up from the base; *seeds* solitary, without *albumen*.

This Order comprises, amongst others, the numerous and favorite plants, so much cultivated under the name of "*Geraniums*,"—though they now belong to the genus *Pelargonium*.

69. GERA'NIUM, *L.*

[Gr. *Geranos*, a crane; the beaked fruit resembling a crane's bill.]

Stamens all perfect, the 5 longer ones with glands at base. *Styles* cohering at summit, recurved from below, but not twisted, in the ripe fruit, smooth inside.

1. G. maculàtum, *L.* Stem erect, dichotomous above; leaves 3- to 5-parted; petals entire, twice as long as the calyx.

MACULATE GERANIUM. Crow-foot. Spotted Crane's-bill.

Perennial. Stem 12 to 18 inches high, hairy. *Leaves* 2 to 3 inches long, marked with pale blotches; *radical* leaves on *petioles* 3 to 6 or 8 inches in length; *stem-leaves* on shorter petioles, the uppermost subsessile. *Flowers* purple, large, subcorymbose.

Hab. Woods, fence-rows, &c., common. *Fl.* May. *Fr.* June.

Obs. The large root, or *rhizoma*, is considerably astringent; and has been found useful in diarrhœa, hemorrhage, &c.

2. G. Caroliniànum, *L.* Stem diffusely branching; leaves deeply 5-parted; petals emarginate, about as long as the calyx.

CAROLINIAN GERANIUM. Carolina Crane's-bill.

Annual? Stem 6 to 12 or 18 inches long, often several from the root, dichotomously and diffusely branching. *Leaves* about an inch long, and wider than long, reniform-orbicular in their outline, multifid; *radical petioles* 2 to 6 inches long; *cauline* half an inch to 3 inches in length. *Flowers* pale red, veined, small, subfasciculate.

Hab. Low grounds; along Brandywine: not common. *Fl.* May. *Fr.* July.

ORDER XXII. OXALIDÀCEAE.

Herbs, with sour juice; *leaves* alternate, compound, mostly without *stipules; flowers* regular, nearly as in *Geranium*,—but the *styles* separate, and the *fruit* a 5-celled several-seeded *capsule; embryo* straight, in thin fleshy *albumen*.

70. OX'ALIS, *L.*

[Gr. *Oxys*, sharp, or sour; from the quality of the plants.]

Petals withering after expansion. *Capsule* membranaceous, oblong, pentagonal, opening at the angles. *Seeds* pendulous from the axis, their outer coat loose and separating. *Leaves* mostly composed of 3 obcordate leaflets,—the *radical* ones *stipulate*.

1. O. violàcea, *L.* Stemless; bulb scaly; scapes subumbellate; sepals callous at apex.

VIOLET OXALIS. Violet Wood-Sorrel.

Perennial. Leaves radical, trifoliolate; *leaflets* about half an inch long, and wider than long; *common petioles* 3 to 6 inches long. *Scapes* 4 to 6 or 8 inches high, naked, 2- or 3- to 6- or 9-flowered. *Flowers* violet-purple, nodding.

Hab. Woodlands, fence-rows, &c.: frequent. *Fl.* May. *Fr.* July.

2. O. stricta, *L.* Caulescent; stem mostly erect, branched and leafy; peduncles axillary, longer than the petioles.

UPRIGHT OXALIS. Wood-Sorrel. Yellow Wood-Sorrel.

Perennial? Stem 2 or 3 inches to near 2 feet high, more or less pubescent, often bushy, and sometimes nearly prostrate. *Leaflets* one-fourth of an inch to an inch long; *common petioles* 1 to 3 or 4 inches long. *Peduncles* 2 to 4 or 5 inches long, cymosely 3- to 10-flowered. *Flowers* yellow.

Hab. Fields, and woodlands: common. *Fl.* May. *Fr.* July.

Obs. This is a very variable plant—in size, habit, and pubescence; but it is difficult to designate good characters for more than one species, among all the varieties.

ORDER XXIII. BALSAMINÀCEAE.

Herbs; stems succulent, sub-pellucid, and gorged with a watery juice; *leaves* usually

alternate, simple, without *stipules; flowers* very irregular; *stamens* 5, the *anthers* introrse, connivent and sometimes coherent; *capsule* bursting elastically; *seeds* without *albumen*.

71. IMPA'TIENS, *L.*

[Latin; alluding to the sudden bursting of the ripe pod, when touched.]

Calyx and *corolla* colored nearly alike: *Sepals* apparently 4,—the 2 upper ones being united almost to the apex—the lower one largest, forming a spurred *sac*, at base. *Petals* 4, united in pairs, forming one unequally 2-lobed petal on each side. *Ovary* 5-celled; *stigma* sessile. *Capsule* with evanescent partitions, 5-valved,—the valves incurving elastically from apex to base, and scattering the seeds. *Annuals*.

1. I. pállida, *Nutt.* Leaves oblong-ovate, rather acute; sac dilated, broader than long, obtusely conic, with a short recurved spur.

PALLID IMPATIENS. Pale Snap-weed. Touch-me-not.

Stem 3 to 5 feet high, branched. *Leaves* 2 to 5 or 6 inches long; *petioles* one-eighth of an inch to 3 inches in length, the upper leaves being nearly sessile.—*Peduncles* axillary, 1 to 3 inches long, slender, 2- to 5-flowered. *Flowers* pale yellow, sparingly dotted with brownish-red; *spur* about ¼ of an inch long.
Hab. Moist, shaded grounds: frequent. *Fl.* July. *Fr.* Aug.

2. I. fúlva, *Nutt.* Leaves rhombic-ovate, rather obtuse; sac longer than broad, acutely conic, with a longish recurved spur.

TAWNY IMPATIENS. Spotted Snap-weed.

Stem 2 to 4 feet high, branched. *Leaves* 1 to 3 or 4 inches long. *Peduncles* about an inch long, usually 2- or 3-flowered. *Flowers* orange-color, with numerous reddish-brown spots; *spur* about half an inch long.
Hab. Moist, shaded grounds: common. *Fl.* July. *Fr.* Aug.

Obs. Our two species were formerly regarded as one, and referred to the *I. noli-tangere*, of Europe,—to which they are nearly allied. The *I. Balsamina*, L. called "Lady's Slippers"—a native of India—is abundant, and almost naturalized, in every garden. The following fanciful lines, from DARWIN, probably have reference to the European species,—but may apply to all:—

> "With fierce distracted eye IMPATIENS stands,
> Swells her pale cheeks, and brandishes her hands,
> With rage and hate the astonished groves alarms,
> And hurls her infants from her frantic arms."

ORDER XXIV. TROPAEOLÀCEAE.

Herbs; stems straggling or twining, fleshy, with a pungent watery juice; *leaves* alternate, peltate, with radiating nerves, and without *stipules; flowers* irregular, large, on long axillary peduncles; *fruit* 3-lobed, or of 3 connate, 1-seeded, indehiscent carpels; *seeds* without *albumen*.

72. TROPAE'OLUM, *L.*

[Latin, a little banner, or *Trophy;* from its showy flowers.]

Calyx colored, 5-parted,—the upper segment spurred at base.—*Petals* 5, unequal,—the upper 2 sessile, the others clawed. *Stamens* 8. *Stigmas* 3.

1. T. MÀJUS, L. Leaves suborbicular, obscurely repand-lobed, the nerves not exserted; petals obtuse.

GREATER TROPAEOLUM. Nasturtium. Indian Cress.

Annual (said to be *perennial* in its native country); smooth. *Stem* 3 to 6 or 8 feet long, branching and climbing. *Leaves* 2 to 3 inches in diameter; *petioles* 3 to 6 inches long. *Peduncles* 1-flowered, mostly longer than the petioles. *Flowers* pale yellowish- or reddish-orange, with dark purple stripes and spots. *Carpels* sulcate, fleshy, finally subcoriaceous.

Hab. Gardens. Nat. of Peru. *Fl.* June. *Fr.* Aug.

Obs. This is cultivated,—both for show, and for the young *fruit*, which is prepared as a condiment, and affords a tolerable substitute for *capers*.

ORDER XXV. LIMNANTHÀCEAE.

Herbs; stems fleshy; *leaves* alternate, pinnately dissected, without *stipules*; *flowers* regular, of 3 or 5 parts; *sepals* valvate, and *petals* convolute, in the bud; *stamens* twice their number; *fruit* of 3 to 5 fleshy connate 1-seeded *akenes; styles* united; *seeds* without *albumen*.

73. FLO'ERKEA, *Willd.*

[Dedicated to *Henry Gustavus Floerke*, a German Botanist.]

Sepals 3, connected at base, persistent. *Petals* 3, shorter than the sepals. *Ovaries* 3, opposite the sepals, cohering at base. *Style* central; *stigmas* 3. *Akenes* utricular, tuberculate, often only 1 or 2.

1. F. proserpinacoïdes, *Willd.* Glabrous; stem terete; leaves odd-pinnately dissected into 3 or 5 lance-oblong entire segments.

F. uliginosa. *Muhl. & Fl. Cestr. ed.* 2. *p.* 212.

PROSERPINACA-LIKE FLOERKEA.

Annual. *Stem* 4 to 10 or 12 inches long, nearly simple, flaccid, finally procumbent. *Leaflets*, or segments, half an inch to an inch long; *common petioles* 1 to 3 inches in length. *Peduncles* axillary, finally about an inch long, 1-flowered.—*Petals* white, alternate with, and scarcely half as long as the sepals.

Hab. Miry, shaded places: frequent. *Fl.* April *Fr.* May.

ORDER XXVI. XANTHOXYLÀCEAE.

Trees, or *shrubs; leaves* mostly alternate, compound, without *stipules*, or armed with *stipular prickles; flowers* polygamo-dioicous, regular, small: *stamens* as many, or twice as many, as the sepals; *ovaries* distinct, or 2-celled; *fruit* various,—baccate, capsular, or samaroid; *seeds* 1 or 2 in each carpel, *albuminous*.

74. AILAN'THUS, *Desf.*

[Formed from *Ailanto*,—the name it bears in its native country.]

Calyx 5-toothed. *Petals* 5, inserted with the 10 *stamens*, under a hypogynous disk. *Carpels* 3 to 5, samaroid, tumid in the centre, 1-celled, 1-seeded. *Stigmas* capitate, radiately 5-lobed.

1. A. GLANDULO'SA, Desf. Leaves odd-pinnate; leaflets oblong-lanceolate, acuminate, coarsely dentate at base, with a gland on the under side of each tooth.

GLANDULAR AILANTHUS. Chinese Sumach. Tree of Heaven.

Stem 30 to 60 feet, or more, in height, much branched, but never ramifying during growth. *Leaflets* 3 to 5 inches long, numerous (15 to 20 pairs, and a terminal one). *Flowers* pale greenish-yellow, in terminal thyrsoid panicles.

Hab. Streets, and about houses. Nat. of China. *Fl.* June. *Fr.* Sept.

Obs. This is not an ungraceful tree in its *habit*,—but a disagreeable one in its *odor*. It is also exceedingly troublesome in sending

up countless *suckers* from its wide-spreading roots. It was introduced as a *Shade tree*, about the year 1820; but will scarcely maintain its position as such. I learn from WM. JACKSON, Esqr., of Harmony Grove, in this County, that the XANTHOX'YLON AMERICANUM, *Mill.*—(a prickly Shrub, which is the type of this Order),—has escaped from the gardens, and is becoming *naturalized*, in several places in that vicinity.

ORDER XXVII. ANACARDIA'CEAE.

Shrubs, or *trees*; with a resinous, or milky, acrid *juice*; *leaves* alternate, mostly compound, without *stipules*; *flowers* regular, pentandrous, small, often polygamo-dioicous; *ovary* (by abortion) 1-celled, and 1-ovuled, but with three *styles* or stigmas; *seeds* without *albumen*.

In the tropical regions, this Family presents plants of much interest:—such as that which yields the celebrated *Mango* fruit (*Mangifera Indica, L.*)—the *Cashew Nut* (*Anacardium occidentale, L.*)—and the *Pistacia Nut* (*Pistacia vera, L.*),—with others, which afford various kinds of *Lacquer*, and *Varnish*.

75. RHUS', *L.*

[The ancient Greek and Latin name of the genus.]

Sepals 5, connected at base, persistent. *Petals* 5, inserted with the *stamens* on, or under, the edge of a flatted disk. *Fruit* small, a sort of dry *drupe*. *Polygamo-dioicous Shrubs; common petioles* enlarged at base, covering the *buds* of the ensuing year.

† Leaves *odd-pinnate*. * Young branches *densely villous*.

1. R. typhìna, *L.* Leaflets oblong-lanceolate, acutely serrate, pale or glaucous beneath.

TYPHA-LIKE RHUS. Staghorn Sumach.

Juice milky. *Stem* 15 to 20 or 30 feet high, with spreading branches above.—*Leaflets* 2 to 4 inches long, 8 to 12 or 15 pairs and a terminal one. *Flowers* yellowish-green, in terminal *thyrsoid panicles*,—the fertile ones about 6 inches long, very dense, oblong and nearly cylindrical; *fruit* densely clothed with a purple pubescence, which is sharply acid.

Hab. Woods, and banks of streams; Schuylkill: not common. *Fl.* June. *Fr.* Sept.

Obs. This is the largest and handsomest species, indigenous to the County. The fine purple clusters of fruit, on the fertile plant, render it quite an ornamental little tree; and when planted in the yards and public squares of our cities, it affords an almost literal exemplification of the much-admired *Rhus in urbe!* Its roots, however, are rather troublesome, in sending up *suckers*.

* * Young branches *downy-pubescent*.

2. R. copallìna, *L.* Common petiole winged; leaflets oblong or ovate-lanceolate, nearly entire.

COPAL RHUS. Dwarf Sumach.

Juice resinous. *Stem* 3 to 6 or 8 feet high, branched. *Leaflets* 1 to 3 inches long, usually 4 or 5 pairs with a terminal one, subcoriaceous. *Flowers* yellowish-green, in terminal thyrsoid panicles. *Fruit* densely pubescent, finally dark purple and acid.

Hab. Dry, slaty hills: frequent. *Fl.* July. *Fr.* October.

* * * Young branches *glabrous*.

3. R. glàbra, *L.* Leaflets lance-oblong, acuminate, serrate, whitish beneath.

GLABROUS RHUS. Common Sumach. Smooth Sumach.

Juice copiously milky. *Stem* 3 to 8 or 10 feet high, irregularly branched; branches stout, with a large pith. *Leaflets* 2 to 3 or 4 inches long, 10 to 15 pairs, with a terminal one, becoming crimson in autumn. *Flowers* yellowish-green, in dense ovoid terminal panicles. *Fruit* densely villous, finally bright purple, and sharply acid.

Hab. Old fields; fence-rows, &c.: common. *Fl.* June. *Fr.* Sept.

4. R. venenàta, *DC.* Leaflets obovate-oblong, abruptly acuminate, the margin very entire and slightly revolute.

POISONOUS RHUS. Poison Sumach. Swamp Sumach.

Juice resinous. *Stem* 8 to 12 or 15 feet high, branching above. *Leaflets* 2 to 3 inches long, 4 to 6 pairs, with a terminal one. *Flowers* greenish, in subterminal and axillary panicles. *Fruit* smooth and shining, pale yellowish-green, larger than in any of the preceding.

Hab. Swampy rivulets: not very common. *Fl.* June. *Fr.* Sept.

Obs. This species is very poisonous to many persons. It was formerly (but erroneously) supposed to be identical with the *varnish tree*, of Japan.

†† Leaves *trifoliolate.*

5. R. Toxicodéndron, *L.* Stem erect, or climbing by radicles; leaflets obliquely ovate or rhomboid, acuminate, entire or angularly dentate.

R. radicans. *L. & Fl. Cestr. ed.* 2.

POISON-TREE RHUS. Poison-Vine. Poison-Ivy.

Juice resinous. *Stem*, in the *erect variety*, 2 to 5 or 6 feet high, with *leaflets* larger and variously toothed or lobed; in the *climbing variety*, *stem* 8 or 10 to 30 or 40 feet long, branching, adhering to trees, fences, and other objects, by means of numerous radicating processes; the *leaflets* 3 to 5 or 6 inches long, more commonly entire; *common petioles* 3 to 6 inches in length. *Flowers* yellowish-green, in slender racemose axillary panicles. *Fruit* dry, smooth and shining, pale brown.

Hab. Woods, fence-rows, &c.: frequent. *Fl.* May. *Fr.* Sept.

Obs. The *climbing* variety (formerly regarded as a distinct species, and named *R. radicans,*) is much the most common, here: but some fine specimens of the *erect* variety were collected in the South Western part of the County, in 1841, by Mr. JOHN M'MINN. They are both poisonous, to some persons.

ORDER XXVIII. ACERA'CEAE.

Trees, yielding a *sweet sap; leaves* opposite, without *stipules*; *flowers* polygamo-dioicous, regular but often apetalous or unsymmetrical; *fruit* a pair of more or less diverging separable 1-seeded *samaras*, winged at summit, with the outer margin thicker and obtuse; *seeds* nearly without *albumen.*

76. ACER, *L.*

[The ancient classical name of the maple.]

Sepals 5, connected at base. *Petals* 5, or often none. *Stamens* 5 to 8. *Styles* 2, united; *ovary* on a glandular-lobed *disk.*

† Flowers *in pendulous racemes, or corymbs, appearing with the leaves.* * Petals 5.

1. A. PSEUDO-PLÁTANUS, L. Leaves cordate at base, 5-lobed, unequally dentate; flowers in terminal pendulous racemes; fruit diverging.

FALSE-PLATANUS ACER. Sycamore. Greater Maple.

A large tree, when full grown. *Leaves* 4 to 6 inches long, on *petioles* about the same length. *Racemes* about 6 inches long; rachis and filaments hairy; *flowers* yellowish-green, the sepals and petals nearly alike; *fruit* smooth.

Hab. Streets, and yards. Nat. of Europe. *Fl.* April. *Fr.*

Obs. This has been introduced, latterly, as an ornamental *shade tree;* but I consider our own *Sugar Maple*, and the *Norway Maple*, as decidedly preferable, notwithstanding COWPER's lines:

"—— nor unnoted pass
The *Sycamore*, capricious in attire,
Now green, now tawny, and, ere autumn yet
Have chang'd the woods, in scarlet honors bright."

Both this and the Plane tree (*Platanus*), are vulgarly called *Sycamore*, in our language; but *why*, is not apparent. The *true* "Sycamore"—(perhaps the Tree which ZACCHEUS climbed)—is a species of *Fig-tree* (*Ficus Sycomorus*, L.).

2. A. PLATANOI'DES, *L.* Lactescent; leaves broadly cordate, 5-lobed, coarsely dentate; flowers somewhat corymbose; fruit divaricate, smooth.

PLATANUS-LIKE ACER. Norway Maple.

A large tree, when full grown. *Leaves* 4 to 6 inches in length, and rather wider than long, deep shining green; *petioles* about as long as the leaves, when broken exsuding a *milky juice! Flowers* pale greenish-yellow, in loose, terminal, and somewhat pendulous corymbs. *Samaras* remarkably divaricate, glabrous.

Hab. Streets, &c. Nat. of Europe. *Fl.* April. *Fr.*

Obs. This tree has been but recently introduced; yet it promises to become one of our most desirable *shade trees.* Its foliage is remarkably fine, and abundant, continuing green longer than most other species; and it is said that its milky juice prevents the ravages of insects.

* * Petals *none.*

3. A. saccharinum, *Wangenh.* Leaves broad, palmately 3- to 5-lobed, the lobes acuminate, coarsely sinuate-dentate; flowers pendulous on long villous fasciculate pedicels; fruit slightly diverging, turgid, smooth.

SACCHARINE ACER. Sugar Maple.

Stem 60 to 80 feet, or more, in height. *Leaves* 3 to 5 inches long, and about as wide as long, becoming golden-yellow in autumn; *petioles* 2 to 6 or 8 inches in length. *Flowers* pale greenish-yellow, truncate and cup-like, the border fringed with long hairs. *Fruit* ovoid at base, nearly parallel, rather short.

Hab. Rich woodlands; along streams: rare. *Fl.* April. *Fr.* Sept.

Obs. This is one of the most valuable and interesting of our native forest trees,—especially in the North and West—where its *sap*, in early spring, yields an immense quantity of *Sugar* and *Syrup.*—The beautiful *wood*, known as *Bird's-eye Maple*—so much admired in cabinet work—is believed to be afforded by this species. The tree is also much cultivated, and deservedly admired, as an ornamental *shade tree.* The *A. nigrum*, of *Mx.* called *Black Maple*, seems now to be regarded as a mere *variety* of the *A. saccharinum.* Its *leaves*, however, are usually larger and of a darker green, thicker, and somewhat coriaceous in texture. It makes even a finer *shade*

tree than the common variety, and is cultivated for that purpose, in our villages,—though rarely met with in a wild state, here. It is said to be more common than the other, at the South.

† † Flowers *in short erect clusters, from lateral leafless buds, preceding the leaves.*

* Petals *none.*

4. A. dasycárpum, *Ehrh.* Leaves palmately and deeply 5-lobed, with the sinuses acute; ovaries densely tomentose; fruit very large,—one samara often abortive.

A. eriocarpum. *Mx. & Fl. Cestr. ed.* 2. *p.* 245.

Woolly-fruited Acer. Silver-leaved Maple. White Maple.

Stem 30 to 50 or 60 feet high, much and widely branching; the young branches virgate and rather drooping. *Leaves* 3 to 6 inches long, very glaucous or bluish-white beneath; *petioles* 2 to 6 inches long. *Flowers* pale green, in fascicles mostly of fives or sevens, on short pedicels; *calyx* a crenately truncate cup. *Samara*, when mature, 2 to near 3 inches long, somewhat resembling the wing of a huge grasshopper.

Hab. Banks of rivers; Schuylkill: rare. *Fl.* April. *Fr.* May.

Obs. This has been extensively cultivated as a *shade tree*, of late,—and it has the merit of easy culture, and rapid growth; but it is decidedly inferior (*me judice*) to both the *Norway*, and the *Sugar Maple.*

** Petals 5.

5. A. rùbrum, *L.* Leaves mostly 3-lobed, subcordate at base, lobes acute, unequally incised-dentate; ovaries smooth.

Red Acer. Red Maple. Swamp Maple.

Stem 30 to 60 or 80 feet high, branched, the young branches purplish. *Leaves* 2 to 4 inches long, glaucous beneath; *petioles* 1 or 2 to 5 inches long. *Flowers* bright purple—or often yellowish-tawny—on longish pedicels.

Hab. Moist, low grounds: common. *Fl.* March. *Fr.* Sept.

Obs. The *variety* with *tawny flowers* (first noticed, I believe, by Humphry Marshall), is quite frequent in Chester County,—and those flowers are generally sterile (*staminate*); while the *purple flowers*, so far as I have observed, are constantly perfect and fertile. The *wood* of this species—especially that sort known as *Curled Maple*—is much esteemed in the manufacture of household furniture.

77. NEGUN'DO, *Moench.*

[A name of obscure derivation and doubtful meaning.]

Dioicous; Calyx minute, 4- or 5-cleft. *Petals* none. Stam. Fl. mostly pentandrous, on capillary fascicled pedicels. Pistill. Fl. in simple slender pendulous racemes. *Fruit* as in *Acer.*

1. N. aceroides, *Moench.* Leaves ternate or quinate-pinnate; leaflets rhombic-ovate, coarsely incised-dentate.

Acer Negundo. *L. & Fl. Cestr. ed.* 2. *p.* 246.

Acer-like Negundo. Box-Elder. Ash-leaved Maple.

Stem 20 to 30 or 40 feet high, branched; young branches with a yellowish-green bark. *Leaflets* mostly 3, sometimes odd-pinnate in fives, 3 to 5 inches long; *common petioles* 3 or 4 inches in length. *Flowers* yellowish-green, from lateral buds; *ovaries* hirsute; *fruit* diverging.

Hab. Low grounds; along Brandywine: not common. *Fl.* April. *Fr.* Sept.

Obs. This little tree is certainly distinct, in habit, from the generality of *Maples*,—and seems to be finally separated from them, by modern Botanists; but, if a tree is to be "known by its *fruit*," this one will always be liable to be taken, or mistaken, for an *Acer*.

ORDER XXIX. SAPINDA'CEAE.

Mostly *trees*, or *shrubs*; *leaves* opposite, or alternate, mostly compound, without *stipules*; *flowers* unsymmetrical; *ovary* 3-celled; *fruit* capsular, or baccate; *seeds* without *albumen*.

TRIBE 1. HIPPOCASTA'NEAE.

Leaves mostly opposite and digitate; *ovules* 2 in each cell; *cotyledons* thick and fleshy, partly soldered together.

78. AES'CULUS, *L.*

[The ancient name of a tree which bore *esculent* fruit.]

Calyx regular, 5-lobed. *Petals* 4 or 5, unequal. *Stamens* 6 to 8, usually 7. *Styles* 3, united. *Fruit* a subglobose coriaceous *capsule*, mostly 1-celled by abortion, 2- or 3-valved, with a loculicidal dehiscence. *Seed* large, globose, with a smooth reddish-brown coat, and broad paler *hilum*.

1. *Æ.* HIPPOCÁSTANUM, *L.* Leaflets in sevens, obovate-cuneate, acute, dentate; petals five; fruit echinate.

HORSE-CHESTNUT AESCULUS. Horse-Chestnut.

Stem 30 to 50 or 60 feet high, with opposite symmetrical rather erect branches; young branches stout, never ramifying the same season—each year's growth being a definite development from the large buds, and effected rapidly within a few weeks. *Leaflets* sessile, 4 to 6 or 8 inches long, penninerved; *common petiole* 4 to 8 inches long. *Flowers* white, with red spots, in large erect terminal thyrsoid panicles.

Hab. Yards, and streets: cultivated. *Fl.* May. *Fr.* October.

Obs. This ornamental tree (a native of Northern India) is only now beginning to be appreciated, and to be introduced, here. Indeed, it is marvellous to reflect, how inconsiderate our people have been, until quite recently, on the subject of providing *Shade trees*, as a shelter from the fervid glare of our Summer's sun. It is to be hoped that our *posterity* may be able to say, with more truth than *we* can—

> "*Our fathers* knew the value of a screen
> From sultry suns; and in their shaded walks
> And long protracted bowers, enjoyed at noon
> The gloom and coolness of declining day."

There are several native species, in the Southern and Western States, where they bear the name of *Buck-eye*, from a resemblance of the seeds to the eye of that animal. These native trees, by reason of their abundance, have become the popular emblem of *Ohio*—which is known throughout the Union by the sobriquet of the "*Buck-eye State*."

ORDER XXX. CELASTRÀCEAE.

Small trees, or *shrubs*; *leaves* alternate, or opposite, compound, or simple, with inconspicuous or deciduous *stipules*: *flowers* regular, of 4 or 5 parts; *sepals* and *petals* imbricated in the bud; *stamens* as many as the petals and alternate with

them, inserted on a *disk*; *fruit* capsular, mostly 3-celled; *seeds* few, often arillate; *embryo* large, in fleshy *albumen*.

TRIBE 1. STAPHYLE'AE.

Leaves opposite, compound; *ovary* many-ovuled, free from the cup-like disk; *seeds* bony, not arillate.

79. STAPHYLE'A, *L.*

[Gr. *Staphyle*, a cluster: from its mode of flowering.]

Sepals 5, erect. *Petals* 5. *Pistil* of 3 carpels united in the axis; *styles* long, at first cohering, but separating as the ovary enlarges into a membranaceous inflated 3-lobed 3-celled *capsule*. *Seeds* obovoid, smooth, 1 to 3 in each cell. Upright *shrubs*.

1. S. trifòlia, *L.* Leaves ternate, on long petioles; leaflets ovate, acuminate, serrulate, the terminal one petiolulate.
THREE-LEAVED STAPHYLEA. Bladder-nut.

Stem 6 to 12 feet high, with smooth slender branches. *Leaflets* 2 to 4 inches long. *Flowers* white, in pendulous paniculate or racemose clusters, which are terminal and axillary.
Hab. Moist thickets; along Brandywine: not common. *Fl.* May. *Fr.* Sept.

TRIBE 2. EUONYME'AE.

Leaves alternate, or opposite, simple; *ovary* 2-ovuled, immersed in the disk; *seeds* coated with a pulpy *arillus*.

80. CELAS'TRUS, *L.*

[A name borrowed from the ancient Greek writers.]

Polygamo-dioicous: Sepals 5, connected at base. *Petals* 5. *Stamens* inserted on the margin of the cupshaped disk. *Ovary* usually 3-celled; *style* thick; *stigma* 6-lobed. *Capsule* globular, loculicidal. *Seeds* 1 or 2 in each cell, with a scarlet *arillus*. *Leaves* alternate.

1. C. scándens, *L.* Stem shrubby, twining, unarmed; leaves oval or obovate, acuminate, serrate.
CLIMBING CELASTRUS. Climbing Staff-tree. Wax-work.

Stem 10 to 15 feet long. *Leaves* 2 to 3 or 4 inches long, on *petioles* about ¾ of an inch in length. *Flowers* yellowish-green, in small racemes terminating the short branches. *Capsules* about the size of large peas, orange-color when mature.
Hab. Thickets, fence-rows, &c.: frequent. *Fl.* June. *Fr.* Sept.

81. EUON'YMUS, *Tournef.*

[Gr. meaning *good name*; the reason of which is obscure.]

Calyx 4- or 5-lobed, spreading flat, the base covered with a peltate disk. *Petals* 4 or 5, rounded. *Stamens* short, inserted on the disk which covers the ovary. *Capsule* 3- to 5-lobed, or angled, 3- to 5-valved, smooth or verrucose; *cells* 1- or 2-seeded. *Seeds* nearly inclosed in a red fleshy *arillus*. *Leaves* opposite.

1. E. atropurpùreus, *Jacq.* Leaves elliptic-ovate, acuminate, petiolate; flowers tetramerous; capsules smooth.
DARK-PURPLE EUONYMUS. Burning Bush. Spindle-tree.

Stem 6 to 8 or 10 feet high, branching; branches slightly 4-angled. *Leaves* 2 to 4 or 5 inches long; *petioles* about half an inch in length. *Flowers* dark purple, few and loosely cymose. *Fruit* smooth, pendulous, red at maturity.
Hab. Woodlands; Brandywine: not common. *Fl.* June. *Fr.* October.

2. E. Americànus, *L.* Leaves oblong-lanceolate, acute, subsessile; flowers pentamerous; capsule roughly verrucose.
AMERICAN EUONYMUS. Strawberry tree.

Stem 2 to 5 or 6 feet high, slender; branches spreading, 4-angled, deep green.—*Leaves* 1 to 2 or 3 inches long, often a little falcate, and almost sempervirent. *Flowers* greenish-yellow, with a purple tinge. *Capsule* 5-valved, muricate, bright crimson when mature. *Seeds* small, mostly two enveloped in each scarlet arillus. *Hab.* Moist woodlands: not very common. *Fl.* June. *Fr.* Octo.

ORDER XXXI. RHAMNÀCEAE.

Shrubs, or *small trees; leaves* simple, mostly alternate; *stipules* minute; *flowers* regular, small (sometimes apetalous); *stamens* as many as the valvate sepals, alternate with them and opposite the petals; *fruit* a capsule, or drupe, with 1-seeded cells; *seeds* not arillate; *embryo* in fleshy *albumen*.

82. CEANO'THUS, *L.*

[An ancient Greek name; applied to this genus.]

Calyx 5-lobed, circumscissed after flowering,—the lower portion adherent to the fruit. *Petals* cucullate, on slender claws. *Capsule* 3-lobed, splitting into 3 carpels, which open on the inner side, at maturity. *Shrubs*, with the small *flowers* in an oblong terminal *thyrsus*.

1. C. Americànus, *L.* Leaves oblong-ovate, acuminate, pubescent beneath; common peduncles elongated.
AMERICAN CEANOTHUS. New Jersey Tea.

Root large, dark red; *stem* 2 to 3 or 4 feet high, branched and bushy. *Leaves* 2 to 4 inches long, on short petioles. *Flowers* white, numerous, thyrsoid, in cymose fascicles. *Seeds* rather large, oval, smooth and shining.
Hab. Woodlands, and thickets: frequent. *Fl.* June. *Fr.* Sept.

Obs. The *Whigs*, in the war of Independence, who were accustomed to drinking *Tea*, substituted the leaves of this shrub for the Chinese sorts,—which had become odiously associated with the tyrannous attempts of the mother country to tax the Colonies.

ORDER XXXII. VITÀCEAE.

Shrubby runners, usually with a loose, stringy, dark-brown bark,—climbing by tendrils which are opposite the leaves; *leaves* alternate, simple and palmate-veined, or compound, with deciduous *stipules; flowers* regular, small, mostly in compound racemes, opposite the leaves; *petals* 4 or 5, valvate, caducous; *stamens* as many as the petals, and opposite them; *fruit* a 2-celled 4-seeded *berry; seeds* bony; *embryo* minute, at the base of hard *albumen*.

83. VITIS, *L.*

[The ancient Latin name of the Vine.]

Calyx obsoletely 5-toothed, lined with a perigynous disk. *Petals* 5, cohering at apex, speedily pushed off by the stamens. *Stigma* sessile. *American* species often *polygamo-dioicous*; *flowers* greenish.

† Flowers *all perfect* (*Exotic species*).

1. V. VINIF'ERA, L. Leaves variously palmate-lobed, sinuate-dentate, glabrous, or tomentose; fruit of various sizes and colors.
WINE-PRODUCING VITIS. Wine-Grape. Foreign Grape, &c.

Stem 10 to 20 feet, or more, in length (usually kept short by pruning). *Leaves* more or less lobed, generally rather smaller than in our native species. *Berries* globose, oblong, or obovoid, dark blue, amber-color, or greenish-white.
Hab. Gardens, and Graperies. Nat. of Asia. *Fl.* June. *Fr.* Aug. Sept.

Obs. An almost incredible number of *varieties*, of this species, have been produced by long culture. It is said, there are about 1400 in the Vineries of France. The *Currants* of commerce (*Corinths*, or Grapes of Corinth)—often called *Zante Currants*—are believed to be a small-fruited and nearly seedless variety,—or perhaps a distinct yet closely allied species. It seems now to be agreed, on all hands, that in our climate, the only mode of securing a crop of *foreign* Grapes, is to cultivate them under glass. In that way, the delicious fruit may almost certainly be obtained.

†† Flowers *often polygamo-dioicous* (*Native species*).

2. V. Labrúsca, *L.* Leaves roundish-cordate, somewhat 3-lobed, densely tomentose beneath; racemes simple; berries large. Fox-Grape (of the Northern States; not of Virginia).

Stem 15 to 20 or 30 feet long, straggling over bushes and small trees; branchlets lanuginous. *Leaves* 4 to 6 inches in length,—the tomentum beneath persistent, inclining to russet, or tawny; *petioles* 2 to 4 inches long. *Flowers* yellowish-green, in rather short racemes. *Berries* globose, about half an inch in diameter, varying at maturity from black to amber color, and sometimes greenish-white; of a strong musky or rancid flavor.
Hab. Moist thickets, along streams: frequent. *Fl.* June. *Fr.* Sept.

Obs. This grape is believed to be the *original* of those cultivated *varieties* (some of them possibly *hybrids*) known as *Isabella*, *Schuylkill*, *Raccoon*, *Catawba*, *Alexander's*, *Tasker's*, and *Bland's grape*.—They are all decided improvements upon the wild fruit; and succeed much better, in this climate, than any of the foreign ones. The *Catawba grape*, in particular, has yielded *wine* of a superior quality, in Ohio,—and is well worthy of culture as a *table grape*.

3. V. aestivàlis, *Mx.* Leaves broadly cordate, often 3- to 5-lobed, or sinuate-palmate, loosely tomentose beneath; racemes densely compound; berries small.
Summer Vitis. Little Grape. Summer Grape.

Stem 20 to 40, sometimes 60 feet, or more, in length, often climbing high trees.—*Leaves* 4 to 8 inches long, with a loose cobweb-like russet pubescence beneath, when young, more hirsute,—sometimes smoothish when older; *petioles* 2 to 4 inches long. *Flowers* greenish, often umbellulate in the longish compound racemes. *Berries* scarcely half the size of the preceding, deep blue or blueish-black, and covered with a glaucous powder, when mature.
Hab. Woods, thickets, &c.: frequent. *Fl.* June. *Fr.* Octo.

Obs. The fruit of this, when fully mature, is of a sprightly acid and agreeable flavor,—quite a favorite with those who are fond of pastry Tarts; though the *nut-like seeds* are rather objectionable.—Some of the varieties bear larger berries, which might probably become more valuable under culture.

4. V. cordifòlia, *Mx.* Leaves cordate, acuminate, incised-dentate, smooth on both sides; racemes slender, loosely compound; berries small.

HEART-LEAVED VITIS. Chicken Grape. Winter Grape.

Stem 10 to 20 feet long, climbing and spreading over bushes. *Leaves* 2 to 6 inches long, smooth and a little shining, the nerves beneath pubescent; *petioles* 2 to 5 inches long. *Flowers* greenish, in loose racemes, which often have long abortive branches at base, retrograding into *tendrils*. *Fruit* small, greenish amber color, or sometimes nearly black, when mature, very acerb.

Hab. Thickets, fence-rows, &c.: frequent. *Fl.* June. *Fr.* Nov.

Obs. This was mistaken for the *V. vulpina*, of *Linn.* until Mr. ELLIOTT suggested that the true *original Fox Grape* was most probably what MICHAUX named *V. rotundifolia;* and which is known in Virginia, and further South, by the various names of *Fox Grape*, *Bull*, or *Bullet Grape*, *Muscadine*, and *Scuppernong Grape*.

84. AMPELOP'SIS, *Mx.*

[Gr. *Ampelos*, vine, and *opsis*, aspect; from its resemblance to the Vine.]

Calyx slightly 5-toothed, without a perigynous disk. *Petals* 5, opening at apex, spreading, or reflexed.

1. A. quinquefòlia, *Mx.* Leaves digitate in fives; leaflets ovate-oblong, smooth; racemes cymose.
A. hederàcea. *DC. & Fl. Cestr. ed.* 2. *p.* 153.

FIVE-LEAVED AMPELOPSIS. Virginia Creeper. American Ivy.

Stem 10 to 30 or 40 feet long, diffusely branching, climbing trees and walls, clinging to them by adhesive expansions of the points of the tendrils. *Leaflets* 2 to 4 inches long, becoming crimson in autumn; *common petiole* 2 to 6 inches long. *Flowers* yellowish-green, umbellulate in compound cymes. *Berries* blueish-black; *peduncles* crimson.

Hab. Woodlands, thickets, &c.: common. *Fl.* July. *Fr.* Octo.

Obs. This is often cultivated against walls,—making a brilliant show, for a few days, in autumn.

ORDER XXXIII. POLYGALACEAE.

Herbs (in the U. States); *leaves* mostly alternate, simple, entire, without *stipules;* *flowers* irregular, somewhat papilionaceous; *stamens* 4 to 8, diadelphous; *anthers* mostly 1-celled, opening by a pore at summit; *style* curved, often cucullate; *fruit* a compressed, 2-celled 2-seeded *capsule; seeds* carunculate; *embryo* large, in the axis of scanty *albumen*.

85. POLYG'ALA, *Tournef.*

[Gr. *Polys*, much, and *Gala*, milk; being supposed to promote that secretion.]

Sepals 5, persistent,—the upper and 2 lower ones small, greenish, the 2 lateral ones (called *wings*) much larger, and petal-like. *Petals* 3, hypogynous, connected with each other, and with the *stamen-tube*,—the middle or lower one keel-shaped, often crested. *Capsule* compressed contrary to the narrow septum, loculicidal. *Seeds* with an arillus-like *caruncle*, or variously shaped appendage at the *hilum*.(a)

(a) A. DE ST. HILAIRE says, "La caroncule des *Polygala*, ne naissant point sur le cordon ombilical, ne peut être un *arille*. Cette caroncule est, comme celle des Ricins, le resultat de l'epaississement des bords du micropyle."

† Annual: * Leaves *all scattered*; flowers *purplish*.

1. P. sanguinea, *L.* Leaves oblong-linear; wings broadly ovate, very obtuse; caruncle nearly as long as the seed.
P. purpurea. *Nutt. & Fl. Cestr. ed.* 2. *p.* 401. (not of *Ait.* which is *P. paucifolia, Willd.*).
Bloody Polygala.

Stem 6 to 9 or 12 inches high, erect, angular, corymbosely branched above, often simple. *Leaves* half an inch to an inch long, subsessile. *Flowers* more or less purple, in oblong subcylindric heads, which are half an inch to near an inch in length.
Hab. Low grounds, thickets, &c.: *Fl.* July. *Fr.* Aug.

* * Lower leaves, *at least*, *verticillate*; flowers *greenish-white*.

2. P. cruciàta, *L.* Branches opposite; leaves nearly all verticillate, linear-oblanceolate; wings broadly deltoid-ovate, cuspidate.
Crossed Polygala.

Stem 4 to 8 inches high, with spreading branches. *Leaves* about an inch long.—*Heads* of flowers cylindrical or ovoid-oblong.
Hab. Moist low grounds; New London: rare. *Fl.* Aug. *Fr.* Sept.

Obs. This was collected near Russellville, in 1848, by Mr. Vincent Barnard.

3. P. verticillàta, *L.* Branches and stem-leaves verticillate; branch-leaves scattered, lance-linear; spikes elongated; wings orbicular, clawed.
Verticillate Polygala.

Stem 3 to 6 or 8 inches high, diffusely and brachiately branched. *Leaves* one third of an inch to an inch long, sessile. *Spikes* of flowers one-third to three fourths of an inch long, on slender *peduncles* of about the same length.
Hab. Dry banks; borders of woods: frequent. *Fl.* July. *Fr.* Aug.

4. P. ambigua, *Nutt.* Branches alternate, erect, slender and virgate; leaves narrowly linear,—the lowest verticillate, the rest scattered; spikes very slender; wings oval.
Ambiguous Polygala.

Stem 9 to 12 or 15 inches high, with numerous branches. *Leaves* 1-fourth of an inch to an inch long. *Spikes* of flowers half an inch to an inch and half long, on slender naked *peduncles* 1 to 2 inches in length.
Hab. Slaty hills, and sterile fields: frequent. *Fl.* July. *Fr.* Aug.

† † Perennial: * flowers *white*.

5. P. Sénega, *L.* Stems simple; leaves alternate, lanceolate; wings oval, or roundish-obovate.
Seneka Snake-root. Mountain Flax. Milk-wort.

Root thick, knotty and hard, with coarse branches. *Stem* 9 to 15 inches high, rather limber, mostly several from the same root. *Leaves* 1 to 2 or 3 inches long, narrowed at base to a short *petiole*. *Spike* of flowers 1 to 2 inches in length, somewhat nodding on a naked *peduncle* about an inch long. *Seeds* large, pyriform, hairy.
Hab. Hilly woodlands: not uncommon. *Fl.* May. *Fr.* July.

Obs. The *root* of this species is well known in the shops, for its active medicinal properties.

* * Flowers *purple*.

6. P. paucifòlia, *Willd.* Rhizoma creeping; branches erect, simple, leafy at summit; leaves elliptic-ovate, acute at each end, pubescent-ciliate, petiolate; terminal flowers 1 to 3, large, crest of the keel fringed; radical flowers wingless, fertile.

FEW-LEAVED POLYGALA. Flowering Wintergreen.

Branches 3 to 4 inches high, slender. *Lower leaves* small and scale-like, distant, —the *upper* ones crowded at summit, about an inch long; *petioles* about ¼ of an inch in length. *Terminal flowers* large and showy, pedunculate, in the bosom of the leaves; *concealed flowers* whitish, borne by the prostrate branching *rhizoma*. *Hab.* Shaded swamps; woods, &c. E. Nottingham: rare. *Fl.* May. *Fr.*

Obs. This pretty little species has been detected in the extreme S. Western parts of the County, by Mr. NATHAN MILNER,—for a knowledge of which I am indebted to the active researches of my indefatigable friend, JOSHUA HOOPES.

ORDER XXXIV. LEGUMINO'SAE.

Herbs, shrubs, or *trees; leaves* alternate, usually compound, *stipulate; flowers* generally papilionaceous; *stamens* mostly 10, diadelphous (9 and 1), or rarely distinct; *pistil* simple, becoming a *legume* in fruit; *seeds* attached to the upper suture, mostly without *albumen*.

This vast family—comprising upwards of 400 Genera—is as important as it is comprehensive. Among the remarkable plants (or products) belonging to the Order, and not here described, may be mentioned—on account of their value, beauty, or other characteristic—the *Logwood* (*Haematoxylon Campechianum, L.*)—the *Indigo* plant (*Indigofera tinctoria, L.*)—the *Braziletto* or *Brazil-wood* (*Caesalpinia Braziliensis, L.*)—the *Rose wood* (a species of *Mimosa*)—the *Sissoo wood* of India (*Dalbergia Sissoo, Roxb.*)—the *Red Sandal wood* (*Pterocarpus santalinus, L.*)—the *Liquorice* plant (*Glycyrrhiza glabra, L.*)—the *Tamarind* tree (*Tamarindus Indica, L.*)—the *Tonka Bean* (*Dipterix odorata, Willd.*)—the *Senna* of the shops (*Cassia Senna, L.*)—the plants yielding *Gum Arabic* (species of *Acacia*)—the pretty *Laburnum* (*Cytisus Laburnum, L.*)—the wonderful *Sensitive plant* (*Mimosa pudica, L.*)—&c., &c. The famous Chinese condiment, called *Soy*, is also obtained from the seeds of a plant (*Soja hispida, DC.*) belonging to this order; and the bean named "*Dhal*," in India, is the seed of the *Cajanus flavus, DC.*

SUBORDER I. PAPILIONA'CEAE.

Leaves mostly pinnate, or pinnately trifoliolate; *flowers* usually perfect; *corolla* butterfly-shaped; *radicle* mostly incurved.

TRIBE 1. VICIE'AE.

Herbs; leaves mostly even-pinnate (odd in *Cicer*),—the common petiole not articulated with the stem, generally produced at apex into a bristle, or tendril; *legume* continuous, 1-celled; *cotyledons* very thick and fleshy, or farinaceous, remaining under ground in germination.

86. CI'CER, *Tournef.*

[The ancient Latin name for a species of Vetch; applied to this genus.]

Calyx somewhat gibbous at base, 5-parted, the 4 upper segments incumbent on the vexillum. *Legume* turgid, 2-seeded; *seeds* gibbous.

1. C. ARIETI'NUM, L. Leaves odd-pinnate; leaflets cuneate-obovate, serrate; stipules lanceolate, sub-denticulate; calyx-segments as long as the wings of the corolla.

RAM CICER. Chick Pea. Coffee Pea. Garavance.

Annual; hoary and glandular-pilose,—the hairs secreting oxalic acid. *Stem* 9 to 18 inches high, somewhat branching. *Leaflets* about half an inch long, in 4 to 6 pairs (often alternate), with a terminal odd one instead of a tendril. *Flowers* white, solitary, axillary, or slender *peduncles* half an inch to an inch in length.—*Seeds* resembling a ram's head, in form.

Hab. Gardens, &c. Nat. of Asia. *Fl.* July. *Fr.* Aug.

Obs. This is sometimes cultivated for the *seeds*,—which are said to be a tolerable substitute for *Coffee*. The seeds are much used, as food for horses, &c. in India,—being very abundant (as I recollect to have seen it) in the Bazaars, at *Calcutta*, under the name of "*Gram.*" This Vetch is the "*Hamoos Pea,*" which is announced as a *novelty*, or great curiosity (*discovered* among the Arabs), in LYNCH'S *Expedition to the Dead Sea;* though it has been familiarly known in the gardens, throughout the civilized world, ever since the days of TOURNEFORT—if not of HOMER! So much, for the penny-wise policy of sending out *Exploring Expeditions* unaccompanied by competent *Naturalists*.

87. FA'BA, *Tournef.*

[The Latin name for a Bean; appropriated to this genus.]

Calyx tubular, 5-cleft, the 2 upper segments shorter. *Style* bent nearly to a right angle. *Legume* large, coriaceous, several-seeded. *Seeds* oblong-oval, compressed, the *hilum* at one end.

1. F. VULGÀRIS, Moench. Leaflets 2 to 4, oval, mucronate; stipules semi-sagittate, obliquely ovate; tendrils obsolete.

COMMON FABA. Horse Bean. Windsor Bean.

Annual; smooth. *Stem* 1 to 2 feet high, erect, simple. *Leaflets* 2 to 3 inches long. *Flowers* in simple erect axillary racemes: *Corolla* white, with a large black spot on each wing. *Legume* torulose; *seeds* large.

Hab. Gardens, &c. Nat. of Asia. *Fl.* June. *Fr.* Aug.

88. VI'CIA, *Tournef.*

[The ancient Latin name for the Vetch, or Tare.]

Calyx 5-cleft, or 5-toothed, the 2 upper teeth shorter. *Style* filiform, bent; *stigma* villous. *Legume* oblong, mostly many-seeded. *Seeds* with the *hilum* lateral.

† ANNUAL: * Peduncles *very short.*

1. *V. sativa*, L. Stem simple; leaflets 5 to 7 pairs, obovate-oblong to linear, retuse, mucronate; flowers mostly in pairs.

CULTIVATED VICIA. Common Vetch. Tare.

Stem 1 to 3 feet long, procumbent, or climbing by tendrils. *Leaflets* ¾ of an inch to an inch and half in length, *Flowers* violet-purple, axillary, subsessile.

Hab. Cultivated grounds: Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This species was formerly much cultivated, and seems still to be highly prized, in Europe, as a fodder for cattle; but in this country, it is regarded as a mere weed.

** Peduncles *elongated.*

2. *V. hirsuta*, Koch. Stem branching, slender; leaflets in 4 to 8 or

10 pairs, sublinear, truncate; flowers 3 to 6; legume 2-seeded, hairy.

Ervum hirsutum. *L. & Fl. Cestr. ed.* 2. *p.* 426.

HIRSUTE VICIA. Hairy Vetch.

Stem 2 to 3 feet long. *Leaflets* about half an inch long. *Flowers* pale purplish-blue; *common peduncles* axillary, about an inch in length.

Hab. Banks of Schuylkill: rare. Nat of Europe. *Fl.* May. *Fr.* July.

3. V. Crácca, *L.* Leaflets in 10 to 12 pairs, oblong-lanceolate, strongly mucronate; racemes densely many-flowered, longer than the leaves.

TUFTED VETCH.

Stem 18 inches to 3 feet long, 4-angled, branching, pubescent, climbing by tendrils. *Leaflets* about an inch long, silky-pilose beneath. *Flowers* pale violet-purple, retrorsely imbricated in dense secund racemes; *common peduncles* axillary, 1 to 3 inches long. *Seeds* subglobose, nearly black.

Hab. Borders of woods; indigenous? not common. *Fl.* June. *Fr.* Aug.

4. V. Americàna, *Muhl.* Leaflets in 4 to 7 pairs, elliptic or ovate-oblong, very obtuse; racemes 4- to 8-flowered, shorter than the leaves.

AMERICAN VICIA. Wild Vetch.

Stem 2 to 3 feet long, smooth, branching near the base. *Leaflets* half an inch to an inch and half long, smooth. *Flowers* pale purple, rather large; *common peduncles* axillary, about an inch long.

Hab. Banks of the Schuylkill: rare. *Fl.* June. *Fr.*

89. ER'VUM, *Tournef.*

[The Latin name for a species of Vetch.]

Calyx 5-parted; segments lance-linear, about as long as the corolla. *Style* ascending; *stigma* glabrous. *Legume* 2- to 4-seeded.

1. E. LENS, L. Erect; branching; leaflets in 3 to 6 or 8 pairs, elliptic-oblong; peduncles 2- or 3-flowered; legumes short and rather broad; seeds lenticular.

Lentil. Common, or Garden Lentil.

Annual. Stem 6 to 12 inches high, slightly pubescent. *Leaflets* half an inch to an inch long; *common petioles* 1 to 2 inches long. *Flowers* white; *common peduncles* axillary, half an inch to an inch in length. *Legumes* about half an inch long.

Hab. Gardens: Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. It appears from Dr. J. D. HOOKER's *Notes*, that the seeds of this plant are sometimes called "*Gram*," in India; but that name is believed to be more usually applied to the seeds of *Cicer*.

90. PISUM, *Tournef.*

[The Latin name of the Pea.]

Calyx-segments foliaceous. *Vexillum* large, reflexed. *Style* compressed, villous on the upper margin. *Legume* oblong. *Seeds* numerous, globose, with an orbicular *hilum*.

1. P. SATI'VUM, L. Leaflets in 2 pairs, rhombic-ovate; stipules very large, ovate; peduncles 2- or several-flowered; legumes subcarnose.

CULTIVATED PISUM. Pea. Garden Pea.

Annual; smooth and glaucous. *Stem* 18 inches to 4 feet long, somewhat branch-

ing, climbing by tendrils. *Leaflets* 1 to 2 or 3 inches long; *common petioles* 2 to 4 or 5 inches long; *stipules* rather larger than the leaflets. *Flowers* white, on *common peduncles* 1 or 2 to 6 inches long.
Hab. Gardens, &c. Nat. Country unknown. *Fl.* June. *Fr.* July.

Obs. Long culture in this, as in a number of other plants, has produced some striking *varieties*.

TRIBE 2. PHASEOLEAE.

Twining or trailing plants; leaves trifoliolate or odd-pinnate, and therefore not terminating in tendrils; *leaflets* mostly *stipellate; legume* continuous, often torulose; *seeds* usually reniform, with thick *cotyledons* which rise above ground (often nearly unchanged) in germination.

† Keel *twisted*. * Leaves *trifoliolate*.

91. PHASEOLUS, *L.*

[The ancient name of the Kidney Bean.]

Calyx sub-bilabiate, upper lip bifid, the lower trifid. *Keel* (of the *corolla*), with the included *stamens* and *style*, spirally coiled or incurved. *Ovary* stipitate, the *stipe* sheathed. *Legume* linear or falcate, tipt with the base of the style, many-seeded.

1. P. perénnis, *Walt.* Stem volubile or trailing; leaflets roundish-ovate, acute; peduncles often in pairs; calyx-bracts minute; legumes falcate.
Perennial Phaseolus. Wild Kidney Bean.

Perennial. Stem 4 to 6 or 8 feet long, branching, mostly trailing. *Leaflets* 2 to 4 inches long, often subcordate, adhesively scabrous beneath; *common petioles* 1 to 3 or 4 inches long. *Flowers* purple tinged with violet, in loose slender racemes; *peduncles* 2 to 6 or 8 inches long. *Seeds* reniform, dark purple.
Hab. Rocky woodlands; not very common. *Fl.* July. *Fr.* Sept.

2. P. hélvolus, *L.* Stem trailing, slender; leaflets deltoid oblong, or ovate-oblong, rather obtuse; peduncles solitary; calyx-bracts lance-oblong; legumes linear, hairy.
P. vexillatus. *L. & Fl. Cestr. ed.* 2. *p.* 430.
Pale-red Phaseolus.

Perennial. Stem 2 to 4 feet long, retrorsely hairy, branching. *Leaflets* 1 to 2 inches long; *common petioles* half an inch to an inch and a half long. *Flowers* pale purple, 3 to 5 or 7 in subcapitate racemes at the summit of axillary *peduncles* which are 3 to 6 or 8 inches long. *Seeds* pubescent.
Hab. Hills, near Schuylkill; W. Nottingham: rare. *Fl.* Aug. *Fr.* Octo.

3. P. vulgàris, Savi. Stem volubile, or bushy; leaflets ovate, acuminate; bracts as long as the calyx; legumes nearly linear and straight; seeds reniform.
Common Phaseolus. String Bean. Pole Bean. Bunch Bean.

Annual. Stem 4 to 6 or 8 feet long, volubile and climbing (always twining against the Sun—or West-South-East),—or short, erect and bushy, in the "*Bunch*" *Variety*. *Leaflets* 2 to 4 or 5 inches long; *common petioles* 1 to 5 or 6 inches in length. *Flowers* mostly white, in solitary racemes, on stout *peduncles* 1 to 3 or 4 inches long. *Seeds* smooth, white, or of various colors.
Hab. Gardens, fields, &c. Nat. of India. *Fl.* July. *Fr.* Sept.

4. P. lunàtus, L. Stem volubile; leaflets deltoid-ovate, acute; peduncles short; legumes scymitar-form; seeds compressed, broad.

LUNATE PHASEOLUS. Lima Bean. Carolina Bean.

Annual. Stem 6 to 8 or 10 feet long, twining. *Leaflets* 2 to 4 inches long; *common petioles* 2 to 6 inches long. *Flowers* greenish-white, in loose racemes; *peduncles* about two-thirds of an inch long. *Legumes* 2 to 3 inches long, and nearly an inch wide, compressed and somewhat curved. *Seeds* few, large, flattish and mostly white.

Hab. Gardens, and lots. Nat. of India. *Fl.* July. *Fr.* Sept.

* * Leaves *odd-pinnate.*

92. AP'IOS, *Boerh.*

[Gr. *Apion*, a Pear; from its pyriform tubers.]

Calyx campanulate, with 4 rounded obsolete teeth, and 1 longer, acute. *Keel* linear, falcate, reflecting the vexillum, finally twisted. *Legume* thickish, subcoriaceous, many-seeded.

1. A. tuberòsa, *Moench.* Stem volubile; leaflets mostly in fives, ovate-lanceolate, not stipellate; racemes oblong, dense-flowered.

TUBEROUS APIOS. Ground-nut.

Perennial. Root tuberiferous. *Stem* 4 to 6 or 8 feet long, slender, sparingly branched. *Leaflets* 3 to 7, 2 or 3 inches in length; *common petioles* 1 to 2 inches long. *Flowers* a dingy brownish-purple, with tinges of green, in dense axillary *racemes* an inch or two in length; *peduncles* half an inch to an inch long. *Legumes* subfalcate. *Seeds* reniform.

Hab. Moist thickets, fence-rows, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. The *flowers* of this are rather handsome and fragrant; and the *tubers* are said to be esculent. According to KALM, the Indians and Swedes called the plant "*Hopniss*, or *Hapniss.*"

† † Keel *not twisted:* leaves *trifoliolate.*

93. GALAC'TIA, *P. Br.*

[Gr. *Gala*, milk; some of the species being lactescent.]

Calyx 4-cleft, the upper segment broadest. *Keel* scarcely incurved. *Style* smooth. *Legume* linear, subterete, 1-celled, several-seeded.

1. G. glabélla, *Mx.* Stem trailing; leaflets ovate-oblong and elliptic, obtuse, often emarginate, upper surface shining; racemes few-flowered.

SMOOTHISH GALACTIA. Milk Pea.

Perennial. Stems 2 to 3 or 4 feet long, slender, terete, branching. *Leaflets* about an inch or inch and a half long; *common petioles* half an inch to an inch in length. *Racemes* axillary, about as long as the leaves. *Flowers* purple and white, tinged with pale green. *Seeds* a motley brown color.

Hab. North Valley hill: rare. *Fl.* July. *Fr.* Sept.

94. AMPHICARPA'EA, *Ell.*

[Gr. *Amphi*, double, or in two ways, and *karpos*, fruit: descriptive of the plant.]

Flowers of 2 kinds: those of the racemes complete, but mostly abortive; those on long slender branches from near the root solitary and incomplete, yet fertile, loosely buried. *Calyx* of the complete flowers tubular, 4-toothed, without bracts. *Keel* and *wing-petals* similar, nearly straight, the *vexillum* partly folded round them.

A. monoica, *Nutt.* Stem volubile, slender, hairy; leaflets

rhombic-ovate; racemes pendulous; radical peduncles filiform, bearing apetalous and often merely pistillate flowers.

MONOICOUS AMPHICARPAEA. Hog Pea-nut.

Annual? *Stem* 3 to 6 or 8 feet long, sparingly branched. *Leaflets* 1 to 2 or 3 inches long; *common petioles* 1 to 3 or 4 inches long. *Racemes* axillary, on *peduncles* half an inch to near 3 inches in length; *flowers* pale purple, or nearly white; *peduncles* from near the *base of the stem* 2 to 8 or 10 inches long, often branching, mostly with a solitary *legume* at the extremity, which is buried in loose earth, or under old leaves, near the root. *Cauline legumes* about an inch long, subfalcate, 3- or 4-seeded; *seeds* subreniform, dark purple: *Hypogaean legumes* about one-third of an inch long, compressed, suborbicular, hirsute, tawny, 1-seeded; *seed* compressed, orbicular, mottled reddish-brown.

Hab. Woods, and thickets: frequent. *Fl.* Aug. *Fr.* Sept.

TRIBE 3. HEDYSA'REAE.

Leaves mostly trifoliolate,—the *leaflets* often stipellate; *stamens* sometimes monadelphous; *legume* (or *loment*) separating transversely into 2 or more 1-seeded indehiscent joints,—or sometimes reduced to 1 such joint; *cotyledons* thin, becoming green in germination.

95. DESMO'DIUM, *DC.*

[Gr. *Desmos*, a chain, and *eidos*, form; alluding to the jointed pods.]

Calyx somewhat bilabiate. *Legume* compressed, deeply lobed on the lower margin, finally separating into 2 or more tenaciously hispid joints. *Perennial herbs*, with pinnately trifoliolate *leaves; leaflets* stipellate; *flowers* more or less purplish, in terminal or axillary racemes, which are often elongated and paniculate.

§ 1. STEM *erect, or ascending:* racemes *mostly elongated, terminal and subterminal.*

† Stipules *inconspicuous, setaceous, or subulate;* legumes *of 2 to 4 joints.*

1. D. nudiflòrum, *DC.* Leaves all crowded at the summit of the sterile stem; panicle on a tall and mostly naked scape.

NAKED-FLOWERED DESMODIUM.

Stem 6 to 12 inches high. *Leaflets* 2 to 3 inches long, obliquely ovate, acute; *common petioles* 2 to 6 inches in length. *Racemes* paniculate, slender, on a *scape-like peduncle* 18 inches to 3 feet long, which proceeds from near the root, and is mostly decumbent at base, becoming nearly upright at a little distance, and appearing like a distinct plant, sometimes bearing 1 to 2 trifoliolate leaves. *Joints* of the legume usually 3 or 4, somewhat triangular, slightly connected.

Hab. Woodlands: common. *Fl.* July. *Fr.* Sept.

2. D. acuminàtum, *DC.* Leaves all crowded at the summit of the stem, from which arises the long-peduncled panicle; leaflets orbicular-ovate, acuminate.

ACUMINATE DESMODIUM.

Stem 9 to 15 inches high. *Leaflets* 2 to 4 or 5 inches long, thin; *common petioles* 2 to 6 or 8 inches in length. *Racemes* paniculate, slender, on a terminal *peduncle* 12 to 18 inches long. *Joints* of the legume 2 or 3 (often 1), slightly connected, broad, semi-obovate, pubescent and tenacious.

Hab. Rich woodlands: common. *Fl.* July. *Fl.* Aug.

3. D. pauciflòrum, *DC.* Leaves scattered along the low ascending stem; leaflets rhombic-ovate; raceme few-flowered, on a short peduncle.

FEW-FLOWERED DESMODIUM.

Stem 6 to 12 inches high, with the *leaves* scattered, but more approximated near the base and summit. *Leaflets* 1 to 3 inches long; *common petioles* 1 to 3 inches in length; *stipules* obsolete. *Raceme* bearing 3 or 4 to 8 or 10 flowers; *peduncle* often shorter than the upper leaves. *Joints* of the legume 2 or 3 (sometimes 1), resembling those of the preceding species.

Hab. Woods, and clearings: not common. *Fl.* Aug. *Fr.* Sept.

4. D. Dillènii, *Darlingt.* Stem pubescent, branching; leaflets ovate-oblong, mostly obtuse, paler and finely pubescent beneath; racemes paniculate, rather loose and slender.

DILLENIUS'S DESMODIUM.

Stem about 2 feet high. *Leaflets* an inch and a half to 3 inches long, varying from oval to oblong and ovate, sometimes rather acute, villous when young: *common petioles* half an inch to an inch and half in length. *Racemes* with angular and often sulcate branches. *Joints* of the legume mostly 3 or 4, more or less rhomboid, uncinately pubescent.

Hab. Borders of woods, and thickets: frequent. *Fl.* Aug. *Fr.* Sept.

5. D. paniculàtum, *DC.* Stem smoothish, often branching; leaflets oblong lanceolate, tapering to a blunt point, thin; racemes paniculate, slender.

PANICULATE DESMODIUM.

Stem 2 to 3 feet high, rather slender. *Leaflets* 1 to 3 inches long, mostly smooth and shining green above, paler and sparingly pilose beneath, slightly revolute on the margin; *common petioles* 1 to 2 inches long. *Racemes* with the pedicels in twos and threes. *Joints* of the legume mostly 3 or 4 (sometimes 2 and even 1), subtriangular, or somewhat rhomboid by an obtuse angle on the upper margin, adhesive by short uncinate hairs.

Hab. Borders of thickets: common. *Fl.* Aug. *Fr.* Sept.

6. D. Marilándicum, *Boott.* Smoothish throughout; stem slender, mostly simple; leaflets small, thinnish, roundish-ovate, very obtuse, subcordate at base.

MARYLAND DESMODIUM.

Stem 18 inches or 2 feet high, often several from the same root, paniculate at summit. *Leaflets* about ¾ of an inch long, often orbicular; *common petioles* half an inch to an inch in length. *Racemes* paniculate, erect,—the branches minutely pubescent. *Joints* of the legume 2 or 3 (sometimes 1), semi-orbicular, uncinately hirsute.

Hab. Dry, hilly woodlands; frequent. *Fl.* Aug. *Fr.* Sep.

7. D. ciliàre, *DC.* Stem rather slender, hairy, nearly simple; leaves somewhat crowded, on short petioles; leaflets small, ovate or oval, subcoriaceous, hairy and ciliate.

FRINGED DESMODIUM.

Stem about 2 feet high, roughish-pubescent, paniculate at summit. *Leaflets* half an inch to an inch long; *common petioles* one-fourth to half an inch in length, very hairy. *Racemes* paniculate, the branches clothed with a roughish uncinate pubescence. *Joints* of the legume 2 or 3 (sometimes 1), semi-orbicular, or obliquely obovate, hispid.

Hab. Slaty hills, and old fields: frequent. *Fl.* Aug. *Fr.* Sept.

†† Stipules *(and bracts) large:* legumes *of* 2 *or* 3 *to* 6 *joints.*

8. D. rigidum, *DC.* Roughish-pubescent; leaflets ovate-oblong, rather obtuse, thickish and subcoriaceous, scabrous above, hairy and canescent beneath.
RIGID DESMODIUM.

Stem 2 to 3 feet high, paniculate at summit, often with long erect branches.—*Leaflets* 1 to 3 inches long, ciliate, and reticulately veined; *common petioles* ¼ of an inch to an inch in length. *Racemes* elongated, the branches rough with uncinate pubescence. *Joints* of the legume mostly 2 or 3, resembling those of *D. ciliare.*
Hab. Dry, open woodlands, and clearings: frequent. *Fl.* Aug. *Fr.* Sept.

9. D. cuspidàtum, *Torr. & Gr.* Smooth; leaflets lance-ovate, acute or acuminate; panicle elongating; bracts conspicuously acuminate.
D. bracteosum. *DC. & Fl. Cestr. ed.* 2. *p.* 416.
CUSPIDATE DESMODIUM.

Stem 3 to 5 feet high, rather stout, simple or sparingly branched. *Leaflets* 2 to 5 inches long; *common petioles* 1 to 3 or 4 inches in length. *Racemes* long and rather slender. *Flowers* rather large. *Joints* of the legume 4 to 6, triangular-oblong, strongly and reticulately veined, uncinately hispid and tenacious, especially along the margins.
Hab. Along shaded rivulets; thickets, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

10. D. viridiflòrum, *Beck.* Stem very pubescent, uncinately hirsute at summit; leaflets ovate, mostly obtuse, scabrous above, softly villous beneath; flowers bluish-green externally.
GREEN-FLOWERED DESMODIUM.

Stem 3 to 4 feet high, rather stout, paniculately branching. *Leaflets* 2 to 4 inches long, bluish glaucous beneath; *common petioles* half an inch to an inch in length, very hairy. *Flowers* violet-purple within, turning blue-green in withering; *racemes* paniculate, long and leafless. *Joints* of the legume usually 3 or 4, obtusely triangular, uncinately pubescent.
Hab. Woodlands, and thickets: frequent. *Fl.* Aug. *Fr.* Sept.

11. D. canéscens, *DC.* Stem hairy and scabrous; leaflets ovate, acute or subacuminate, scabrous on both sides, glaucous and reticulated beneath; panicle large, very hairy and canescent.
HOARY DESMODIUM.

Stem 3 to 4 or 5 feet high, stout and branching. *Leaflets* 2 to 4 inches long, often subdeltoid, acuminately tapering to the apex; *common petioles* 1 to 3 or 4 inches long. *Racemes* terminal and axillary, on leafy branches. *Joints* of the legume mostly 5 or 6, rhomboid or oblong-triangular, reticulately veined, uncinately hispid.
Hab. Moist grounds; thickets, &c.: frequent. *Fl.* July. *Fr.* Sept.

§ 2. STEM *prostrate:* racemes *short, axillary and terminal.*

12. D. rotundifòlium, *DC.* Hairy all over; leaflets orbicular, the terminal one subrhomboid, larger; stipules large, obliquely ovate, reflexed; racemes few-flowered.
ROUND-LEAVED DESMODIUM.

Stem 2 to 4 feet long, slender, trailing, somewhat branched. *Leaflets* 1 to 2½ inches in diameter, thin, ciliate, somewhat glaucous beneath; *common petioles* 1 to 3 inches long. *Flowers* in axillary pedunculate racemes, and also in a loose slender terminal panicle. *Joints* of the legume 3 to 5, subrhomboid, tenaciously hispid.
Hab. Rocky woodlands: frequent. *Fl.* Aug. *Fr.* Sept.

96. LESPEDE'ZA, *Mx.*

[Dedicated, by Michaux, to the Spanish Governor of Florida, Don *Lespedez.*]

Calyx nearly equally 5-cleft, with 2 persistent *bractlets* at base.—*Legume* of a single 1-seeded joint, lenticular, unarmed, reticulately veined. *Perennials*, with pinnately trifoliolate *leaves; leaflets* not stipellate; *flowers* sometimes incomplete, and polygamous.

† Flowers *of* 2 *sorts; the larger (violet purple) complete, but seldom fertile, clustered, —with smaller apetalous fertile ones intermixed.*

1. L. procúmbens, *Mx.* Stem trailing, usually very pubescent; leaflets oval; racemes sub-umbellate on long erect axillary peduncles.

PROCUMBENT LESPEDEZA.

Stem 2 to 3 feet long, branching, often several from the same root; branches erect or assurgent. *Leaflets* one-third to three-fourths of an inch long; *common petioles* 1 line to half an inch in length. *Legume* 2 to 3 times as long as the calyx, orbicular-ovate, pubescent with short appressed hairs.

Hab. Sandy banks, and dry woodlands: frequent. *Fl.* Aug. *Fr.* Octo.

2. L. violàcea, *Pers.* Stem more or less erect, branched, often bushy; leaflets varying from oval to linear, whitish-downy beneath; flowers in small and mostly pedunculate clusters.

Also, L. sessiliflora, *Nutt.* & L. reticulata, *Pers. & Fl. Cestr. ed.* 2. *p.* 419–20.

VIOLET LESPEDEZA. Bush Clover.

Stem 1 to 2 feet high, slender and often diffusely branching, sometimes corymbose, more or less pubescent. *Leaflets* half an inch to an inch and half long, oval or obovate,—in the *var. reticulata* (or *angustifolia*), oblong-linear, 1 to 3 lines wide, —in the *var. sessiliflora*, ovate-oblong, one-third to two-thirds of an inch wide; *common petioles* ¼ of an inch to an inch and half in length. *Flowers* in subumbellate clusters, on slender axillary peduncles as long or longer than the leaves,—or (in the *varieties*) in subsessile axillary clusters. *Legume* 2 or 3 times as long as the calyx, somewhat pubescent.

Hab. Borders of woods; dry banks, &c.: frequent. *Fl.* Aug. *Fr.* Octo.

Obs. Two or three pretty distinct-looking *varieties* are now included under the name of this species.

3. L. Stùvei, *Nutt.* Stem erect, hairy, somewhat virgately branched above; leaflets ovate to obovate, villous beneath; racemes spicate, many-flowered.

L. Nuttallii. *Fl. Cestr. ed.* 2. *p.* 420. L. virgata, *Nutt.* not of *DC.*

STUVE'S LESPEDEZA.

Stem 2 to 3 feet high, striate, mostly very pubescent. *Leaflets* half an inch to an inch and quarter long; *common petioles* ¼ of an inch to an inch in length, very hairy. *Flowers* rather crowded in somewhat spicate pedunculate racemes; *peduncles* axillary and terminal, mostly longer than the leaves. *Legume* scarcely one-fourth longer than the calyx, clothed with longish appressed hairs.

Hab. Dry, slaty, woodland hills: not common. *Fl.* Aug. *Fr.* Octo.

Obs. TORREY and GRAY have referred this—as a *variety*—to *L. Stuvei, Nutt.* It is certainly nearly allied to that species; though not so silky-villous as the New Jersey plant.

† † Flowers *all alike and perfect, in oblong or capitate clusters;* corolla *ochroleucous, with a purple spot on the vexillum.*

4. L. hirta, *Ell.* Stem erect, paniculate at summit, hoary-villous; leaflets roundish-oval; peduncles longer than the leaves; spikes oblong, rather loose.
L. polystachya. *Mx. & Fl. Cestr. ed.* 2. p. 421.
HAIRY LESPEDEZA.

Stem 2 to 4 or 5 feet high. *Leaflets* two-thirds of an inch to an inch and half long; *common petioles* one line to half an inch in length, very hairy. *Flowers* crowded in cylindric-oblong *spikes* of about an inch in length, and two-thirds of an inch in diameter, on axillary villous *peduncles* 1 to 2 or 3 inches long. *Legume* elliptic-ovate, very hairy, nearly as long as the calyx-segments.
Hab. Dry, hilly woodlands: frequent. *Fl.* Aug. *Fr.* Octo.

5. L. capitàta, *Mx.* Stem nearly simple, virgate, silky-villous; leaflets elliptic-oblong; peduncles shorter than the leaves; spikes ovoid, rather dense.
L. frutescens. *Ell. & Fl. Cestr. ed.* 2. *p.* 421.
CAPITATE LESPEDEZA.

Stem 2 to 4 (usually about 3) feet high, leafy, sulcate-striate, the silky pubescence often tawny. *Leaflets* 1 to near 2 inches long, sometimes linear-oblong, mostly obtuse; *common petioles* 1 or 2 lines in length,—the *petiolule* of the terminal leaflet 2 or 3 times as long as the common petiole. *Flowers* crowded in oblong-ovoid or subglobose *heads*, on axillary *peduncles* ¼ to ½ an inch long. *Legume* elliptic-ovate, hairy, ⅓ or ½ shorter than the calyx-segments.
Hab. Slaty hills: not very common. *Fl.* Aug, *Fr.* Octo.

97. STYLOSAN'THES, *Swartz.*

[Gr. *Stylos*, a column, and *Anthos*, a flower; the flower appearing stipitate.]

Flowers of 2 kinds, intermixed in clusters; one complete, but unfruitful,—the other fertile, though only a *pistil* with 2 *bractlets.*— *Calyx-tube* long and slender, like a *stipe*. *Stamens* monadelphous. *Legume* 1-celled, or articulated and 2-celled, beaked with the hooked *style*.

1. S. elàtior, *Sw.* Stems erect, slender, often tufted; leaflets lanceolate, straight-veined; upper stipules sheathing; spikes few-flowered.
TALLER STYLOSANTHES. Pencil Flower.

Perennial. Stem 9 to 15 inches high, somewhat branched above; branches hispidly pilose at summit. *Leaflets* ¾ of an inch to an inch and quarter long, rugose-dotted beneath; *common petioles* ¼ to ½ an inch in length. *Flowers* bright yellow, in small terminal clusters, invested with hispid-ciliate *bracts* which are trifoliolate, or trifid and membranaceous. *Legume* often articulated and 2-celled.
Hab. North Valley Hill; W. Nottingham: not common. *Fl.* July. *Fr.* Sept.

TRIBE 4. LO'TEAE.

Leaves odd-pinnate, or trifoliolate; *legume* continuous, 1-celled; *cotyledons* becoming green in germination.

SUB-TRIBE 1. GALE'GEAE.

Leaves odd-pinnate, the earliest ones opposite; *stamens* sometimes monadelphous; *legume* linear, several-seeded.

98. ROBIN'IA, *L.*

[Dedicated to *John* and *Vespasian Robin;* French Botanists.]

Calyx short, 5-toothed, slightly bilabiate. *Vexillum* smooth.—*Legume* margined on the upper or seed-bearing suture. *Trees,* or *shrubs;* the *leaflets* petiolulate, and stipellate.

1. *R. Pseudacàcia, L.* Leaflets oval or ovate-oblong; stipules spinose; racemes axillary, loose, pendulous; legumes smooth.
FALSE-ACACIA ROBINIA. Locust Tree.

Stem 30 to 60 or 80 feet high. *Leaflets* 1 to near 2 inches long, 3 or 4 to 8 or 9 pairs,—the *common petiole* pinnate nearly to the base (which is enlarged, and covers the *bud* of the ensuing year, as in *Platanus*); *stipules* replaced by stout prickles. *Flowers* white, fragrant; racemes 3 to 6 inches long. *Legumes* 2 to 3 inches long; valves flat.
Hab. Meadows; fence-rows, &c.: frequent. *Fl.* May. *Fr.* Sept.

Obs. This tree—so common on our mountains, and so valuable for its durable timber—is naturalized in many places,—and often cultivated; but it has never appeared to me as truly *indigenous,* in this County.

99. TEPHRO'SIA, *Pers.*

[Gr. *Tephros,* ash-colored or hoary; from the aspect of the plant.]

Calyx about equally 5-cleft. *Vexillum* silky-pubescent externally. *Stamens* sub-monadelphous. *Silky-hoary herbs; leaflets* petiolulate, but not stipellate.

1. T. Virginiàna, *Pers.* Leaflets linear-oblong, mucronate; raceme terminal; legumes slightly falcate, villous.
VIRGINIAN TEPHROSIA. Goat's Rue. Cat-gut. Hoary Pea.

Perennial. Stem 9 to 12 or 15 inches high, rather erect or leaning, simple.—*Leaflets* about an inch long, 8 to 12 pairs, the terminal one more or less obovate or cuneate; *common petioles* 2 to 4 inches in length, pinnated to the base. *Flowers* rather large, ochroleucous with strong tinges of purple, especially on the wings; *raceme* compact, 1 to 2 inches in length,—often 2 or 3 flowers, on long pedicels, in the axils of the upper leaves. *Legumes* about 2 inches long.
Hab. Dry, hilly woodlands: frequent. *Fl.* June. *Fr.* Sept.

Obs. The *root* of this plant consists of numerous very long coarse fibres,—whence the popular name of *Cat-gut.* The infusion of the root is esteemed as a vermifuge, in New Jersey—where the plant abounds.

SUB-TRIBE 2. TRIFOLIE'AE.

Leaves mostly trifoliolate, stipulate, the earliest ones alternate; *leaflets* not stipellate, often dentate or serrulate. Chiefly *herbaceous* plants.

100. TRIFO'LIUM, *Tournef.*

[Latin, *Tres,* three, and *Folium,* a leaf; characteristic of the genus.]

Calyx tubular, with 5 bristle-form teeth, persistent. *Petals* more or less united, shrivelling. *Legume* membranous, small, 1- or 2- (rarely 3- or 4-) seeded, scarcely dehiscent, usually included in the calyx-tube. *Stipules* adnate to the petiole: *flowers* mostly capitate.

† Florets *sessile in compact heads;* corolla *purple, or pale pink and spotted.*

1. T. PRATÉNSE, L. Stems ascending; leaflets oval or obovate, often retuse; stipules broad, bristle-pointed; heads roundish-ovoid.

MEADOW TRIFOLIUM. Red Clover.

Root Perennial? large, somewhat fusiform, branching below. *Stems* several from the same root, 1 to 2 or 3 feet long, hairy towards the summit, and somewhat branched. *Leaflets* an inch or inch and half long, usually with a broad paler spot in the middle; *common petioles* half an inch to 4 or 5 inches long, the radical ones often much longer. *Heads* of flowers bracteate at base; *petals* (rarely white) united into a slender tube about half an inch in length,—which prevents the *Honey Bee* from reaching the *nectar*. *Legumes* 1-seeded; *seed* reniform, greenish-yellow, with a shade of reddish-brown.

Hab. Fields, and meadows. Nat. of Europe. *Fl.* May. *Fr.* July.

Obs. This is a most valuable plant,—and is diligently cultivated by all good farmers. It is also extensively naturalized. In conjunction with the *Grasses*—especially with *Timothy* (*Phleum pratense*, *L.*)—it makes first-rate *hay;* though, by itself, it is rather indifferent *pasture*. It was introduced into general cultivation, in *Chester County*, near the close of the last century; but it is stated, in WATSON'S *Annals*, that JOHN BARTRAM had fields of it, prior to the American Revolution. Authors differ on the question, whether the plant is *perennial*, or *biennial*. Certain it is, that a large portion of that under culture dies at the end of the second year: but my friend, JOSHUA HOOPES, assures me, he has ascertained that the plant will live *more* than two years. I have met with a number of instances, in which the usually gamopetalous corolla was *substituted* by *five distinct, green leaflets*,—with other modifications of the flower, which finely illustrated GOETHE'S theory of *retrograde metamorphosis*.

2. *T. arvénse*, L. Stem erect, slender, branched, hairy; leaflets cuneate-oblong, 3-toothed at apex; stipules narrow; heads cylindric-oblong, very villous.

FIELD TRIFOLIUM. Stone Clover. Welsh Clover. Rabbit-foot.

Annual. Whole plant softly pilose. *Stem* 6 to 12 inches high. *Leaflets* half an inch to near an inch long; *common petioles* ¼ of an inch to an inch in length.—*Heads* half an inch to an inch long, not bracteate at base, softly villous and pale tawney; *corolla* small, pale pink with a purple spot on the wings. *Legumes* 1-seeded; *seed* oval.

Hab. Old fields: frequent. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. A worthless species,—which seems happily disposed to restrict itself to the sterile old fields of poor thriftless farmers.

†† Florets *pedicellate in umbel-like round heads;* corolla *white, turning brown in fading.*

3. *T. rèpens*, L. Stems creeping, diffuse; leaflets roundish-obovate, often emarginate, sharply denticulate; heads depressed-globose, on very long axillary sulcate peduncles.

CREEPING TRIFOLIUM. White Clover. Dutch Clover.

Perennial; smooth. *Stem* 4 to 12 or 15 inches long, diffusely branching from the base, procumbent and radicating. *Leaflets* half an inch to an inch long, sometimes almost obcordate, often with a pale lunate spot in the middle; *common petioles* 1 or 2 to 6 or 8 inches in length. *Heads* of flowers on erect naked angular-sulcate *peduncles* which are 2 to 8 or 12 inches in length; *florets* successively and finally all reflexed. *Legumes* ¼ to ⅓ of an inch long, torulose, 2- or 3- to 5-seeded; *seeds* subreniform, or irregularly ovoid, reddish-brown.

Hab. Pastures, woodlands, &c. Nat. of Europe. *Fl.* May. *Fr.* July.

Obs. This species—though now so common—is probably an *introduced* plant. JONATHAN DICKINSON, writing from Philadelphia, in 1719, (*fide* WATSON'S *Annals,*) says, "the *White Clover already tinges the roads as a natural production.*" KALM, in 1748, spoke of it as being abundant, in Eastern Pennsylvania. Its flowers are a favorite resort of the Honey Bee; and the plant is esteemed, as affording an excellent pasture, in this region,—though Mr. ELLIOTT speaks unfavorably of it, in the South.

††† Florets *subsessile, finally reflexed*; corolla *yellow, turning chestnut-brown with age. Annuals.*

1. *T. agràrium,* L. Stem ascending, with erect branches; leaflets obovate-oblong, all subsessile; stipules linear-lanceolate, not ciliate; heads oval, on rather long peduncles.

FIELD TRIFOLIUM. Yellow Clover. Hop Clover.

Stem 6 to 12 or 15 inches long, hard, striate, pubescent with appressed hairs.—*Leaflets* half an inch to near an inch long, often retuse; *common petioles* ¼ of an inch to an inch in length. *Heads* of flowers on axillary *peduncles,* which are ¾ of an inch to an inch and a half in length; *florets* finally imbricated downwards. *Legumes* short, 1-seeded.

Hab. Sandy grounds; roadsides, &c. Nat. of Europe. *Fl.* June. *Fr.* July.

5. *T. procúmbens,* L. Stems mostly procumbent; leaflets obcordate-cuneate, the terminal one petiolulate; stipules lance-ovate, ciliate; heads subglobose, small, on rather short slender peduncles.

PROCUMBENT TRIFOLIUM. Dwarf Yellow Clover.

Stem 2 or 3 to 6 or 8 inches long, often diffusely branched at base, hairy or villous. *Leaflets* ¼ to ½ an inch long; *common petioles* ¼ to near ½ an inch long.—*Heads* of flowers on hairy axillary *peduncles* which are ½ an inch to an inch in length. *Legumes* 1-seeded.

Hab. Sandy soils; roadsides, &c. Nat. of Europe. *Fl.* May. *Fr.* July.

Obs. This, and the preceding, are both valueless species,—which are gradually extending themselves from our sea-ports to the interior of the country.

101. MELILO'TUS, *Tournef.*

[GR. *Meli,* honey, and *Lotus;* a Lotus-like plant, attractive of Bees.]

Calyx as in *Trifolium: Corolla* deciduous. *Legume* longer than the calyx, ovoid, coriaceous, rugose, 1- or few-seeded. *Stipules* setaceous: *flowers* in long spicate racemes.

1. M. LEUCÁNTHA, Koch. Stem paniculately branched; leaflets ovate-oblong, remotely dentate-serrate, emarginately truncate, mucronate; vexillum longer than the keel and wings.

WHITE-FLOWERED MELILOTUS. Tree Clover. Bokhara Clover.

Biennial? smooth. *Stem* 3 to 5 or 6 feet high, stout, striate-ribbed. *Leaflets* an inch to an inch and half long; *common petioles* 1 to 2 inches long. *Racemes* 2 to 4 inches long, on axillary *peduncles* which are 1 to 2 inches in length. *Flowers* white, retrorsely imbricated before opening.

Hab. Gardens, and lots. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This coarse, hard-stemmed plant, has been partially cultivated, by some amateur farmers; but it is not likely to supersede the herbs now in general use, as food for cattle.

102. MEDICA'GO, *Tournef.*

[So named by the Greeks,—from having been brought from *Media.*]

Flowers nearly as in *Melilotus:* Legume 1- or several-seeded, of various forms—but always more or less falcate, or spirally coiled.

1. M. SATI'VA, L. Stem erect, smoothish; leaflets obovate-oblong, dentate; stipules lanceolate, nearly entire; racemes oblong; legumes spirally twisted, several-seeded.

CULTIVATED MEDICAGO. Lucerne. Spanish Trefoil. French Clover.

Perennial. Stem about 2 feet high, branched, hard and wiry. *Leaflets* half an inch to an inch long, the terminal one petiolulate; *common petioles* ½ an inch to an inch in length. *Racemes* erect, on axillary *peduncles* which are about as long as the common petioles. *Flowers* violet-purple.

Hab. Fields, and lots. Nat. of Spain. *Fl.* June. *Fr.* Aug.

Obs. This is partially naturalized, in some spots,—and is cultivated, occasionally, on a small scale; but it does not find much favor, in the eyes of our farmers.

2. *M. lupulina,* L. Stem procumbent, pilose; leaflets cuneate-obovate, denticulate at apex; stipules ovate-lanceolate, mostly dentate; racemes capitate, ovoid; legumes reniform, 1-seeded.

HOP-LIKE MEDICAGO. None-such.

Biennial? *Stem* 6 to 12 inches long, somewhat branched, mostly several from the same root. *Leaflets* ½ an inch to near an inch long, sometimes nearly rhomboid; *common petioles* ¼ of an inch to an inch in length. *Heads of flowers* at first roundish, finally oblong, on slender *peduncles* 1 to 2 inches long. *Corolla* yellow, small.

Hab. Fields, &c. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. Mr. VINCENT BARNARD informs me, this is naturalized in clover-fields, near Marlborough-ville; but it is yet rare, in the County.

SUBTRIBE 8. GENIS'TEAE.

Leaves simple, or digitately 3- to 15-foliolate; *stamens* monadelphous; *anthers* of 2 forms.

103. CROTALA'RIA, *L.*

[Gr. *Krotalon,* a rattle; the seeds rattling in the ripe pods.]

Calyx 5-parted, sub-bilabiate. *Vexillum* obcordate, large; *keel* falcate. *Sheath* of monadelphous *stamens* often slit on the upper side; 5 of the *anthers* smaller and roundish. *Legume* turgid, stipitate, mostly many-seeded. *Herbs,* in U. S. *Leaves* simple.

1. C. sagittàlis, *L.* Hairy; leaves oblong-lanceolate, subsessile; stipules united, decurrent, sagittate at summit; peduncles few-flowered.

ARROW-LIKE CROTALARIA. Rattle-box.

Annual. Stem 4 to 8 or 10 inches high, somewhat branched above. *Leaves* half an inch to 2 inches long,—the lower ones elliptic-lanceolate, the upper sub-linear. *Racemes* mostly opposite the leaves, pedunculate, 2- to 4-flowered; *flowers* yellow. *Legumes* about an inch long, inflated, finally dry and parchment-like, turning nearly black.

Hab. Sandy banks; roadsides, &c.: frequent. *Fl* July. *Fr.* Aug.

104. LUPINUS, *Tournef.*

[Latin, *Lupus*, a wolf; because it was supposed to devour the soil.]

Calyx deeply bilabiate, often with 2 *bractlets*. *Vexillum* with the sides reflexed; *keel* falcate, acuminate. *Anthers* alternately oblong and roundish. *Legume* oblong, torulose, coriaceous, many-seeded. *Herbs: leaves* palmately (or rather digitately) foliolate, rarely simple.

1. L. perénnis, *L.* Erect; pubescent; leaflets 7 to 11, oblanceolate; raceme terminal, loose; legume hirsute.

PERENNIAL LUPINUS. Wild Lupin.

Perennial. Stem 9 to 18 inches high, striate-angular, somewhat branching.—*Leaflets* 1 to 2 inches long, tapering to the base, smoothish above; *common petioles* 1 or 2 to 4 or 5 inches in length. *Racemes* 3 to 6 inches long, on a naked *peduncle* 2 to 4 inches in length; *flowers* purplish blue, with shades of dark violet. *Legumes* about an inch and half long, very hairy and dark tawney; *seeds* obovoid, variegated.

Hab. Woodlands; Great Valley hills: frequent. *Fl.* June. *Fr.* July.

Obs. An ornamental plant,—worthy of culture, as such.

TRIBE 5. SOPHO'REAE.

Leaves compound, or simple,—the leaflets not *stipellate; stamens* 10, distinct, with uniform *anthers; legume* continuous; *embryo* sometimes straight.

105. BAPTIS'IA, *Vent.*

[Gr. *Baptizo*, to dip, or dye; from its coloring properties.]

Calyx 4- or 5-toothed. *Petals* nearly equal,—the keel-petals slightly connected. *Legume* ventricose, stipitate, many-seeded.—*Herbs: leaves* mostly trifoliolate, turning bluish black, in drying.

1. B. tinctòria, *R. Br.* Bushy; smooth, and rather glaucous; leaflets cuneate-obovate; stipules subulate, deciduous; racemes terminal, few-flowered.

DYER'S BAPTISIA. Wild Indigo.

Perennial. Stem about 2 feet high, much branched. *Leaflets* half an inch to an inch long; *common petioles* 1 line to ¼ of an inch in length. *Flowers* yellow; *calyx* 4-toothed,—the 2 upper segments being united. *Legumes* about half an inch long, inflated, conspicuously stipitate.

Hab. Dry, hilly woodlands: common. *Fl.* June. *Fr.* Sept.

106. CER'CIS, *L.*

[Gr. *Kerkis*, a weaver's shuttle; from the form of the legume.]

Calyx 5-toothed. *Petals* all distinct; *vexillum* smaller than the wings, and the keel-petals larger. *Legume* many-seeded, oblong, flat, coriaceous, the upper suture margined. *Embryo* straight.—Small *Trees: leaves* simple.

1. C. Canadénsis, *L.* Leaves orbicular-cordate, acuminate, villous in the axils of the nerves beneath.

CANADIAN CERCIS. Red-Bud. Judas Tree.

Stem 15 to 20 or 30 feet high, with spreading and somewhat geniculate branches. *Leaves* 3 or 4 inches in length, and rather wider than long; *petioles* 1 to 2 inches long. *Flowers* bright reddish-purple, in little umbel-like clusters on the limbs, and often on the trunk,—appearing before the leaves, acid to the taste. *Legumes* about 3 inches long.

Hab. Banks of the Schuylkill: not common. *Fl.* April. *Fr.* June.

Obs. This little tree is admired, in early spring, for its clusters of small flowers, which clothe the branches in purple before the leaves appear. The limbs are very liable to split off, and disfigure the tree,—otherwise it would well deserve a place in all groups of ornamental shrubbery.

SUBORDER II. CAESALPIN'EAE.

Leaves pinnate, or often bipinnate; *flowers* not papilionaceous, often imperfect; *stamens* distinct; *embryo* straight.

TRIBE 6. CASSIE'AE.

Corolla often irregular; *stamens* 10, or fewer,—*anthers* sometimes imperfect; *legume* continuous, 1-celled, or sometimes intercepted between the seeds.

107. CAS'SIA, *L.*

[An ancient name, of obscure derivation.]

Flowers perfect: *Sepals* 5, scarcely connected. *Petals* 5, unequal. *Stamens* mostly 10, some of them often imperfect; *anthers* opening at apex. *Herbs: leaves* even-pinnate, with a *gland* near the base of the petiole.

† PERENNIAL: lower anthers *fertile, the 3 upper ones deformed and sterile;* petiolar gland *obovoid.*

1. C. Marilándica, *L.* Stem erect; leaflets 6 to 9 pairs, ovate-oblong; racemes axillary, the upper ones somewhat paniculate; legumes finally smooth.

MARYLAND CASSIA. Wild Senna.

Stem 3 or 4 feet high, rather stout, branching. *Leaflets* 1 to 2 inches long, petiolulate; *common petioles* 1 to 2 inches in length below the leaflets, with an obovoid subsessile *gland* on the upper side. *Racemes* pedunculate, those in the upper axils forming a sort of terminal leafy panicle; *flowers* yellow, often becoming a dead white. *Legumes* 3 or 4 inches long, villous when young, compressed, somewhat curved, often sinuate on the edges from partial contractions; *seeds* ovate-oblong, separated by a kind of transverse partitions.

Hab. Low grounds; along streams: frequent. *Fl.* Aug. *Fr.* Octo.

Obs. The *leaves* of this rather showy species afford, it is said, a tolerable substitute for the *Senna* of the shops,—which is another species of the same genus. Doctor DARWIN, in his Botanic Garden, probably refers to this one, as follows:—

> "Where vast Ontario rolls his brineless tides,
> And feeds the trackless forests on his sides,
> Fair CASSIA, trembling, hears the howling woods,
> And trusts her tawny children to the floods.
> Tinctured with gold, while *ten* fond brothers stand,
> And guard the beauty on her native land;
> Soft breathes the gale, the current gently moves.
> And bears to Norway's coasts her infant loves."

"This," he adds, "is one of the American fruits which are annually thrown on the coasts of Norway; and are frequently in so recent a state as to vegetate, when properly taken care of."

†† ANNUAL: anthers *all fertile;* petiolar gland *cup-shaped.*

2. C. Chamaecrista, *L.* Stems rather leaning, or spreading; leaflets 8 to 12 or 15 pairs, linear-oblong; flowers rather large; stamens 10, unequal.

Partridge Pea. Sensitive Pea. Magothy-Bay Bean.

Stem 1 to 2 feet high, firm and subligneous at base, much branched, often purplish. *Leaflets* half an inch to near an inch long, minutely ciliate-serrulate, subsessile; *common petioles* about one-third of an inch in length below the leaflets, with a depressed or cup-like *gland* on the upper side. *Flowers* deep bright yellow (usually with purple spots at base), in lateral subsessile fascicles above the axils of the leaves,—often in pairs, sometimes 3 or 4. *Legumes* about 2 inches long, hairy along the sutures.

Hab. Hills, near Pugh-town: rare. *Fl.* July. *Fr.* Sept.

Obs. In a paper, read before the American Philosophical Society, May 2, 1788, and published in the 3rd volume of their Transactions, Dr. GEEENWAY, of Virginia, speaks favorably of this plant as a means of recruiting worn out lands, by its decomposition in the soil,—though he considers the common corn-field *Pea* as preferable; and I have no doubt that the *red Clover* (*Trifolium pratense*), properly managed, is more eligible than either.

3. C. nictitans, *L.* Stem oblique or procumbent; leaflets 6 to 20 pairs, sublinear; flowers small; stamens 5, nearly equal. TWINKLING CASSIA. Wild Sensitive-Plant.

Stem 6 to 12 or 15 inches long, slender, branching, roughish-pubescent. *Leaflets* about half an inch long, slightly irritable; *common petioles* about ⅓ of an inch in length below the leaflets. *Racemes* 2- or 3-flowered, subsessile, rather super-axillary; *flowers* yellow, inconspicuous. *Legumes* an inch or inch and half long, hirsute with appressed hairs.

Hab. Sandy banks; road sides, &c.: frequent. *Fl.* Aug. *Fr.* Octo.

108. GYMNOC'LADUS, *Lam.*

[Gr. *Gymnos*, naked, and *Klados*, a branch; in reference to its stout naked branches.]

Flowers dioicous, regular: *Calyx* tubular, 5-cleft. *Petals* 5, equal, oblong, inserted on the calyx-tube. *Stamens* 10. *Legume* oblong, flat, the valves thick and woody, pulpy within. A *Tree*, with the young branches clumsily thick: *leaves* odd-bipinnate, widely branched.

1. G. CANADÉNSIS, Lam. Leaflets 7 to 13 on the subdivisions, ovate, petiolulate,—the lowest a single pair; flowers in axillary racemes. CANADIAN GYMNOCLADUS. Coffee-tree. Kentucky Mahogany.

Stem 50 to 70 or 80 feet high, branching. *Leaves* 2 or 3 feet long, bipinnately branching; *leaflets* rather alternate, entire, about 3 inches in length. *Flowers* greenish white. *Legumes* 6 or 8 inches long, and 1 or 2 inches wide, somewhat falcate; *seeds* large, a little compressed, nearly orbicular.

Hab. Yards, and streets. *Fl.* May. *Fr.* Octo.

Obs. This fine tree has been introduced from the West; and although not equal to some others, as a *shade tree*, is worthy of a place in all ornamental plantations. It was for a considerable time supposed to be identical with, or nearly allied to, the *Bonduc*, or *Nickar-tree* (*Guilandina Bonduc, L.*), of the Indies.

109. GLEDIT'SCHIA, *L.*

[Named in honor of *John Gottlob Gleditsch*, a German Botanist.]

Flowers polygamous: *sepals* 3 to 5, united at base. *Petals* and *stamens* usually as many as the sepals. *Legume* flat, broad, often intercepted between the seeds; *seeds* oval. A *thorny tree*: *leaves* even-pinnate, or bipinnate.

1. G. TRIACÁNTHOS, L. Thorns stout, mostly triple; leaflets linear or lance-oblong, somewhat serrate; legumes oblong, thin, curly or wavy, many-seeded.

THREE-THORNED GLEDITSCHIA. Honey-Locust.

Stem 40 to 60 feet high. *Leaflets* an inch or inch and half long. *Flowers* yellowish-green, small, subspicate. *Legumes* 6 to 12 or 15 inches long, pulpy between the seeds.

Hab. Yards, lawns. Nat. of S. Western States.. *Fl.* July. *Fr.* Sept.

Obs. This is occasionally cultivated, as a *shade tree;* and has been used for *hedging*, at the South and North,—but rarely, if ever, in this County.

ORDER XXXV. ROSA'CEAE.

Trees, shrubs, or *herbs; leaves* alternate, *stipulate; flowers* regular; *stamens* distinct, inserted on the calyx, mostly numerous; *pistils* 1 to many, free, or combined with the calyx-tube; *seeds* 1 or few in each ovary, without *albumen; radicle* straight.

This Order is remarkable for the amount and variety of its esculent products.—Many of the *fruits* are valuable, and some of them eminently delicious; while the type of the Order (*Rosa*) is by universal consent regarded as the Queen of Beauty, among *flowers*. A few of the drupaceous species contain a somewhat dangerous quantity of *Prussic Acid*, in the nuts and leaves; but in the Peach, for instance, there is just enough of that formidable ingredient to give to the pulp an exquisite flavor,*—and the fleshy or succulent fruits of the Order are, almost without exception, innocent and wholesome.

SUBORDER I. AMYGDA'LEAE.

Trees, or *shrubs; leaves* simple; *stipules* free; *ovary* solitary, free from the deciduous calyx, with 2 suspended collateral *ovules*, and a terminal *style; fruit* a *drupe*, mostly 1-seeded by abortion.

† Nut *with the surface rugosely furrowed.*

110. PER'SICA, *Tournef.*

[A name derived from *Persia*,—its native country.]

Calyx tubular, with 5 spreading segments. *Drupe* oval, tomentose or smooth, the succulent pulp adherent, or separable from the nut. Small *trees: leaves* oblong-lanceolate, serrate, conduplicate in the bud; *flowers* solitary or in pairs, subsessile, preceding the leaves.

1. P. VULGÀRIS, Mill. Fruit densely tomentose.

COMMON PERSICA. Peach. Peach-tree.

Stem 8 to 12 or 15 feet high, branching. *Leaves* 3 to 5 or 6 inches long; *petioles* about half an inch in length, channelled above, and glandular near the leaf.—*Flowers* pale-red or purplish. *Drupe* 1 to 2 inches, or more, in diameter, with the pulp white, yellow, or reddish, adherent to the nut (*clingstone*), or separable from it (*freestone*).

* Judging from observation, it would seem to be not generally known to our Pastry Cooks, that a *Peach Pie* baked with *the fruit whole* (i. e. simply pared, but *the nut left in the Peach*) is vastly superior to one made of the mere fleshy portion, cut in pieces. The process of *baking*—as I suppose—elicits the prussic acid from the seed of the peach, and diffuses it through the pulp,—imparting to it a sprightly and delicious flavor, far beyond what it possesses when the stone is previously rejected.

Hab. Yards, gardens, and orchards. Nat. of Persia. *Fl.* April. *Fr.* Aug.

Obs. The *fruit* of this tree—like the most of those which have had the advantage of long and careful culture—presents numerous *varieties;* the best of which may be pronounced (*me judice*) superior to all other known fruits. The tree, unfortunately, is short-lived; but it is readily propagated from seeds,—and a succession may be kept up by inserting upon young *stocks*, *buds*, or *scions*, taken from the most approved varieties. This process, for changing the character of seedling trees, is alluded to by the great English Bard with his usual felicity:—

"——You see,—— we marry
A gentler *scion* to the wildest *stock;*
And make conceive a *bark* of baser kind
By *bud* of nobler race: This is an art
Which does mend nature,—change it rather: but
The art itself is nature." *Winter's Tale. Act* 4.

2. P. LAEVIS, DC. Fruit smooth.
SMOOTH PERSICA. Nectarine.

Hab. Yards, gardens, and under glass. *Fl.* April. *Fr.* Aug.

Obs. This small tree is scarcely to be distinguished from the preceding, except by its *smooth fruit*,—which presents the same varieties, of *clingstone* and *freestone*. Prof. DE CANDOLLE admits it as a distinct species; but it is certainly very closely allied to the *Peach*,—and, indeed, there are instances recorded, in which the *same tree* is said to have produced *both varieties*. The crop of fruit is much more certain under glass, with the branches trained on *espaliers*.

†† Nut *with the surface smooth and even.*

111. ARMENIA'CA, *Tournef.*

[A name derived from *Armenia*,—its native Country.]

Calyx campanulate, the 5 segments reflexed. *Drupe* roundish-oval, velvety-pubescent; *nut* compressed, one edge obtuse, the other acute. Small *trees: leaves* subcordate or ovate, convolute in the bud; *flowers* white, solitary, or few from a bud, preceding the leaves.

1. A. VULGÀRIS, Lam. Leaves orbicular-ovate, shortly acuminate, serrate-dentate; flowers sessile.

COMMON ARMENIACA. Apricot. Moor-park Apricot.

Stem 10 to 15 or 20 feet high, with rather stout spreading or straggling branches. *Leaves* about 3 inches long, and rather wider than long; *petioles* an inch or inch and half in length, mostly with cup-like glands near the base of the leaf. *Drupes* oval, about an inch in diameter, yellowish when mature.

Hab. Yards, and gardens. Nat. of Armenia. *Fl.* April. *Fr.* July.

Obs. The name of this fruit, in SHAKSPEARE's time, was written "*Apricocks*" (perhaps by a corruption of the latin, *A. praecox*—meaning *Early Armeniaca*),—as we may perceive in the following lines:—

"Go bind thou up yon' dangling *Apricocks*,
Which, like unruly children, make their sire
Stoop with oppression of their prodigal weight."
King Richard II.

This is an admired fruit; and might be much more common than

it now is, if people were a little more attentive to such matters.—Indeed, it is melancholy to reflect how thoughtless and negligent mankind generally are, with respect to providing *fruit* for themselves. There are few persons who do not own or occupy sufficient ground to admit of 3 or 4 choice fruit-trees, and a grape vine;—such, for instance, as an *Apricot*, a *Peach*, a *May-duke Cherry*, a *Catharine Pear*, and a *Catawba Grape:* yet the great majority seem never to think of planting such trees,—while they are ready enough to invade the premises, and revel on the fruits, of some more provident neighbor! It is due to the minor morals of the community, that such disreputable negligence, and such marauding practices, should cease to be tolerated.

2. A. DASYCÀRPA. Pers. Leaves ovate or oval, acute, doubly serrate; flowers pedicellate.

HAIRY-FRUITED ARMENIACA. Black Apricot.

Stem 10 to 15 feet high, with rather slender branches, and a spreading bushy top. *Leaves* 2 to near 3 inches long; *petioles* about an inch in length. *Drupes* subglobose, hairy, dark purplish color when mature.

Hab. Yards, and gardens. Nat. Country unknown. *Fl.* April. *Fr.* July.

Obs. This species has more of the habit of a *Prunus*, or Plum tree, than the preceding,—and is reputed to be a more certain fruit-bearer; though I have not found it so.

112. PRU'NUS, *Tournef.*

[The classical Latin name for the Plum.]

Calyx campanulate, 5-cleft. *Petals* 5, spreading. *Stamens* 15 to 30. *Drupe* ovoid, oblong, or globose, glabrous, mostly covered with a glaucous bloom; *nut* compressed, both edges acute. Small *trees: leaves* convolute in the bud; *flowers* mostly preceding the leaves.

1. P. DOMÉSTICA, L. Branches unarmed; leaves lance-ovate, acute, serrate; pedicels subsolitary.

DOMESTIC PRUNUS. Common Plum. Damascene; Gage, &c.

Stem 8 to 12 or 15 feet high, branching. *Leaves* 1 to 3 inches long; *petioles* half an inch to an inch or more in length. *Drupes* oval, ovoid or obovoid, of various colors, from bluish-black to copper-color and pale yellowish-green, covered with bloom, the flesh rather firm.

Hab. Yards, and gardens. Nat. of Europe. *Fl.* April. *Fr.* Aug.

Obs. Several *varieties* of this are cultivated; but the depredations of insects render the fruit, generally, an uncertain crop, in country places.

2. P. Americàna, *Marsh.* Branches subspinose; leaves oval and obovate, acuminate, sharply and often doubly serrate; umbels subsessile, 2- to 5-flowered.

AMERICAN PRUNUS. Red Plum. Yellow Plum.

Stem 8 to 12 or 15 feet high, much branched,—the young branches virgate, the old ones rugged and somewhat thorny. *Leaves* 2 to 3 inches long; *petioles* ¼ to ½ an inch long. *Drupes* oval or subglobose, mostly reddish-orange color, nearly destitute of bloom, with a rich succulent yellow pulp, and a thick tough acerb skin.

Hab. Banks of streams, and thickets; frequent. *Fl.* April. *Fr.* Aug.

Obs. In its wild state, the fruit of this is small and of inferior quality; but under culture it is greatly improved, both in size and flavor.

3. P. CHIC'ASA, Mx. Branches subspinose; leaves narrow, lance-oblong or oblanceolate, acute, finely serrulate with glandular-pointed teeth; umbels sessile, 2- to 3-flowered.

CHICASA PRUNUS. Chickasaw Plum. Mountain Cherry.

Stem 6 to 10 or 12 feet high, much branched,—the young branches slender, virgate, dark purple, smooth and shining, the old ones geniculate and somewhat thorny. *Leaves* 1 to 2 inches long, smooth; *petioles* slender, ¼ to ¾ of an inch in length. *Flowers* appearing with the leaves, in sessile fascicles of threes. *Drupes* globose, red or yellowish-red, nearly or quite destitute of bloom, with a tender pulp and a thin skin.

Hab. Yards, and gardens. *Fl.* April. *Fr.* July.

Obs. This little tree (which is believed to be a native of our South-Western territory,—where it is a small shrub, in its wild state,) by long culture produces a very pleasant *fruit*,—worthy of more attention than it has yet received. It approaches the *Cherry* in character and appearance, and may be considered as a connecting link between the Plum and Cherry; but it is unquestionably, I think, a *true Plum*. Why MICHAUX's specific name was permitted to supersede MARSHALL's (viz. *angustifolia*), which was published long before, I do not understand.

113. CER'ASUS, *Tournef.*

[The name of an Asiatic town,—whence the tree was obtained.]

Flower nearly as in *Prunus: drupe* globular or roundish-ovoid, often umbilicate at base, glabrous, destitute of *bloom; nut* globose.—*Trees*, or *shrubs: leaves* conduplicate in the bud; *pedicels* of the flowers either in *umbellate fascicles* from lateral leafless buds, and then rather preceding the leaves,—or in *racemes* terminating leafy branches, and coming after the leaves; *petals* white.

† Flowers *in naked lateral fascicles, preceding the leaves.*

1. C. pùmila, *Mx.* Depressed or trailing, with ascending branches; leaves lance-obovate, tapering to the base, serrate-dentate near the apex, somewhat glaucous beneath; umbels few- (often single-) flowered; fruit small, ovoid, dark red.

DWARF CERASUS. Sand-Cherry.

Branches 9 to 18 inches high. *Leaves* 2 or 2½ inches long; *petioles* about half an inch in length. *Flowers* 2 or 3 in sessile umbels (often solitary), on slender *pedicels*. *Fruit* about the size of the wild cherry (*C. serotina, DC.*).

Hab. Borders of woods; New London: rare. *Fl.* May. *Fr.* July?

Obs. Collected in the South-Western part of this County, in 1847, by WM. JACKSON, Esq. It is also found in the adjoining County of Lancaster.

2. C. AVIUM, Moench. Branches erect or ascending, rather stout and rigid; leaves broadly oval or obovate-oblong, acuminate, coarsely serrate, pilose and somewhat glaucous beneath; drupes roundish-ovoid or subcordate at base.

BIRDS' CERASUS. English Cherry. Bleeding-heart, &c.

Stem 30 to 60 feet or more in height, branching regularly, and somewhat verticillately, so as to form an oblong and rather conical top. *Leaves* 3 to 5 or 6 inches long; *petioles* an inch to an inch and a half in length. *Pedicels* of the flowers about as long as the petioles, slender, usually 3 (often 2) in a fascicle. *Drupes* of various size and color, tender, and often very succulent, sweet, or bitterish-sweet. *Hab.* About houses; along fence-rows, &c. *Fl.* April. *Fr.* June.

Obs. Cherries are said to have been originally brought to Rome from *Cerasus*, a city of Pontus, by the Roman Consul and General, LUCULLUS, some 60 or 70 years before the Christian era (*ab urbe conditâ* 680. *Willd.*); and from Rome they have been distributed over the rest of the civilized world. Our cultivated Cherry trees seem obviously to consist of at least *two* original species,—viz. the sweet "*English Cherry*," so called—and the common *Sour Cherry*. The numerous *varieties*—produced by long culture (and possibly some *hybrids*, such as the "*May-duke*," &c.)—may perhaps be all referred to one or the other of those two; though Prof. DE CANDOLLE distributes them into *four* species. There are, undoubtedly, several very distinct sorts of *fruit*,—and I have not seen all the trees which produce them: but I incline to think that the general habit and aspect of *the trees commonly seen in this country*, warrant the reduction of them all to the *two* above referred to.

3. C. VULGÀRIS, Mill. Branches spreading, slender and flexible; leaves lance-ovate and obovate, acute or acuminate, mostly narrowed at base, serrate, smoothish; drupes globose.

COMMON CERASUS. Red or Sour Cherry. Morello Cherry, &c.

Stem 10 to 20 feet high, irregularly branched; branches rather slender and flaccid, spreading nearly horizontally and forming a roundish bushy top. *Leaves* 1½ to 3 inches long; *petioles* half an inch to an inch in length. *Pedicels* of the flowers about as long as the petioles, 2, or more frequently 3, in a fascicle. *Drupes* fleshy, more or less acid, red or dark purple when mature.

Hab. Fence-rows; along lanes, &c. *Fl.* April. *Fr.* July.

Obs. The "*Sour Cherry*" is the most common and, for culinary purposes, the most valuable of the genus. The *Morello Cherry* is a remarkably fine *variety*, with a rich purple juice,—and in the days of "*Cherry Bounce*," was a great favorite: But, for the last 30 years, it has almost entirely failed, in this region,—in consequence, apparently, of the ravages of an insect, causing large warty excrescences on the branches of the tree.

†† Flowers *in racemes at the end of leafy branches.*

4. C. Virginiàna, *DC.* A shrub; leaves oval or obovate, abruptly acuminate, sharply and often doubly serrate.

C. obovata, *Beck. & Fl. Cestr. ed.* 2. *p.* 599.

VIRGINIAN CERASUS. Choke Cherry.

Stem 5 to 8 or 10 feet high, branching. *Leaves* 2 to 4 inches long, thinnish; *petioles* half an inch to three-quarters in length. *Flowers* in simple racemes of 2 to 3 inches in length, on short branches which originated from the last year's growth. *Drupes* ovoid, rather acute, dark red or purplish when mature, astringent and bitterish.

Hab. Banks of the Brandywine: rare. *Fl.* May. *Fr.* Aug.

Obs. It appears, from the researches of Dr. GRAY, that this is

the true and original "Prunus Virginiana," of LINNAEUS; though the specific name has been so long applied to the following.

5. C. serótina, *DC.* A tree; leaves lance-oblong, taper-pointed, finely serrate with incurved callous teeth.
C. Virginiana. *Mx. & Fl. Cestr. ed. 2. p.* 289.
LATE CERASUS. Wild Cherry.

Stem 40 to 60 or 80 feet high, with large irregular spreading branches. *Leaves* 2 to 4 or 5 inches long, subcoriaceous; *petioles* half an inch to three-quarters in length. *Racemes* 2 to 4 or 5 inches long, terminating the short branches which arise from the last year's growth. *Drupes* globose, small, dark-purple or purplish-black when mature, succulent, bitter and mawkish to the taste.
Hab. Along streams, fence-rows, &c.: frequent. *Fl.* May. *Fr.* Aug.

Obs. The *wood* of this species is a pale reddish-brown, close-grained and hard—taking a good polish; and was formerly much used by cabinet-makers. The *bark*—though a rather unpalatable bitter—is a good tonic. The *leaves* are a favorite food of caterpillars; and the ripe *fruit* is greedily devoured by birds.

SUBORDER II. ROSA'CEAE PROPER.

Herbs, shrubs, or rarely *trees; leaves* simple or compound; *ovaries* many or few, rarely single,—free from the calyx, but sometimes included in its persistent tube; *fruit* either follicles, akenes, or little drupes; *styles* terminal or lateral.

TRIBE 1. SPIRAE'AE.

Pistils mostly 5, becoming few- or many-seeded *follicles,* in fruit; *styles* terminal.

114. SPIRAE'A, *L.*

[Gr. *Speirao,* to wind; from its fitness to form garlands.]

Calyx 5-cleft, persistent. *Petals* 5, roundish-obovate. *Follicles* 3, 5, or more, each 2-, 4- or many-seeded. *Shrubs,* or *herbs: leaves* simple,—sometimes lobed, and even-pinnately dissected.

1. S. opulifòlia, *L.* Leaves roundish-ovate and 3-lobed, doubly crenate-serrate; flowers corymbose; follicles inflated.
OPULUS-LEAVED SPIRAEA. Nine-Bark.

Shrub, 3 to 5 or 6 feet high, with spreading branches, and a loose lamellated *bark,*—the numerous layers suggesting the popular name. *Leaves* 1 to 2 inches in length, and nearly as wide as long, usually 3-lobed; *petioles* half an inch to three-quarters in length. *Corymbs* subumbellate, convex, crowded, hoary-pubescent when young; *common peduncle* half an inch to an inch long. *Flowers* white, often tinged with purple. *Carpels* 3 to 5, connate below, acuminate, usually 2-seeded; *seeds* obovoid.
Hab. Margins of streams: not common. *Fl.* June. *Fr.* Sept.

2. S. salicifòlia, *L.* Leaves lance-oblong, acute or obtuse, sharply serrate; flowers in dense paniculate racemes; follicles not inflated.
WILLOW-LEAVED SPIRAEA. Indian Pipeshank. Meadow-Sweet.

Shrubby, 3 to 6 feet high, with erect suffruticose branches, which are smooth, mostly dark purple, and pithy. *Leaves* about 2 inches long; *petioles* very short; *stipules* obsolete. *Flowers* reddish-white or pale-pink, crowded in paniculate racemes of 2 to 4 inches in length. *Carpels* 5, small, obovoid-oblong, acute at base, obliquely beaked, several-seeded; *seeds* oblong, small.
Hab. Wet thickets: frequent. *Fl.* June. *Fr.* Octo.

Obs. This is a somewhat variable plant. Our variety appears to be the *latifolia*, of authors.

115. GILLE'NIA, *Moench.*

[Derivation of the name not well ascertained.]

Calyx tubular-campanulate, 5-toothed. *Petals* 5, linear-lanceolate, elongated, convolute in the bud. *Carpels* 5, included in the calyx, each 2-seeded. *Perennial herbs: leaves* trifoliolate.

1. G. trifoliàta, *Moench.* Leaflets lanceolate or ovate-oblong, acuminate, incised-serrate; stipules small, subulate.

THREE-LEAVED GILLENIA. Indian Physic. Bowman's Root.

Stem 2 to 3 or 4 feet high, slender, paniculately branched at summit, mostly purplish. *Leaflets* 2 to 4 inches long, subsessile. *Flowers* white, or slightly tinged with red, loosely corymbose-paniculate.

Hab. Woodlands, and thickets: frequent. *Fl.* June. *Fr.* Aug.

Obs. This plant has had considerable reputation for its medicinal properties; but is rarely resorted to, at present. There is another species, with large stipules, in the West. The *Kerria Japonica*, *DC.* (*Corchorus Japonicus*, *Thunberg*), or golden Globe-flower,—a suffruticose plant of this Tribe,—has been extensively introduced among ornamental shrubbery, and is becoming almost *naturalized*.

TRIBE 2. DRYA'DEAE.

Pistils becoming dry *akenes*, or sometimes little *drupes*, in fruit,—when numerous, collected on a conical or hemispherical receptacle; *calyx-tube* dry; *segments* mostly valvate.

116. AGRIMO'NIA, *Tournef.*

[Said to be of the same derivation with *Argemone:* which see.]

Calyx-tube turbinate, armed with hooked bristles above, indurated, with 2 *bractlets* at base. *Petals* 5. *Stamens* about 12. *Akenes* 2, included in the calyx-tube. *Perennial herbs: leaves* interruptedly pseudo-pinnate, with a terminal leaflet or segment; *flowers* in a slender spicate raceme.

1. A. Eupatòria, *L.* Hirsute; principal leaflets 5 to 7, ovate-oblong, coarsely serrate,—the intervening ones small, ovate.

Agrimony.

Stem 2 to 3 feet high, simple. *Leaves* 4 or 5 to 9 inches long; *principal leaflets* or segments 2 to 3 or 4 inches in length,—sometimes with 2 or 3 pairs of intervening small ones. *Flowers* yellow, in a terminal virgate *raceme* 3 to 6 or 8 inches in length, each *pedicel* with a trifid *bract* at base.

Hab. Borders of thickets; fence-rows, &c.: frequent. *Fl.* July. *Fr.* Sept.

117. SANGUISOR'BA, *L.*

[Latin, *sanguis*, blood, and *sorbeo*, to absorb; being supposed to stop bleeding.]

Calyx corolla-like, 4-lobed, with a 4-angled *tube*, and 3 *bractlets* at base. *Petals* none. *Stamens* 4. *Pistil* mostly 1; *stigma* pencil-form. *Akene* included in the indurated 4-winged calyx-tube.—Mostly *perennial herbs: leaves* odd-pinnate; *flowers* small, in dense terminal long-peduncled spikes.

1. S. Canadénsis, *L.* Leaflets ovate-oblong, obtuse, cordate

at base, coarsely serrate, petiolulate; flowers in long terete spikes; stamens much exserted.

CANADIAN SANGUISORBA. Burnet.

Stem 2 to 3 or 4 feet high, terete, striate, fistular, sparingly branched. *Leaflets* 2 to 3 or 4 inches long, smooth; *common petioles* dilated at base into a clasping membrane, supporting auricular serrated *stipules*. *Flowers* greenish-white or ochroleucous, sessile, crowded in ovoid or finally cylindric-oblong *spikes*, which are 3 to 6 inches in length,

Hab. Low meadows; margins of swamps: frequent. *Fl.* Aug. *Fr.* Octo.

118. GE'UM, *L.*

[Gr. *geuo*, to relish, or taste well; the roots being rather aromatic.]

Calyx concave, 5-cleft, usually with a *bractlet* at each cleft. *Petals* 5. *Stamens* numerous. *Akenes* numerous, in a head; *styles* long, persistent, tailed, and, after flowering, hooked at summit. *Perennial herbs: leaves* pseudo-pinnate or lyrate.

1. G. Virginiànum, *L.* Radical leaves trifoliolate or pseudo-pinnate; calyx-segments reflexed; petals white or pale yellow; styles glabrous; stigmas subclavate, hairy at base.

VIRGINIAN GEUM. White Avens. Herb Bennet (i. e. *herbe benite*).

Stem 2 to 3 feet high, paniculately branched at summit, more or less hairy.—*Leaflets* 2 or 3 inches long, ovate or rhomboid; *common petioles* 4 to 6 or 8 inches in length. *Lower stem-leaves* mostly trifoliolate: *upper leaves* simple, lanceolate, incised-serrate. *Carpels* bristly; *styles* finally divaricate, or reflexed; *stigmas* articulated to the styles,—when the flower expands, the stigmas and styles become curved or contorted at the articulation, and the stigmas soon fall off, leaving the points of the styles hooked.

Hab. Borders of woods; thickets, &c.: frequent. *Fl.* June. *Fr.* Sept.

2. G. rivàle, *L.* Radical leaves interruptedly pseudo-pinnate, the terminal lobe large; calyx-segments erect; petals purplish-orange color; styles hairy; stigmas filiform, plumose.

RIVER GEUM. Water Avens. Purple Avens.

Stem about 2 feet high, nearly simple, rather retrorsely pilose. *Principal leaflets* 3 to 5 (often only the terminal one); lateral ones obovate; terminal one 2 or 3 inches long, and wider than long; *common petioles* 6 to 9 inches in length. *Carpels* hirsute; *styles* slender, dark purple; *stigmas* much longer than in the preceding species, plumosely hairy, except near the apex.

Hab. Wet meadows; Downingtown: rare. *Fl.* May. *Fr.* Aug.

119. POTENTIL'LA, *L.*

[Latin, diminutive of *potens*, powerful; alluding to reputed virtues.]

Calyx 5-cleft, with a *bract* at each sinus, and thus appearing 10-cleft. *Petals* 4 or 5. *Stamens* numerous. *Akenes* many, in a head on the dry hairy receptacle. Mostly *herbs: leaves* compound; *flowers* mostly yellow, solitary or cymose.

1. *P. Norvégica,* L. Hirsute; stem erect, forked above; leaves ternate; leaflets obovate-oblong, incised-serrate.

NORWEGIAN POTENTILLA.

Annual. Stem 1 to 2 feet high. *Leaves* all trifoliolate; *leaflets* 1 to 3 inches long, subsessile; *common petioles* 1 to 4 inches long; *stipules* large. *Flowers* often num-

erous, in leafy cymes or corymbs at summit. *Carpels* rugosely ribbed; *style* subterminal.

Hab. Pastures, and roadsides: frequent. *Fl.* July. *Fr.* Sept.

Obs. This coarse and rather homely weed is considered as indigenous, in the northern States; but it has the appearance, to me, of an introduced plant, here.

2. P. Canadénsis, *L.* Villous; stem procumbent or ascending, producing runners; leaves quinate-digitate; leaflets cuneate-obovate, incised-dentate.

Also, P. simplex. *Mx. & Fl. Cestr. ed.* 2. *p.* 304.

CANADIAN POTENTILLA. Cinque-foil. Five-finger.

Perennial. Stem 2 or 3 to 12 and 18 inches long, slender, somewhat branched, often several from the same root. *Radical leaves* on *petioles* 2 to 6 or 8 inches in length; *stem-leaves* nearly sessile; *leaflets* half an inch to 1 or 2 inches long. *Peduncles* axillary, 1-flowered, about as long as the leaves.

Hab. Old fields; borders of woods, &c.: frequent. *Fl.* April. *Fr.* June.

Obs. The *P. simplex,* of Authors, with slender ascending stems, and taller growth—frequent along the borders of open woodlands, and in clearings—is doubtless very properly reduced to a *variety* of this. The prevalence of the plant, in arable lands, is a pretty sure indication of a thin soil, or of a thriftless farmer,—or *both;* though some lands, when kept as pasture fields, seem to have an almost incurable tendency to lose the valuable grasses, and to become speedily overrun with *Cinque-foil. Lime* and *manure,* however—if duly persevered with—will work wonders in the poorest soils.

120. FRAGA'RIA, *Tournef.*

[Latin, *fragrans,* odorous; in reference to its fragrant fruit.]

Flowers nearly as in *Potentilla: styles* lateral. *Akenes* minute, scattered superficially on, or imbedded in, the surface of the enlarged ovoid pulpy deciduous *receptacle. Perennial* hairy *herbs:* nearly or quite *stemless,*—but producing prostrate *runners; leaves* trifoliolate; *flowers* white, cymose on *scapes,*—often *dioicous,* or *imperfect,* under cultivation.

1. F. Virginiàna, *Ehrh.* Akenes imbedded in the deeply pitted receptacle.

VIRGINIAN FRAGARIA. Wild Strawberry.

Root (or *rhizoma*) thickish, with numerous fibres. *Runners* creeping, or striking root at intervals. *Leaves* mostly radical; *common petioles* 2 to 4 or 6 inches in length; *leaflets* 1 to 2 inches long, cuneate-obovate, or oval. *Cymes* on scapes scarcely as tall as the leaves. *Receptacle* (vulgarly regarded as the *fruit*) ovoid, nodding, succulent and bright purple when mature.

Hab. Neglected old fields; fence-rows, &c.: frequent. *Fl.* April. *Fr.* May.

2. F. VÉSCA, L. Akenes superficially attached to the receptacle.

EATABLE FRAGARIA. Garden Strawberry.

Hab. Gardens, &c. Nat. of Europe. *Fl.* April. *Fr.* May.

Obs. Long and careful culture of this species (which is very nearly allied to the preceding, and said to be truly indigenous) has resulted in numerous fine *varieties,* differing in the size, color, and flavor of the *receptacles;* and has also produced many abortive or

imperfect flowers,—which have given rise to much idle controversy about their sexual character, among the practical gardeners.—Although the *true fruit* of this plant consists of mere dry specks, or bony particles (i. e. the minute *akenes*), scattered over the surface of the enlarged *receptacle*,—yet the receptacle itself furnishes a pulpy *substitute* of the most delicious character.

121. RU'BUS, *L.*

[Celtic, *Rub*, red; from the color of the fruit, of some species.]

Calyx 5-parted, without bractlets at the clefts. *Petals* 5. *Stamens* numerous. *Pistils* crowded on a convex, or oblong, spongy receptacle, becoming small *drupes*. *Perennial suffruticose* plants: *leaves* mostly compound; *flowers* generally white, and the *fruit* edible.

§ 1. FRUIT *hemispherical, falling away, when ripe, from the dry convex receptacle* (RASPBERRY. THIMBLE-BERRY).

† Leaves *simple, palmate-lobed.*

1. R. odoràtus, *L.* Unarmed; hispid with glandular clammy hairs; leaves broad-cordate, mostly 5-lobed.

ODOROUS RUBUS. Rose-flowering Raspberry.

Stem 3 to 5 feet high, branching. *Leaves* 4 to 6 or 8 inches long, and nearly as wide as long; *petioles* 2 to 4 or 6 inches long. *Corymbs* compound, clothed with a purplish clammy glandular pubescence; *flowers* large, bright-purple, or sometimes pale-red. *Fruit* broad, on a large receptacle, bright-red, or scarlet, when mature. *Hab.* Rocky hills; Brandywine: rare. *Fl.* June. *Fr.* Aug.

Obs. This is a showy species, with flowers nearly as large as those of the *Rosa rubiginosa*, or sweet-brier. It is sometimes introduced into gardens,—where it is rather troublesome in sending up suckers from its creeping roots. It very rarely produces *fruit*, under cultivation; but I have seen it, on the mountains, bearing flowers and ripe fruit, at the same time.

†† Leaves *pinnately 3-5-foliolate.*

2. R. STRIGO'SUS, MX. Stems slightly glaucous, beset with stiff bristles, some of them becoming weak hooked prickles; leaflets oblong-ovate; fruit light red.

STRIGOSE RUBUS. Red Raspberry.

Stem 3 to 4 or 5 feet high, light brown. *Lower leaves* odd-pinnate by fives, the *upper ones* ternate; *leaflets* about 3 inches long, hoary beneath, the terminal one often cordate at base. *Corymbs* 4- to 6-flowered, axillary and terminal, often aggregated and forming a leafy panicle at summit.
Hab. Gardens, yards, &c. *Fl.* May. *Fr.* July.

Obs. This species is indigenous on our mountains. I have seen it, abundant, on *Pokono;* and in our gardens, here, I think it is often mistaken for a variety of the following,—to which, indeed, it is nearly allied.

3. R. IDAÈUS, L. Stems not glaucous, hispid below, prickly above; leaflets rhombic-ovate; fruit amber-colored, pale yellow, or purple. IDA RUBUS. Antwerp Raspberry. Garden Raspberry.

Stem 3 to 5 feet high, branching,—the hispid bark, below, exfoliating the second year. *Lower leaves* odd-pinnate by fives, the *upper ones* by threes; *common petioles* 1 to 3 or 4 inches long: *leaflets* 2 to 4 inches long, green above, clothed with a dense

white cottony tomentum beneath. *Carpels* incurved at apex, clothed with a very fine short velvety pubescence.

Hab. Gardens, &c. Nat. of Europe. *Fl.* May. *Fr.* July.

Obs. The *fruit* of this is much admired; and the plant, in consequence, extensively cultivated. Many superior *varieties* (and perhaps hybrids) have been produced by scientific cultivators,—among whom Doctor BRINCKLÉ, of Philadelphia, is one of the most distinguished and successful.

4. R. occidentàlis, *L.* Stem smooth and glaucous, armed with prickles; leaflets lance-ovate; fruit dark purple or nearly black.

WESTERN RUBUS. Wild, or Black Raspberry. Thimble-berry.

Stem 5 to 8 or 10 feet long, sparingly branched, limber and often arching over so that the summit comes to the ground and takes root, mostly purplish, and pruinose or covered with a fine bluish-white powder. *Leaflets* mostly in threes, 2 to 4 inches long, often subcordate at base, smoothish above, clothed with a dense glaucous tomentum beneath. *Corymbs* mostly terminal on the young branches.

Hab. Fence-rows; borders of woods, &c.: frequent. *Fl.* May. *Fr.* July.

Obs. The *fruit* of this species is smaller and less esteemed than that of the two preceding; but is nevertheless sweet and agreeable.

⁂ 2. FRUIT *ovoid or oblong, persistent on the juicy receptacle* (BLACKBERRY, and DEWBERRY): leaves *pedately* 3- 5-*foliolate.*

† Stem *erect, armed with stout prickles.*

5. R. villòsus, *Ait.* Stem angular; young branches and racemes glandular-villous; leaflets ovate and lance-oval; racemes many-flowered.

VILLOUS RUBUS. Blackberry. Common Brier. Bramble.

Stem 3 to 6 or 8 feet high, stout, ridged or obtusely angular, branching. *Leaflets* 2 to 3 or 4 inches long. *Racemes* rather large, sometimes leafy. *Fruit* ovoid-oblong or cylindric, sometimes near an inch long,—changing from green to red or purplish, and finally black.

Hab. Old fields; thickets, &c.: common. *Fl.* May. *Fr.* July.

Obs. Every one knows the common *Brier*. The *root*, both of this and the *R. Canadensis*, being moderately astringent, is a popular remedy for diarrhœa. The ripe *fruit* affords a pleasant *jam*,—which is also considered salutary, in bowel complaints. Even the *knots* which are formed on the branches, from the puncture of insects, were formerly carried, by credulous simpletons, as a sort of *amulet*, or charm against the toothe-ache! The plant, nevertheless, is often something of a nuisance on our farms, from its tendency to spread, and take possession of neglected fields.

6. R. cuneifòlius, *Pursh.* Stem sub-terete; branches pubescent; leaflets cuneate-obovate, sub-plicate, tomentose beneath; racemes few-flowered.

WEDGE-LEAVED RUBUS. Sand Blackberry.

Stem 2 to 3 feet high, branched. *Leaflets* mostly ternate, 1 to 2 inches long, cuneate, and obtuse with a short abrupt acumination; *common petioles* half an inch to an inch and half in length. *Flowers* sometimes tinged with red. *Fruit* oval, about half an inch long, black when mature, succulent and well-flavored.

Hab. Dry hills; E. Nantmeal, Kennett: rare. *Fl.* May. *Fr.* July.

Obs. This species is very common in New Jersey; but is rather scarce on our side of the Delaware.

†† Stem *procumbent, armed with short or slender prickles.*

7. R. Canadénsis, *L.* Stems fruticose, smoothish, extensively trailing; leaflets ovate, acute, thin; fruit large, sweet.
R. trivialis. *Pursh. & Fl. Cestr. ed.* 2. *p.* 308. not of *Mx.*

CANADIAN RUBUS. Dewberry. Running Brier.

Stem 3 or 4 to 8 or 10 feet long, slender,—often several from the same root running in different directions, and giving out numerous leafy pubescent flowering branches, which are nearly erect, and 2 to 4 or 6 inches in length. *Leaflets* mostly ternate, an inch to an inch and half long. *Flowers* somewhat corymbose on the short branches. *Fruit* oblong or roundish, half an inch to near an inch in diameter, black when mature, very succulent and sweet.
Hab. Rocky sterile soils; old fields, &c.: frequent. *Fl.* May. *Fr.* July.

Obs. Our *Dewberry* is a fine fruit, and is generally preferred before all the other *Blackberries proper;* but it is not the "Dewberry" of England,—which is *R. caesius, L.*

8. R. hispidus, *L.* Stems suffruticose, bristly, slender; leaflets cuneate-obovate, obtuse, subcoriaceous; fruit small, acerb.
R. obovatus, *Pers. & Fl. Cestr. ed.* 2. *p.* 308.

HISPID RUBUS. Swamp Blackberry.

Stem 2 to 4 feet long, armed with retrorse bristles, which often become slender prickles. *Leaflets* about an inch long, often living through the winter. *Flowers* subpaniculate. *Fruit* black when mature.
Hab. Swampy thickets, among moss, &c.: frequent. *Fl.* June. *Fr.* Aug.

Obs. This species is pretty much confined to shaded sphagnous swamps.

TRIBE 3. RO'SEAE.

Pistils numerous, inserted on the hollow receptacle which lines the fleshy calyx-tube; *calyx-segments* imbricated, often foliaceous at apex.

122. RO'SA, *Tournef.*

[Latinized from the Celtic, *Rhos,* red; the prevailing color of the flowers.]

Calyx-tube urceolate, finally berry-like. *Petals* 5. *Stamens* numerous, inserted with the petals on the rim of the calyx-tube. *Styles* nearly included; *ovaries* distinct, hirsute, becoming bony *akenes.*—*Shrubby* and *prickly: leaves* odd-pinnate; *stipules* adnate to the petiole.

1. R. Carolina, *L.* Stem-prickles stout, recurved; flowers in terminal corymbs.

CAROLINA ROSA. Swamp Rose.

Stem 4 to 6 feet high, with numerous purple branches. *Leaflets* mostly 5 or 7, 1 to 2 inches in length, generally elliptic-lanceolate. *Flowers* red or purplish.—*Fruit* (i. e. the fleshy or berry-like *calyx-tube,* called a *Hip,*) depressed-globose, somewhat glandular-hispid, dark red and shining when mature.
Hab. Low moist grounds, thickets, &c.: frequent. *Fl.* June. *Fr.* Sept.

Obs. This is often a troublesome plant, in wet meadows, and low grounds.

2. R. lùcida, *Ehrh.* Stem-prickles bristle-like, nearly straight, mostly deciduous; flowers usually in pairs.
R. parviflora. *Ehrh. & Fl. Cestr. ed.* 2. *p.* 310.
LUCID ROSA. Dwarf Wild Rose.

Stem 1 to 2 feet high, with greenish branches. *Leaflets* 5 to 9 (mostly 7), 1 to near 2 inches long, generally oval. *Flowers* pale red, sometimes solitary. *Hips* subglobose, dark red and nearly smooth, when mature.
Hab. Borders of woods; old fields, &c.: frequent. *Fl.* June. *Fr.* Sept.

3. *R. rubiginòsa,* L. Leaflets and stipules glandular-pubescent, fragrant; flowers mostly solitary, small.
RUBIGINOUS, or RUSTY ROSA. Sweet Brier.

Stem 6 to 8 feet high (when trained up, much taller), with long slender branches, mostly yellowish-green. *Leaflets* 5 to 7, one-third to three-fourths of an inch long, oval or obovate, green above, clothed with a rusty glandular viscid pubescence beneath. *Flowers* pale red. *Hips* oval, mostly smooth, reddish orange color when mature.
Hab. Sandy banks; roadsides, &c.: Nat. of Europe. *Fl.* June. *Fr.* Sept.

Obs. This species, so generally admired for the fragrance of its leaves, is sometimes cultivated,—and has become naturalized in many places. The *species* of this delightful genus are quite numerous;—while the splendid *varieties*, produced by skillful Florists (and sedulously cultivated, by persons of taste), almost defy the attempt to catalogue them,—and yet they are continually being multiplied.

SUBORDER III. PO'MEAE.

Trees or *shrubs; leaves* mostly simple; *ovaries* 2 to 5 (rarely solitary), cohering with each other and with the including thickened fleshy calyx-tube,—each ovary or cell containing one or few ascending seeds.

DIVISION I. CALYX-TUBE URCEOLATE.

123. CRATAE'GUS, *L.*

[Gr. *Kratos,* strength; in allusion to the firmness of the wood.]

Styles 1 or 2 to 5. *Pome* fleshy or somewhat mealy, containing 1 to 5 bony 1-seeded carpels. *Thorny shrubs: leaves* simple, mostly incised or lobed; *flowers* usually white.

† Corymbs *many-flowered.* * Fruit *small.*

1. *C. oxyacántha,* L. Leaves cuneate-obovate, laciniate-lobed, often trifid; styles 1 to 3; fruit ovoid.
SHARP-THORNED CRATAEGUS. English Hawthorn.

Stem 8 to 12 feet high, much branched; branches rugged, armed with sharp tapering thorns about half an inch in length. *Leaves* an inch to an inch and half long, and about as wide as long, variously lobed, often 3- or 5-lobed, with the middle or terminal lobe trifid; *stipules* of the young plant foliaceous, obliquely falcate-reniform. *Corymbs* terminal on the short spurs. *Style* mostly solitary. *Fruit* about ¼ of an inch in diameter, purple when mature.
Hab. Roadsides; fence-rows, &c. Nat. of Europe. *Fl.* May. *Fr.* Octo.

Obs. This Thorn—so familiar to us, in the Poetry of England—was formerly rather frequent in Chester County, and partially naturalized; but is now becoming rare. It was probably introduced

with a view to *hedging;* but some of our native species being more easily cultivated, the *Hawthorn* has been neglected.

2. C. CORDÀTA, Ait. Leaves deltoid-ovate, subcordate at base, incised-serrate and somewhat 3-lobed; styles 5; fruit depressed-globose.

CORDATE CRATAEGUS. Washington Thorn. Virginia Thorn.

Stem 15 to 20 feet high, with numerous virgate or slender dark-purple branches, armed with slender sharp thorns about 2 inches long. *Leaves* 2 to 3 inches long, often 3-lobed, and resembling a small leaf of the red Maple; *petioles* ¾ of an inch to an inch in length; *stipules* of the young plant subreniform, lobed and glandular serrate. *Corymbs* compound, terminating the young slender short branches. *Styles* more or less united. *Fruit* about ¼ of an inch in diameter, bright crimson when mature.

Hab. Roadsides, &c., in hedges. Nat. of Virginia. *Fl.* June. *Fr.* Octo.

Obs. This species is the one which has been chiefly cultivated for *hedging*, in this County,—where it was introduced, from the vicinity of Washington City, about the commencement of the present century. It makes a handsome hedge, when well managed; but not so substantial and effective as the *Cockspur Thorn.* It is so subject to be injured, and broken into gaps, by thoughtless and reckless trespassers—especially near villages—that the attempt to cultivate it is rather a source of vexation, than of satisfaction.

* * Fruit *middle-size.*

3. C. Crus-gálli, *L.* Leaves obovate-cuneate, and lance-oblong, serrate, thickish and shining; styles 1 to 3; fruit somewhat pyriform.

COCK-SPUR CRATAEGUS. Cock-spur Thorn. New-Castle Thorn.

Stem 10 to 15 or 20 feet high, much branched, and armed with sharp tapering thorns 2 to near 3 inches in length. *Leaves* 1 to 2½ inches long, somewhat coriaceous, on short *petioles*. *Corymbs* terminal, on short rigid spurs. *Styles* 2, or more usually solitary. *Fruit* medium size—between the preceding and the following species, reddish brown when mature.

Hab. Fence-rows; thickets, &c.: not common. *Fl.* June. *Fr.* Octo.

Obs. There appears to be two pretty distinct *varieties* of this; both of which, however, are so rare, that I am not quite sure they are truly indigenous here. The *Cock-spur Thorn*, in my judgment, is decidedly the best for making a durable and effective *hedge:* But, until timber shall become scarce, very few farmers will take the requisite pains to insure a complete hedge,—and without such care, it is worse than labor lost to make the attempt. In the language of Mr. M'MAHON'S excellent "*American Gardener's Calendar*," referring to the hedging experiments of negligent, slovenly farmers: "I would advise such to hold fast by the *post and rail*, and not to lose time in doing more harm than good."

* * * Fruit *rather large.*

4. C. coccinea, *L.* Leaves ovate, acutely sublobed and incised-serrate, thin; styles 3 to 5; fruit oval or globular, bright red.

SCARLET CRATAEGUS. White Thorn. Scarlet-fruited Thorn.

Stem 6 to 10 or 12 feet high, with flexuous spreading rugged branches, armed

with stout thickish acute thorns 1 to near 2 inches in length, and mostly a little curved downwards. *Leaves* about 2 or 2½ inches long, cut into 3 or 4 small angulate lobes on each side; *petioles* ¾ of an inch to an inch and half in length; *stipules* lance-linear, glandular-serrate. *Corymbs* terminating the young short branches. *Fruit* 1 third to near half an inch in diameter, esculent.

Hab. Borders of woods, and thickets: frequent. *Fl.* May. *Fr.* Sept.

5. C. punctàta, *Jacq.* Leaves cuneate-obovate, doubly serrate, subplicate; styles 2 or 3; fruit subglobose, orange-color, dotted.

Dotted Crataegus.

Stem 8 to 12 or 15 feet high, with rugged branches armed with stout sharp thorns 1 to 2 inches in length. *Leaves* an inch and half to 3 inches long; *petioles* ¼ to ¾ of an inch in length. *Corymbs* compound, pubescent, often quite villous. *Fruit* ½ to ⅔ of an inch in diameter, sometimes red when mature, esculent and not unpleasant to the taste.

Hab. Borders of woods; along streams, &c.: not common. *Fl.* May. *Fr.* Sept.

Obs. The species doubtfully given as *C. flava*, in the 2nd edition (*C. tomentosa*, L. Torr. & Gr.), I am not yet well satisfied about; and therefore leave it for further investigation.

† † Flowers *subsolitary, terminal.*

6. C. parvifòlia, *Ait.* Leaves cuneate-oblong, or spatulate, crenate, thickish, roughish-pubescent; styles 5; fruit pyriform, rather large, pale greenish-yellow.

Small-leaved Crataegus. Dwarf Thorn.

Stem 3 to 5 feet high, bushy, armed with a few sharp thorns half an inch to an inch long. *Leaves* ¾ of an inch to an inch and half long, subsessile. *Fruit* ⅓ to near half an inch in diameter, somewhat hairy, esculent.

Hab. Dry banks; Great Valley: rare. *Fl.* May. *Fr.* Sept.

124. PYRUS, *L.*

[The classical Latin name of the Pear-tree.]

Styles 2 to 5. *Pome* fleshy or berry-like, 2- to 5-celled; *cells* or carpels cartilaginous, each 2-seeded. *Trees*, or *shrubs: leaves* mostly simple, involute in the bud; *flowers* in cymose corymbs.

§ 1. Styles 5, *distinct:* Pome *turbinate, not umbilicate at base.*

1. P. communis, L. Leaves lance-ovate, slightly serrate, smooth above; peduncles corymbose, pubescent.

Common Pyrus. Pear. Pear-tree.

Stem 20 to 30 or 40 feet high, with virgate rather erect branches, forming an oblong or tapering head. *Leaves* 2 to 3 inches long; *petioles* 1 to 2 inches in length. *Flowers* white, in clustered corymbs, on lateral spurs. *Fruit* 1 to 3 inches in diameter, succulent, usually yellowish-green, with shades of red.

Hab. Gardens, yards, &c. Nat. of Europe. *Fl.* May. *Fr.* Aug. and after.

Obs. Many *varieties* of this luscious fruit have been obtained, by long culture,—in which the *French* Pomologists seem especially to excel.

§ 2. Styles 5, *united at base:* Pome *depressed-globose, umbilicate at base.*

2. P. Màlus, L. Leaves ovate-oblong, serrate, pubescent above; peduncles subumbellate, villous.

Apple Pyrus. Common Apple. Apple-tree.

Stem 15 to 25 or 30 feet high, usually with spreading geniculate branches, forming a broad bushy head. *Leaves* 2 to 3 inches long; *petioles* about an inch in length. *Flowers* mostly pale red, in simple sessile umbels, terminal and lateral. *Fruit* 1 to 3 or 4 inches in diameter, fleshy, of various colors.
Hab. Orchards, yards, &c. Nat. of Europe. *Fl.* May. *Fr.* Aug. and after.

Obs. The *varieties* of this—like the Pear—have been rendered almost numberless, by long and careful culture. It is much to be regretted, however, that so little attention has been hitherto paid, in this County, in selecting the best. A new era, it is hoped, is now dawning upon those who have orchards to plant.

3. P. coronària, *L.* Leaves broad-ovate, subcordate at base, incised-serrate or angulate-lobed, smoothish; peduncles corymbose, smooth.
CROWN PYRUS. Crab Apple. Sweet-scented Crab tree.

Stem 10 to 15 feet high, with spreading branches, rugged with short spurs, and forming a bushy head. *Leaves* 2 to 3 inches long; *petioles* half an inch to an inch and half in length. *Flowers* pale red, in loose corymbs terminating the spurs.—*Fruit* an inch or inch and half in diameter, fleshy, but firm, yellowish-green and fragrant when mature, yet extremely acid.
Hab. Borders of woods; roadsides, &c. rare. *Fl.* May. *Fr.* Sept.

Obs. This native apple was formerly frequent in Chester County: but is now becoming quite rare.

§ 3. STYLES 2 *to* 5: Pome *small, berry-like;* leaves *glandular.*

4. P. arbutifòlia, *L.* Leaves obovate-oblong, acute, crenate-serrulate, mostly tomentose beneath; peduncles corymbose, villous.
ARBUTUS-LEAVED PYRUS. Choke-berry.

Stem 2 to 3 or 4 feet high, slender, branching. *Leaves* 1 to 2 inches long, the upper surface smooth and green, with numerous dark purple glands on the midrib; *petioles* 1 line to ¼ of an inch in length. *Flowers* whitish, with a tinge of purple, in terminal pedunculate cymose or compound corymbs. *Fruit* globose, 2 to 3 lines in diameter, dark red or purple, sometimes nearly black, when mature, sweetish and astringent.
Hab. Moist woodlands: frequent. *Fl.* May. *Fr.* Aug.

DIVISION II. CALYX-TUBE TURBINATE, OR OVOID.

125. CYDO'NIA, *Tournef.*

[The name of a city of Crete,—whence it was obtained.]

Calyx-tube turbinate; *segments* subfoliaceous. *Pome* fleshy, 5-celled; cells several-seeded; *seeds* mucilaginous. *Trees,* or *shrubs: leaves* simple, conduplicate in the bud; *flowers* mostly solitary.

1. C. VULGÀRIS, Pers. Leaves oblong-ovate, obtuse at base, very entire, tomentose beneath; fruit sub-turbinate, tomentose.
COMMON CYDONIA. Quince. Quince-tree.

Stem 8 to 12 or 15 feet high, with spreading branches. *Leaves* 2 to 3 inches long; *petioles* about half an inch long. *Flowers* reddish white, rather large, terminal.—*Fruit* 2 to 3 inches in diameter, citron-yellow when mature.
Hab. Gardens; ditch banks, &c. Nat. of Southern Europe. *Fl.* May. *Fr.* Sept.

Obs. Cultivated for its *fruit,*—which is chiefly used for making

Preserves, or sweet-meats. The *Quince* is supposed to be the golden apple of the *Hesperides*, so celebrated in ancient fable; but if the *Orange* had been then known, it would doubtless have been esteemed a more precious fruit, by "the Western Maidens." The *C. Japonica*, *Pers.* or Flowering Quince (*Pyrus Japonica*, *Willd.*), is highly prized for its beauty as an early-flowering shrub: but the *fruit*—though remarkably fragrant—is very hard and acerb.

126. AMELAN'CHIER, *Medik.*

[The popular *French* name of one of the species.]

Calyx-tube ovoid. *Petals* 5, lance-oblong. *Pome* berry-like, with 5 cartilaginous double cells, each division 1-seeded; *seeds* often abortive. *Shrubs: leaves* simple; *flowers* in terminal racemes.

1. A. Canadénsis, *Torr. & Gr.* Leaves elliptic-obovate, acuminate, silky-villous while young; racemes elongated.

A. Botryapium. *Lindl. & Fl. Cestr. ed.* 2. *p.* 294. *also*, A. ovalis, *ibid. p.* 295.

CANADIAN AMELANCHIER. June-berry. Shad-Bush. Service-berry.

Stem 8 to 15 or 20 feet high, with rather slender distant branches. *Leaves* 2 to 3 inches long; *petioles* half an inch to an inch in length. *Racemes* about 2 inches long, loose and rather pendulous; *flowers* white and showy. *Fruit* roundish-ovoid, 2 to 3 or 4 lines in diameter, dark purple when mature, esculent.

Hab. Rich moist woodlands: frequent. *Fl.* April. *Fr.* June.

Obs. This shrub has acquired one of its popular names, by reason of its flowering during the season of taking *shad*, in our rivers. The *A. ovalis*, *DC. & Fl. Cestr. ed.* 2. is, no doubt, very properly reduced to a *variety*.

ORDER XXXVI. MELASTOMÀCEAE.

Rarely *herbs; leaves* opposite, entire, strongly ribbed; *stipules* none; *flowers* in terminal corymbose cymes; *calyx-tube* more or less adherent to the *ovary; stamens* twice as many as the petals, and inserted with them; *anthers* opening by pores at apex; *fruit* capsular; *seeds* numerous, without *albumen*.

127. RHEX'IA, *L.*

[Gr. *Rhexis*, a rupture; a name without apparent application.]

Calyx-tube urceolate; *limb* 4-cleft. *Petals* 4, inserted on the calyx. *Anthers* long, curved, declinate, 1-celled. *Style* 1. *Capsule* 4-celled, included in the calyx-tube. *Seeds* cochleate. *Perennial herbs: leaves* sessile; *flowers* cymose.

1. R. Virginica, *L.* Stem square, with winged angles; leaves oval-lanceolate, acute, bristly-ciliate.

VIRGINIA RHEXIA. Deer-grass. Meadow Beauty.

Stem 9 to 18 inches high, often trichotomously branched above, sparingly hispid. *Leaves* 1 to 3 inches long, with 3 prominent nerves. *Flowers* bright purple, rather large and showy; *calyx* glandular-hispid.

Hab. Slaty swamps: not common. *Fl.* Aug. *Fr.* Sept.

ORDER XXXVII. LYTHRA'CEAE.

Herbs; leaves mostly opposite, entire; *stipules* none; *flowers* axillary; *stamens* 4 to 14; *style* 1; *capsule* membranaceous, included in the calyx, but free, 1- to 4-celled, many-seeded; *seeds* without *albumen*.

128. AMMAN'NIA, *Houston.*

[Dedicated to Prof. *Ammann*, of St. Petersburg.]

Calyx subcampanulate, 4-angled, 4-lobed, with a tooth at each sinus. *Petals* 4, or wanting. *Stamens* 4. *Capsule* globular, 4-celled, with central placentae. Smooth *subaquatics.*

1. A. hùmilis, *Mx.* Stems ascending, square; leaves linear-oblanceolate, rather obtuse; flowers in threes or often solitary, sessile; petals 4, orbicular, caducous.

HUMBLE AMMANNIA.

Annual; stem 4 to 8 inches long, procumbent and branching at base. *Leaves* ¾ of an inch to an inch and half long, tapering at base to a short petiole. *Flowers* greenish, small, upper ones usually solitary, and opposite.

Hab. Wet places; Brandywine: rare. *Fl.* Aug. *Fr.* Sept.

Obs. Collected on the west branch of the Brandywine, above MARSHALL'S Mill, in 1837, by Mr. JOSEPH M. BARNARD.

129. CU'PHEA, *Jacq.*

[Gr. *Kuphos*, curved, or gibbous; in reference to the calyx-tube.]

Calyx tubular, 12-ribbed, ventricose, gibbous at base; limb 6-toothed. *Petals* 6, very unequal. *Stamens* mostly 12. *Capsule* oblong, 1- or 2-celled, bursting laterally with the calyx-tube. *Seeds* few, compressed, oval. Clammy *herbs:* flowers pedunculate.

1. C. viscosissima,! *Jacq.* Clothed with a purplish clammy pubescence; leaves ovate-lanceolate, petiolate; flowers solitary.

MOST VISCID CUPHEA.

Annual; stem 9 to 18 inches high, branched. *Leaves* 1 to near 2 inches long; *petioles* ¼ to ½ an inch in length. *Calyx-tube* about half an inch long, contracted at throat; limb more or less dilated, 6-toothed, and usually with small intervening processes. *Petals* violet purple, obovate, clawed. *Capsule* about as long as the calyx-tube, thin and membranaceous, opening before maturity, and exposing the rather large seeds.

Hab. Gravelly old fields, and roadsides: frequent. *Fl.* Aug. *Fr.* Sept.

ORDER XXXVIII. ONAGRA'CEAE.

Herbs; leaves alternate or opposite, simple, without *stipules; flowers* mostly tetramerous; *calyx-tube* adherent to the 2-4-celled ovary, its lobes valvate in the bud or obsolete; *petals* convolute in the bud; *stamens* as many, or twice as many, as the petals or calyx-lobes.

SUBORDER I. ONAGRA'CEAE PROPER.

Calyx-tube often longer than the ovary, bearing the *petals* (when present) and *stamens* on its summit; *stigma* 2-4-lobed, or capitate; *capsule* loculicidally 4-celled and 4-valved, or indehiscent; *placentae* in the axis; *seeds* without *albumen.*

† PETALS 4; stamens *twice as many.*

†130. EPILO'BIUM, *L.*

[Gr. *Epi Lobou Ion;* meaning a violet on a Pod.]

Calyx-tube not longer than the ovary. *Anthers* subovate, erect; *pollen* not viscid. *Capsule* long, linear. *Seeds* comose. *Perennials.*

1. E. angustifòlium, *L.* Stem simple; leaves alternate, lanceolate, entire; flowers in a terminal virgate raceme, large and showy.

NARROW-LEAVED EPILOBIUM. Great Willow-Herb.

Stem 4 to 6 feet high. *Leaves* 3 to 5 inches long, subsessile. *Raceme* 3 to 6 or 8 inches long; *flowers* purplish lilac-color, on pedicels about half an inch in length. *Capsules* 1½ to 3 inches long, hoary.

Hab. Great Valley; Beaver run: rare. *Fl.* July. *Fr.* Sept.

Obs. Collected in 1837, by Mr. ALBERT TOWNSEND. The *specific name*, given by LINNAEUS, is rather unfortunate, and calculated to mislead the young Botanist,—as the *leaves* are much *broader*, and every way larger, than in some of the forms of *E. palustre.* The plant, in fact, is quite pretty,—with a large raceme of showy flowers.

2. E. coloràtum, *Muhl.* Stem much branched; leaves mostly opposite, lanceolate, serrulate, purple-veined; flowers axillary, small.

COLORED EPILOBIUM. Willow-herb.

Stem 2 to 3 feet high,—the upper part, and branches, often marked with pubescent lines decurrent from the base of the petioles. *Leaves* 2 to 5 or 6 inches long, mostly obtuse at base; *petioles* very short. *Flowers* purplish, sometimes nearly white, with purple spots, the petals bifid or emarginate. *Capsule* 2 to near 3 inches long, slender, pubescent; valves keeled.

Hab. Swampy thickets, and low grounds: frequent. *Fl.* July. *Fr.* Sept.

3. E. palústre, *L.* Stem slender, bushy at summit, hoary; leaves lanceolate, or lance-linear, often entire with revolute margins.

E. squamatum, *Nutt. & Fl. Cestr. ed.* 2. *p.* 239.

MARSH EPILOBIUM.

Stem 12 to 18 inches high, rigid; branches pubescent. *Leaves* an inch or inch and half in length, often nearly linear and sessile. *Flowers* pale purple, or nearly white, few and small. *Capsule* an inch or inch and half long, very slender, hoary-pubescent while young.

Hab. Swampy, low grounds: not common. *Fl.* Aug. *Fr.* Octo.

Obs. The linear-leaved *variety* is becoming rare.

131. ŒNOTHE'RA, *L.*

[Gr. *Oinos*, wine, and *Thera*, a chase; application obscure.]

Calyx-tube longer than the ovary. *Petals* mostly obcordate. *Anthers* linear, incumbent; *pollen* viscid. *Capsule* oblong, or clavate. *Seeds* not comose. *Leaves* alternate.

1. Œ. biénnis, *L.* Stem stout, green; leaves ovate-lanceolate, repand-dentate; capsule oblong, obtusely 4-angled, sub-sessile.

BIENNIAL OENOTHERA. Evening Primrose.

Stem 3 to 5 or 6 feet high, branched, often rough-haired. *Leaves* 2 to 6 inches long,—the lower ones on short *petioles*, the upper ones sessile. *Flowers* yellow, large, in a terminal leafy or bracteate *spike*. *Calyx* colored; *tube* cylindrical, 1 to 2 inches in length; *limb* dividing, reflected,—the segments partially cohering, and turned to one side; the limb, and tube above the ovary, caducous. *Capsule* an inch to an inch and half long.

Hab. Fields; fence-rows, &c.: frequent. *Fl.* July. *Fr.* Sept.

Obs. There are 3 or 4 *varieties* of this; one of which (*Oe. grandiflora, Ait.*), with very large flowers (frequent in gardens), it is interesting to observe, while its petals are expanding in the twilight of a summer's evening.

2. Œ. fruticòsa, *L.* Stem slender, rigid, purplish; leaves oblong-lanceolate, denticulate; capsule clavate, acutely 4-angled, pedicellate.

SHRUBBY OENOTHERA. Sun-drops.

Perennial? *Stem* 1½ to 3 feet high, simple or often branched from the base.—*Leaves* about 2 inches long, sessile. *Flowers* yellow, middle-size, in a terminal bracteate *raceme*. *Capsule* about half an inch long, the angles sometimes winged, tapering at base to an angular *pedicel* 1 to 3 or 4 lines in length.

Hab. Dry hills, and pastures: frequent. *Fl.* June. *Fr.* Aug.

Obs. This, also, presents some *varieties;* but the foregoing are probably the only *distinct species*, indigenous to the County.

132. GAURA, *L.*

[Gr. *Gauros*, superb; not particularly applicable to our plant.]

Calyx-tube much longer than the ovary. *Petals* lance-oblong, ascending, or turned to the upper side. *Anthers* oblong, incumbent. *Capsule* ovoid, ribbed, bony or nut-like, nearly indehiscent, 1- or few-seeded. *Seeds* not comose. *Leaves* alternate, sessile.

1. G. biénnis, *L.* Stem hairy; leaves oblong-lanceolate, acute, denticulate; capsule subsessile.

BIENNIAL GAURA.

Stem 2 to 4 or 5 feet high, hard, branching, often purple. *Leaves* 1 to 4 or 5 inches long, acute at each end, finally purple. *Flowers* at first reddish-white, at length purple, in terminal *spikes*,—beginning in dense corymbs, and gradually elongating. *Capsules* 1 third to half an inch long, quadrangular-ovoid.

Hab. Along the Schuylkill: rare. *Fl.* Aug. *Fr.* Octo.

†† PETALS *mostly* 4; stamens *as many*.

133. LUDWIGIA, *L.*

[In honor of *Christian Gottlieb Ludwig;* a German Botanist.]

Calyx-tube not any longer than the ovary; *segments* 4, more or less persistent. *Petals* sometimes wanting. *Capsule* quadrangular-obovoid, or oblong, many-seeded. *Perennials: flowers* axillary.

* Leaves *alternate;* petals 4.

1. L. alternifòlia, *L.* Stem erect; leaves lanceolate, subsessile; capsules quadrangular-obovoid, the angles winged.

Isnardia alternifolia. *DC. & Fl. Cestr. ed.* 2. *p.* 109.

ALTERNATE-LEAVED LUDWIGIA. Bastard Loose-strife. Seed-box.

Stem 2 to 3 feet high, much branched, often purplish. *Leaves* 2 to 3 inches long, acute, tapering at base. *Flowers* yellow; *calyx-segments* acuminate, deciduous; *petals* roundish-obovate, caducous. *Capsule* about ¼ of an inch in diameter,—the apex broad and convex, opening by a central foramen; *peduncle* the length of the capsule.

Hab. Wet meadows; along rivulets, &c.: frequent. *Fl.* July. *Fr.* Sept.

** Leaves *opposite*; petals *wanting, or minute*.

2. L. palústris, *Ell.* Stem procumbent, creeping; leaves ovate, petiolate; capsules oblong, obtusely 4-cornered.
Isnardia palustris, *L. & Fl. Cestr. ed.* 2. *p.* 109.
Marsh Ludwigia. Water Purslane.

Stem 6 to 12 and 18 inches long, succulent, purple, creeping (sometimes floating), branching. *Leaves* half an inch to an inch long, abruptly narrowed to a flat or winged *petiole* which is half an inch to three quarters in length. *Capsule* truncate, crowned with the persistent calyx-segments.
Hab. Ditches, and miry places: frequent. *Fl.* July. *Fr.* Sept.

††† Petals 2; stamens *as many*.

134. CIRCAE'A, *Tournef.*

[Named from *Circe*, the fabled Enchantress.]

Calyx-tube a little longer than the ovary; lobes 2, deciduous. *Petals* obcordate. *Capsule* turbinate, subcompressed, uncinately hirsute, 2-celled, 2-seeded. *Perennials: leaves* opposite, petiolate.

1. C. Lutetiàna, *L.* Leaves ovate or subcordate, acuminate, remotely toothed; bracts none.
Parisian Circaea. Enchanter's Nightshade.

Stem 12 to 18 inches high, simple, more or less pubescent. *Leaves* 1 to 2 or 3 inches long, thin; *petioles* ½ an inch to 2 inches in length. *Flowers* reddish-white, in slender virgate racemes, alternate and pedicellate; *pedicels* of the *fruit* reflexed.
Hab. Moist, shaded places: frequent. *Fl.* July. *Fr.* Aug.

Obs. Dr. Darwin, in his Botanic Garden, devotes a number of lines to the vulgar notions formerly connected with this plant. The following are the initiatory couplets:—

> "Thrice round the grave Circsea prints her tread,
> And chaunts the numbers which disturb the dead;
> Shakes o'er the holy earth her sable plume,
> Waves her dread wand, and strikes the echoing tomb!"

He informs us, in a note, that it "was much celebrated in the mysteries of witchcraft," &c. and remarks, that "the superstitious ceremonies or histories belonging to some vegetables have been truly ridiculous:"—such as those of the Druids with the Mistletoe,—the legend of the Mandrake,—the wearing of Paeony roots, as amulets,—and the use of the Hazel twig, or Divining Rod, in discovering ores, and fountains. He adds, that, in the very year when he was writing, "there were many in France, and some in England, who underwent an enchantment without any divining rod at all, and believed themselves to be affected by an invisible agent, which the Enchanter called Animal Magnetism!"

ORDER XXXIX. GROSSULÀCEAE.

Low *shrubs*, sometimes prickly; *leaves* alternate, palmately veined and lobed, exstipulate, or the petioles with stipular margins, ciliate and somewhat clasping at base; *calyx-tube* adherent to the ovary, the *border* 5-lobed, shriveling; *petals* 5, very small; *stamens* 5, inserted, alternately with the petals, on the calyx; *fruit* a 1-celled *berry*, with 2 parietal placentae; *seeds* numerous; *embryo* minute, at the base of hard *albumen*.

135. RIBES, *L.*

[An ancient *Arabic* name, of obscure meaning.]

Stamens short, often included. *Styles* 2, more or less united. Ripe *seeds* enveloped in a gelatinous coat.

* Stems *more or less aculeate*; peduncles 1- *to* 3-*flowered.*

1. R. UVA-CRÍSPA, L. Stem diffusely branching; berries solitary, oval, large, smooth, or hairy.
Goose-berry.

Stem 2 to 3 feet high. *Leaves* an inch or inch and half in length, and as wide as long, 3- to 5-lobed; *petioles* shorter than the leaves, often margined. *Peduncles* solitary or in pairs, often bracteate near the middle. *Flowers* pale greenish-yellow. *Berries* pendulous, greenish amber-color, when mature.
Hab. Gardens, &c. Nat. of Europe. *Fl.* April. *Fr.* July.

* * Stems *not aculeate*; flowers *in racemes.*

2. R. RÙBRUM, L. Stems slender, erect, sparingly branched; racemes smooth; calyx rotate; berries globose, mostly red.
RED RIBES. Red Currant.

Stems 2 to 4 feet high, growing in bunches, or clusters from the root. *Leaves* 1 to 2 or 3 inches long, rather wider than long, obtusely 3- to 5-lobed; *petioles* about as long as the leaves. *Racemes* from lateral buds, distinct from the leaves; *bracts* ovate. *Flowers* greenish-yellow. *Berries* sometimes pearly white.
Hab. Gardens, &c. Nat. of Europe. *Fl.* April. *Fr.* June.

3. R. NÌGRUM, L. Leaves resinous-dotted beneath; racemes hairy; calyx tubular-campanulate; berries roundish-ovoid, black.
BLACK RIBES. Black Currant.

Stems 3 to 5 feet high, in clusters from the root. *Leaves* 2 to 3 inches long, nearly as wide as long, 3- to 5-lobed; *petioles* shorter than the leaves. *Racemes* usually with a distinct single-flowered peduncle at base; *bracts* subulate. *Flowers* pale yellowish-green,—the *petals* sometimes changed into stamens, or *staminodia.*—*Berries* purplish black.
Hab. Gardens, &c. Nat. of Europe. *Fl.* April. *Fr.* July.

4. R. flóridum, *L.* Leaves resinous-dotted on both sides; racemes retrorsely pubescent; calyx tubular; berries ovoid-oblong, black.
FLOWERY RIBES. Wild Black Currant.

Stems 3 or 4 feet high, several from the root; branches often recurved. *Leaves* 1 to 2 inches in length, and as wide as long, acutely 3-lebed; *petioles* longer than the leaves, margined, and fringed or pubescent-ciliate near the base. *Racemes* about 3 inches long; *bracts* lance-linear. *Flowers* pale greenish-yellow.
Hab. Sandy banks; road-sides, &c.: frequent. *Fl.* May. *Fr.* July.

Obs. This is nearly allied to the Garden Black Currant. Two American species (from the far West) are cultivated as ornamental shrubbery; viz. *R. aureum, Ph.* or Missouri Currant, with yellow flowers of spicy clove-like fragrance,—and *R. sanguineum, Ph.* with deep crimson flowers.

ORDER XL. CUCURBITA'CEAE.

Herbaceous, mostly succulent vines, with tendrils; *leaves* alternate, palmately veined or lobed; *flowers* monoicous (sometimes dioicous); *calyx-tube* adherent to

the 1-3-celled *ovary*; *petals* 5, more or less united (often completely so); *stamens* 5 or 3, somewhat united, as well by their *tortuous anthers* as by the filaments; *fruit* (Pepo) usually fleshy, sometimes woody or membranous; *seeds* large, without *albumen*.

† Petals *connected at base, only*.

136. LAGENA'RIA, *Seringe*.

[Gr. *Lagenos*, a flagon, or bottle; from the shape of the fruit.]

Calyx-tube subturbinate; *segments* subulate-lanceolate. *Fruit* a woody *Pepo*; *seeds* obovate, 2-lobed at apex, with the margin tumid. Climbing *annuals*.

1. L. VULGÀRIS, Ser. Softly viscid-pubescent; leaves roundish-cordate, acuminate; fruit clavate-ventricose.

COMMON LAGENARIA. Calabash. Bottle Gourd.

Plant emitting a fetid musky odor; *stem* 10 to 15 or 20 feet long, slender, branching, climbing by 2- to 4-cleft *tendrils*. *Leaves* 4 to 6 or 8 inches long; *petioles* 2 to 6 inches long. *Flowers* white, with green nerves and veins, axillary, on long peduncles. *Fruit* 12 to 18 inches long, unequally biventricose, finally nearly hollow, or partially filled with the loose dry suberose *placentæ*,—the *rind*, or shell, becoming smooth, thin and hard. *Seeds* with a dry membranous *arillus*.

Obs. The firm woody shell, of the *fruit*, affords a convenient kitchen utensil,—for which the plant is cultivated, by cottagers and farmers who cannot afford, or do not choose, to purchase more costly ones. WILLDENOW seems to have had a high opinion of its value, in domestic economy. Under the head of *Usus*, he mentions "*Lagenae, Cochlearia, Infundibula, Pilei, innumeraque Utensilia.*" It might serve all these purposes, in a primitive state of society; but our people have generally got rather past that. There is occasionally cultivated, for the table, a cucurbitaceous fruit of extraordinary length, called "*vegetable marrow*,"—which seems to belong to *this species*, and may, perhaps, be the variety *clavata*, of SERINGE and DE CANDOLLE.

137. CU'CUMIS, *L.*

[Said to be derived from the Celtic, *Cucc*,—a hollow vessel.]

Calyx tubular-campanulate, 5-toothed. *Fruit* a fleshy *Pepo*; *seeds* white, lance-oblong, acute at base and on the margin. *Annuals*; *flowers* axillary, on short peduncles, yellow; *tendrils* simple.

1. C. MÈLO, L. Stem prostrate; leaves cordate-orbicular, somewhat angulate; fertile flowers perfect; fruit oval, or subglobose, torulose.

MELON CUCUMIS. Musk-Melon. Cantaleupe.

Hirsute and roughish. *Stem* 5 to 8 or 10 feet long, sparingly branched. *Leaves* 3 to 4 inches in length, and rather wider than long; *petioles* 2 to 3 inches long.—*Fruit* 4 to 6 inches in diameter, often longitudinally ridged (torulose),—the flesh, when mature, yellowish, succulent, and of a saccharine spicy flavor.

Hab. Gardens, &c. Nat. of Tartary, and the East. *Fl.* June. *Fr.* Aug.

2. C. SATI'VUS, L. Stem trailing or clambering; leaves angulate-lobed, the terminal lobe prominent; fruit oblong, obtusely trigonous, scabrous when young.

CULTIVATED CUCUMIS. Common Cucumber.

Rough and hispid. *Stem* 6 to 10 or 12 feet long, somewhat branching. *Leaves* 3 to 5 or 6 inches long, and nearly as wide as long, somewhat 5-angled and lobed; *petioles* 2 to 4 inches in length. *Fruit* 6 to 12 inches long, and 2 or 3 inches in diameter, rough with bristle-pointed tubercles while young,—smoothish, tawny-yellow, and pulpy when mature.

Hab. Gardens, &c. Nat. of Asia. *Fl.* June. *Fr.* Aug.

3. C. ANGU'RIA, L. Stem prostrate, slender; leaves sinuately palmate-lobed; fruit oval, echinate.

ANGURIA CUCUMIS. Prickly, or Jerusalem Cucumber.

Hirsute. *Stem* 3 to 6 feet long, branching. *Leaves* 3 or 4 inches in length, deeply sinuate-lobed; *petioles* 1 or 2 inches long. *Flowers* greenish-yellow. *Fruit* about an inch in diameter, strongly muricate, greenish when mature.

Hab. Gardens, &c. Nat. of Jamaica. *Fl.* July. *Fr.* Sept.

138. CITRUL'LUS, *Neck.*

[From *Citrus*, an orange; the pulp being mostly orange-red.]

Calyx 5-parted; *segments* linear-lanceolate. *Fruit* oval or roundish, fleshy,—the *placentae* very succulent. *Seeds* colored, flatly compressed, obovate-oblong, truncate at base, and obtuse on the margin. *Annuals: flowers* axillary, pale greenish-yellow; *tendrils* branched.

1. C. VULGA'RIS, Schrad. Stem trailing, rather slender; leaves 5-lobed, lobes sinuate-pinnatifid; fruit very smooth, stellate-maculate. Cucumis Citrullus. *Ser. & Fl. Cestr. ed.* 2. *p.* 553.

COMMON CITRULLUS. Water-Melon.

Hairy. *Stem* 8 to 12 or 15 feet long, angular, somewhat branching. *Leaves* 3 to 5 or 6 inches long, ovate in their outline; *petioles* 2 to 3 inches in length, generally erect. *Fruit* 10 to 20 inches long, with a firm fleshy *rind*, and, when mature, with a tender sweet watery frosty-looking or crystalized pulp within, which is usually purplish or reddish-orange color. *Seeds* black, or purplish brown.

Hab. Gardens, &c. Nat. of India and Africa. *Fl.* June. *Fr.* Aug.

Obs. There is a nearly allied plant, often seen in gardens, which bears a different *fruit*—known by the name of "*Citron*,"—the firm *rind* of which is used in making sweetmeats, or "Preserves." The *interior* is also firm, and does not become red, tender and watery, like the common Water Melon: yet the whole aspect of the plant, and external appearance of the fruit, so closely resemble this species, that I suppose it may be nothing more than a *variety*,—perhaps the *Var. Pasteca*, of SERINGE and DE CANDOLLE.

139. SIC'YOS, *L.*

[The ancient Greek name of the Cucumber.]

Calyx campanulate. *Fruit* ovate, compressed, dry and membranous, 1-seeded, beset with barbed prickly bristles. Climbing *annuals*, resembling the common *Cucumber-Vine: fruit* in capitate clusters.

1. S. angulàtus, *L.* Leaves angulate-5-lobed, cordate at base; fruit prickly and villous, in small dense pedunculate clusters.

ANGULATE SICYOS. Single-seeded Cucumber.

Viscid-pubescent. *Stem* 10 to 15 or 20 feet long, slender, branching; *tendrils* somewhat umbellately branched. *Leaves* 3 to 5 or 6 inches long, and about as wide as long; *petioles* 2 to 3 inches in length. *Flowers* greenish-white, clustered

on axillary *common peduncles* 1 or 2 to 4 or 5 inches in length,—the *staminate* ones corymbose-capitate, with the common peduncle longer; the *pistillate* ones in dense capitate clusters. *Fruit* compressed, ovate, in stellately-globose heads, which are about an inch in diameter, and armed with slender tawny spines.
Hab. Banks of Schuylkill: rare. *Fl.* July. *Fr.* Sept.

Obs. This Cucumber-like Vine has found its way into some gardens; where it is something of a nuisance, and rather difficult to get rid of. The *Balsam Apple* (*Momordica Balsámina, L.*), which belongs to this section, is sometimes seen in gardens; but is scarcely entitled to a place in our *Flora*—even among cultivated plants.

†† Petals *united with each other, and with the calyx.*

140. CUCUR'BITA, *L.*

[The Latinized Celtic name for a Gourd, or hollow vessel.]

Calyx-tube obovoid-clavate; *limb* circumscissed and deciduous. *Corolla* campanulate. *Fruit* fleshy, or finally subligneous. *Seeds* white, obovate, convexly compressed, the margin scarcely tumid.—Trailing *annuals: leaves* subcordate; *tendrils* branched; *flowers* yellow, axillary, subsolitary.

* Fruit *always fleshy* (PUMPKINS).

1. C. PÉPO, L. Leaves obtusely cordate, somewhat 5-lobed; flowers large; fruit of various forms, smooth.
Pumpkin.

Rough and hispid. *Stem* 10 to 20 feet long, sparingly branched. *Leaves* 9 to 15 inches long, on stout fistular *petioles* 4 to 6 or 8 inches in length. *Staminate flowers* often solitary, on a long peduncle. *Fruit* varying from depressed-globose to oval, oblong, or clavate and curved, of various sizes and colors,—the *rind* thick and fleshy, the cavity loosely filled with a stringy pulp.
Hab. Fields, and gardens. Nat. of the East. *Fl.* July. *Fr.* Octo.

Obs. The *fruit* of this is valuable for stock,—and some of the varieties excellent for the table. It is liable to be injuriously *hybridized*, when growing in the immediate vicinity of *Squashes*. I have had a crop of Pumpkins totally spoiled, by thoughtlessly planting Squashes among them: the fruit becoming hard, warty and woody,—unfit for the table, and unsafe to give to cattle.

** Fruit *finally subligneous* (SQUASHES).

2. C. MÉLOPEPO, L. Leaves somewhat 5-angled; fruit orbicular and much depressed (clypeate), smoothish, the margin often tumid.
Cymling. Round, or Patty-pan Squash.

Hirsute. *Stem* 8 to 12 or 15 feet long, somewhat branching; *tendrils* sometimes transformed or developed into imperfect leaves. *Leaves* 6 or 8 inches in length; *petioles* as long as the leaves. *Fruit* 3 to 6 or 8 inches in diameter, of various colors, sometimes warty.
Hab. Gardens, &c. Nat. country uncertain. *Fl.* July. *Fr.* Octo.

Obs. Cultivated for the table. The name, "*Cymling*," is Southern,—and may, perhaps, be a corruption of *Cymbaline*, from a resemblance in the *form* of the fruit to that of a *Cymbal*.

3. C. VERRUCÒSA, L. Leaves 5-lobed, the middle lobe narrowed at base; fruit oblong, or clavate and curved, warty.

WARTY CUCURBITA. Warted, or Long-necked Squash.

Hirsute. *Stem* 10 to 15 feet long, somewhat branching. *Leaves* 8 to 10 inches long; *petioles* nearly as long. *Fruit* of varying form and color.

Hab. Gardens, &c. Nat. country unknown. *Fl.* July. *Fr.* Octo.

Obs. Cultivated as the preceding,—to which it is nearly allied.

ORDER XLI. CRASSULÀCEAE.

Mostly succulent or fleshy *herbs; leaves* alternate, or subverticillate, flat, or terete, chiefly sessile; *stipules* none; *flowers* usually cymose, perfectly symmetrical (i. e. the parts all equal in numbers), except that the number of *stamens* is sometimes doubled; *sepals* imbricated in the bud (rarely wanting); *carpels* follicular, opening along the inner suture; *embryo* in thin *albumen*.

141. SE'DUM, *L.*

[Latin, *sedeo*, to sit; the plants often sitting on nearly naked rocks.]

Sepals and *petals* mostly 5: *Stamens* twice as many. *Carpels* distinct, each with a little *scale* at base. *Seeds* numerous. *Leaves* thick and fleshy.

1. S. ternàtum, *Mx.* Leaves flat,—the lower ones spatulate, ternately verticillate,—the upper ones lance-oblong, scattered; cymes 3-spiked, with the 1-sided flowers octandrous and the solitary central flower decandrous.

TERNATE SEDUM. Stone-crop. Purslane-leaved House-leek.

Perennial. Stems 2 to 4 or 5 inches long, branching from the base, spreading, assurgent. *Leaves* half an inch to an inch long, a little produced at base. *Branches of the cyme* 1 to 3 inches in length, spreading or recurved; *flowers* white; *anthers* purplish-black.

Hab. Shaded rocky banks; Ridley Creek: rare. *Fl.* May. *Fr.* June.

142. PENTHO'RUM, *Gronov.*

[Gr. *Pente*, five, and *oros*, a prominence; alluding to the erect carpels.]

Sepals 5. *Petals* mostly wanting. *Stamens* 10. *Carpels* united at base, forming a 5-beaked 5-celled capsule; *cells* opening transversely. *Seeds* numerous. *Leaves* thin, scattered.

1. P. sedoides, *L.* Leaves lanceolate, serrate; cyme spreading; flowers secund, racemose-spiked.

SEDUM-LIKE PENTHORUM. Virginian Stone-crop.

Perennial. Stem 12 to 18 inches high, erect, with a few angular branches above. *Leaves* 2 to 4 inches long. *Racemes* 1 to 2 inches long, circinate; *flowers* yellowish-green.

Hab. Swampy places; along rivulets, &c.: frequent. *Fl.* July. *Fr.* Sept.

ORDER XLII. SAXIFRAGÀCEAE.

Herbs, or *shrubs; leaves* alternate, or opposite; *stipules* mostly none, or the base of the petioles dilated and stipule-like; *sepals* 4 or 5, persistent, more or less connected with each other, and often partially adherent to the ovary; *petals* as many as the sepals, rarely wanting; *stamens* as many, or more commonly twice as many, as the petals, and inserted with them on the calyx; *pistils* usually 2, cohering at base, and separate at summit; *fruit* capsular, mostly 2-beaked, with septicidal dehiscence, many-seeded; *embryo* in the axis of fleshy *albumen*.

SUBORDER I. SAXIFRA'GEAE.

Perennial herbs; calyx mostly adherent to the base of the ovary; *petals* imbricated in the bud.

§ 1. Leaves *mostly alternate.* † Petals 5, *entire.*

143. SAXIF'RAGA, *L.*

[Latin, *Saxum*, a rock, and *frango*, to break; often growing in the clefts of rocks.]

Calyx 5-parted. *Stamens* 10. *Capsule* 2-celled,—or rather 2 connate follicles, opening between the beaks.

☞ Leaves *chiefly all radical;* flowers *on a scape, cymose-paniculate.*

1. S. Virginiénsis, *Mx.* Leaves oval-spatulate with a broad petiole, crenate-dentate; calyx slightly adherent to the ovary, not half as long as the white petals.

VIRGINIAN SAXIFRAGA. Early Saxifrage.

Leaves an inch or inch and half long, thickish; *petioles* half an inch to an inch and half in length. *Scape* 4 to 12 inches high.

Hab. Rocky banks; woodlands, &c.: frequent. *Fl.* April. *Fr.* June.

2. S. Pennsylvánica, *L.* Leaves oblanceolate, obsoletely toothed; calyx free, nearly as long as the greenish-yellow petals.

PENNSYLVANIAN SAXIFRAGA. Tall, or Swamp Saxifrage.

Leaves 4 to 6 or 8 inches long, rather thin; *petioles* 1 to 2 inches in length, margined, ciliate. *Scape* 2 to 3 (sometimes 4 or 5) feet high; *cymes* at first in conglomerate heads, finally rather loose, in an open panicle 12 to 18 inches in length.

Hab. Swampy meadows: frequent. *Fl.* May. *Fr.* July.

144. HEUCHE'RA, *L.*

[Named in honor of *John Henry Heucher*, a German Botanist.]

Calyx 5-cleft. *Stamens* 5. *Capsule* 1-celled, with 2 parietal placentae, 2-beaked, opening between the beaks. *Seeds* numerous, roundish-oval, not wing-margined. *Leaves* radical, on long petioles; *scape* mostly leafless, tall.

1. H. Americàna, *L.* Hairy and viscid; leaves roundish-cordate, somewhat 7-lobed; panicle loose; stamens finally much exserted.

AMERICAN HEUCHERA. Alum-root.

Leaves 1 to 3 or 4 inches in length, and as wide as long; *petioles* 2 to 8 or 10 inches long. *Scape* 2 to 4 feet high (often 2 or 3 from the same root), rather slender. *Raceme* 6 to 12 or 15 inches long, thyrsoid or paniculate; *pedicels* half an inch to an inch or more in length, dichotomous, or often in threes. *Flowers* small, whitish, with a tinge of purple.

Hab. Thickets; fence-rows, &c.: frequent. *Fl.* May. *Fr.* Aug.

Obs. The *root* of this plant is considerably astringent; and is one of the *Indian* remedies, reputed to cure cancers, and other ill-conditioned ulcers.

†† Petals 5, *pinnatifid.*

145. MITEL'LA, *Tournef.*

[Diminutive of *Mitra;* the capsule resembling a *little mitre.*]

Calyx 5-cleft, short. *Stamens* 10, included. *Capsule* short, roundish, 2-valved at summit. *Seeds* erect, at the base of the capsule.—

Leaves mostly radical, on long petioles,—those on the *scape* opposite and sessile.

1. M. diphyl'la, *L.* Leaves cordate, acute, somewhat 3- 5-lobed, unequally dentate; scape 2-leaved, many-flowered.
TWO-LEAVED MITELLA. Bishop's Cap. Mitre-wort.

Radical leaves ½ to 3 inches long; *petioles* 2 to 6 inches long. *Scape* 12 to 18 inches high (often several from the same root), slender. *Flowers* white, a little distant, in a simple *raceme*, 4 to 8 inches in length; *petals* deeply pinnatifid toward the apex, entire and cuneate at base. *Seeds* obovoid, purplish black, smooth and shining.
Hab. Rich woods; along Brandywine: frequent. *Fl.* April. *Fr.* June.

§ 2. Leaves *mostly opposite;* petals *wanting.*

146. CHRYSOSPLE'NIUM, *Tournef.*

[Gr. *Chrysos*, gold, and *Splen*, spleen; figuratively, a *golden remedy* for the spleen.] *Calyx* 4- or 5-cleft; *segments* obtuse. *Stamens* 8 or 10, inserted on a fleshy *disk*. *Capsule* 2-lobed, very short, 1-celled, 2-valved at top. Succulent prostrate *subaquatic* plants.

1. C. Americànum, *Schweinitz.* Stems slender, diffusely spreading; leaves roundish-ovate, obscurely crenate-lobed; calyx mostly 4-cleft, and stamens 8.
AMERICAN CHRYSOSPLENIUM. Golden Saxifrage. Water-Carpet.

Smooth and purplish green. *Stem* 4 to 8 or 10 inches long, with short axillary opposite branches toward the base, dichotomously branching near the summit.—*Leaves* ⅓ to ¾ of an inch long, and generally wider than long, abruptly narrowed to a short flat *petiole*. *Flowers* sessile, terminal, axillary and dichotomal, appearing somewhat corymbose on the short terminal branches; *anthers* reddish-orange color. *Seeds* hispid.
Hab. Shaded rocky rivulets, and springs: frequent. *Fl.* April. *Fr.* June.

SUBORDER II. HYDRAN'GEAE.

Shrubs; leaves opposite, petiolate; *calyx-tube* entirely adherent to the ovary; *petals* valvate in the bud.

147. HYDRAN'GEA, *Gronov.*

[Gr. *Hydor*, water, and *Angeion*, a vase; from the form of the capsules].
Calyx-tube hemispherical, 8- to 10-ribbed; *border* 4- or 5-toothed. *Stamens* 8 or 10. *Capsule* 2-celled, 2-beaked, opening between the beaks; *seeds* oblong, striate. *Flowers* cymose, of 2 forms,—the marginal ones often radiate and abortive.

1. H. arboréscens, *L.* Leaves oblong-ovate, acuminate, serrate, obtuse or subcordate at base; cymes flat; flowers nearly all fertile.
H. vulgaris, *Mx. & Fl. Cestr. ed.* 2. *p.* 269.
ARBORESCENT HYDRANGEA. Wild Hydrangea.

Stem 4 to 6 feet high, with opposite branches. *Leaves* 3 to 6 inches long; *petioles* 1 to 2 inches in length. *Cymes* terminating the young branches, pubescent, rarely radiate; *flowers* white or ochroleucous.
Hab. Banks of Schuylkill: rare. *Fl.* July. *Fr.* Sept.

ORDER XLIII. HAMAMELÀCEAE.

Shrubs; leaves alternate, simple; *stipules* deciduous; *calyx* adherent to the base of

the ovary; *pistils* 2, united at base; *capsule* woody, 2-beaked, opening at summit, 2-celled below; *seeds* bony, 1 in each cell; *embryo* surrounded by fleshy *albumen*.

148. HAMAME'LIS, *L.*

[Gr. *Hama*, with, or like, and *melis*, an apple-tree; application not obvious.]

Flowers in little axillary clusters, with an *involucre* of 3 scale-like leaflets: *calyx* 4-parted, with 2 or 3 *bractlets* at base. *Petals* 4, long and linear. *Stamens* 4, perfect and alternate with the petals, with as many intervening scale-like *staminodia*. *Capsule* loculicidal, opening elastically.

1. H. Virginica, *L.* Leaves obovate or oval, sinuate-dentate, subcordate at base, stellately pubescent.

VIRGINIAN HAMAMELIS. Witch-Hazel.

Stem 6 to 10 or 12 feet high, with straggling flexuose or geniculate branches.—*Leaves* 4 to 6 inches long; *petioles* about half an inch in length. *Flowers* greenish-yellow, clustered in threes, on a *common peduncle* near half an inch long; *petals* narrow, linear, a little crisped, about ¾ of an inch in length. *Seeds* black and shining.

Hab. Moist woods, and thickets: frequent. *Fl.* Octo. *Fr.* Sept. the next year!

Obs. The twigs of this native shrub have furnished a capital substitute for the *Divining Rod*, of Europe,—with which crafty operators were wont to impose upon the credulous.

ORDER XLIV. UMBELLIF'ERAE.

Herbs; flowers in (usually *involucrate*) *umbels; calyx-tube* entirely adherent to the ovary; *petals* 5; *stamens* 5, inserted (alternately) with the petals, on the *disk* that crowns the *ovary* and surrounds the base of the 2 *styles; fruit* consisting of 2 seed-like dry *carpels;** *seeds* solitary, suspended; *embryo* minute, in the apex of copious horny *albumen*. *Stems* usually hollow; *leaves* alternate, generally much dissected, *exstipulate*, but the *petioles* more or less dilated and sheathing at base.

The plants of this Order are much less numerous in our country, than in the old world. Of the 28 species here described, 9 have been introduced,—and of these, 6 or 7 are cultivated.

* The *carpels* of the *umbelliferae* are usually marked with a definite number of longitudinal *ribs*, which are sometimes dilated into *wings;* the intervals, or *channels*, between the ribs—as also the *commissure* (or face, by which the carpels are joined)—often contain one or more linear receptacles of aromatic oil,—which receptacles are called *vittae*, or fillets. Those *ribs* on the carpels, are distinguished into *primary*, and *secondary*. The *primary* ones (10 in number on the 2 carpels—or 5 on each,) are pretty constant, and more or less conspicuous,—representing the *midribs* and *sutures* of the 5 sepals, which, by their union, form the tube of the calyx and coating of the fruit. The 5 ribs which answer to the *midribs* of the sepals, are termed *carinal ribs*, and their extension at apex forms the 5 calyx-teeth. Alternating with these primary ribs, there is sometimes a development of *secondary* ones,—which Prof. DE CANDOLLE regards as representing *lateral nerves* (i. e. one on each side of the midrib) of the sepals. The *ribs* and *vittae*—together with the form, or manner of *compression*, of the fruit—afford important aid in determining the *generic character* of the plants of this remarkably natural family: and consequently, the student, or young herborizer, should always bear in mind that it is requisite to have specimens of *umbelliferae* with *full-grown fruit*.

SUBORDER I. ORTHOSPER'MAE.

Inner face (commissure) of the carpels straight and flat.

§ 1. UMBELS *simple or imperfect, sometimes proliferous.*

149. HYDROCOT'YLE, *Tournef.*

[Gr. *Hydor*, water, and *kotyle*, a cavity; the leaves being sometimes a little concave.]

Calyx-teeth obsolete. *Fruit* laterally compressed, orbicular; *carpels* 5-ribbed,—the lateral or intermediate ribs enlarged, often forming a thickened margin; *vittæ* none. Smooth creeping marsh *perennials: flowers* minute, white.

1. H. Americàna, *L.* Leaves thin, orbicular, obscurely 7- or 9-lobed, doubly crenate; umbels 3- to 6-flowered, subsessile.

AMERICAN HYDROCOTYLE. Marsh Pennywort.

Stem 6 to 12 inches long, procumbent, very slender, flexuose, with filiform runners from the axils of the leaves. *Leaves* an inch or inch and half in diameter, rather wider than long; *petioles* 1 to 2 inches in length, resembling the stem; *umbels* opposite the petioles.

Hab. Moist shaded places: frequent. *Fl.* July. *Fr.* Sept.

2. H. ranunculoides, *L.* Leaves thickish, roundish-reniform, somewhat 5-lobed, crenate; umbels 5- to 10-flowered, pedunculate.

RANUNCULUS-LIKE HYDROCOTYLE.

Stem 4 to 8 or 10 inches long, creeping and throwing out verticils of long fibres. *Leaves* about ¾ of an inch long and nearly an inch wide, 3-lobed, with the lateral segments partially 2-lobed; *petioles* 1 or 2 to 6, and sometimes 10 or 12, inches long. *Pedicels* of the flowers short; *common peduncles* 1 to 2 inches in length.

Hab. Wet places; along Schuylkill; E. Nottingham: rare. *Fl.* July. *Fr.* Sept.

Obs. H. umbellàta, L. will probably be found along the Schuylkill, within this County: but, so far as I know, it has not yet been detected.

§ 2. UMBELS *or* UMBELLETS *capitate, imperfect:* calyx-lobes *large;* flowers *often sterile.*

150. SANIC'ULA, *Tournef.*

[Latin, *sanare*, to heal; from its supposed virtues.]

Flowers polygamous: *Calyx-teeth* conspicuous. *Fruit* globular; *carpels* not ribbed, cohering, densely beset with hooked bristles; each carpel with 5 *vittæ*. Erect *perennials: leaves* palmate-lobed,—radical ones on long petioles; *involucre* and *involucels* few-leaved.

1. S. Canadénsis, *L.* Leaves 3- 5-parted; sterile flowers few, on short pedicels; styles shorter than the bristles of the fruit.

See S. Marilandica. *Fl. Cestr. ed.* 2. *p.* 184.

CANADIAN SANICULA. Sanicle.

Stem about 1 foot high. *Radical leaves* somewhat pentagonal in their outline; *segments* 1 to 2 inches long, obliquely ovate, often cuneate at base, sessile, generally glaucous; *petioles* 3 to 5 inches in length: *stem-leaves* mostly 3-parted, upper ones subsessile. *Flowers* white; *fruits* about 3 in each umbellet.

Hab. Dry woodlands: frequent. *Fl.* June. *Fr.* August.

2. S. Marilándica, *L.* Leaves 5- 7-parted; sterile flowers numerous, on slender longish pedicels; styles elongated, recurved.

MARYLAND SANICULA.

Stem about 2 feet high. *Radical leaves* 3- or 5-parted to the base, with the lateral segments deeply 2-parted; *segments* 2 or 3 to 5 inches long, lance-oblong or cuneate-

obovate, often narrowed to a petiole at base,—the *common petiole* 6 to 12 inches or more in length. *Flowers* white (or sometimes greenish-*yellow!*); *fruits* several in each umbellet.

Obs. Though nearly allied to the preceding, I think this may justly be regarded as a distinct species. It also presents a *variety*, with dullish *yellow* flowers.

§ 3. UMBELS *perfectly compound.*

a. Fruit *beset with bristly prickles;* carpels *scarcely compressed.*

151. DAU'CUS, *Tournef.*

[From *Daukos*, the ancient Greek name.]

Calyx 5-toothed. *Corolla* irregular. *Fruit* ovoid-oblong; *primary ribs* slender, ciliate; *secondary ribs* winged, bristly-pectinate, each covering a single *vitta*. *Biennials: leaves* multifid; *umbels* finally concave, involucrate.

1. *D. Carôta*, L. Stem hirsute; leaves bi-tri-pinnatifid; involucre nearly as long as the umbel.

CAROT DAUCUS. Wild Carrot. Garden Carrot.

Plant greyish-green, hispidly pilose. *Root* fusiform, yellowish or orange-color, large and fleshy under culture. *Stem* 2 to 3 or 4 feet high, sulcate-striate, rather slender, branching. *Leaves* pinnatifidly dissected; *segments* half an inch to an inch long, much incised; *petioles* ½ an inch to 2 inches in length, sulcate above.—*Umbels* on long naked peduncles, level-topped when in flower, concave in fruit.—*Flowers* white or ochroleucous, occasionally with purplish tinge,—the *central floret* of the umbel often dark purple and abortive. *Fruit* very hispid,—the prickles on the secondary ribs somewhat barbed.

Hab. Fields, roadsides, &c. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. This foreigner is extensively naturalized, and becoming a troublesome *weed*,—from the culpable negligence of our farmers.—The *var.* SATIVA, DC. or common Garden Carrot, is cultivated as a culinary vegetable,—and sometimes for farm stock.

b. Fruit *smooth.* † Carpels *dorsally much compressed.*

* Margins *of the fruit single-winged.*

152. HERACLE'UM, *L.*

[Dedicated to *Hercules;* when LINNAEUS must have been in the "Ercles' vein."]

Fruit broadly wing-margined; *carpels* slenderly 5-ribbed, the lateral ones close to the margin; *vittae* clavate, shorter than the carpels.—Stout *perennials: leaves* large, ternately dissected; *petioles* broad and sheathing; *umbels* large, flat; *involucre* few-leaved, deciduous; *involucels* many-leaved.

1. H. lanàtum, *Mx.* Woolly; stem sulcate; segments of the leaves broad, palmate-lobed, subcordate at base.

WOOLLY HERACLEUM. Cow-Parsnep.

Stem 4 to 6 or 8 feet high, branched above. *Segments of the leaves* 4 to 10 or 12 inches in length, and as wide as long,—the middle one often 3-lobed; *petioles* 1 to 4 inches long. *Umbels* sometimes a foot or more in breadth,—the *rays* 2 to 6 inches long. *Involucels* of 5 or 8 leaves, which are lanceolate, with a long slender acumination. *Flowers* white.

Hab. Low grounds; along Brandywine: frequent. *Fl.* May. *Fr.* July.

153. PASTINA'CA, *Tournef.*

[Latin, *Pastus*, food; from the use made of the root.]

Fruit wing-margined; *carpels* ribbed as in *Heracleum; vittae* linear, as long as the carpels, one in each *channel*, and 2, or more, on the *commissure*. Chiefly *biennials*, with fusiform roots: *leaves* odd-pinnately dissected; *umbels* flat, spreading; *flowers* yellow; *involucre* and *involucels* none, or few-leaved.

1. P. SATI'VA, L Smooth; stem sulcate; leaflets ovate-oblong, incised-dentate, the terminal one 3-lobed.

CULTIVATED PASTINACA. Parsnep. Garden Parsnep.

Plant yellowish-green. *Root* large and fleshy, with proper culture. *Stem* 3 to 5 feet high, stout, and somewhat branching. *Leaflets* in 3 to 5 rather distant sessile pairs, with a terminal petiolate odd one,—each 2 to 4 inches in length; *petioles* of the radical leaves 9 to 15 inches long. *Fruit* oval, emarginate, yellowish; *vittae* dark purple.

Hab. Gardens, &c. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This plant—so generally cultivated for its fine esculent root—produces many seeds, and is apt to stray from the gardens into the fields, and along fences,—where it speedily degenerates, and, if neglected, becomes a troublesome unsightly *weed.*

154. ARCHEM'ORA, *DC.*

[Named from *Archemorus*,—who, it is said, died from eating Parsley.]

Fruit broadly margined; *carpels* with 5 equidistant obtuse ribs,—the lateral ones dilated into the margin; *channels* with single *vittae*; *commissure* with 2 or more *vittae*. Smooth *perennials: leaves* odd-pinnately dissected,—the *leaflets* nearly entire, rather rigid; *flowers* white; *involucre* nearly none; *involucels* many-leaved.

1. A. rigida, *DC.* Stem terete, striate; leaflets 3 to 9, oblong-lanceolate or sublinear, often subfalcate, sparingly incised-dentate near the apex.

RIGID ARCHEMORA. Cow-bane.

Stem 2 to 4 or 5 feet high, rather slender, sparingly branched. *Leaflets* 2 to 4 inches long; *petioles* 1 to 5 or 6 inches in length. *Umbels* about 3, on long peduncles. *Involucels* of 6 or 8 subulate-linear leaflets. *Fruit* oval; *channels* filled to convexity by the dark-purple *vittae; commissure* slightly concave, lined with a white suberose coat.

Hab. Low, swampy grounds: frequent. *Fl.* Aug. *Fr.* October.

Obs. This plant has the reputation of being poisonous to cattle, when eaten by them,—which, however, I suspect it rarely is, unless the pasture is very deficient.

** Margins *of the fruit double-winged.*

155. ARCHANGEL'ICA, *Hoffm.*

[So named, from its supposed extraordinary virtues.]

Fruit elliptic; *carpels* each 3-ribbed on the back, the lateral ribs dilated into marginal wings; *seed* separating from the coating; *vittae* numerous. Often stout *perennials: leaves* bi-tri-ternately dissected; *involucre* scarcely any; *involucels* many-leaved.

1. A. atropurpùrea, *Hoffm.* Stem large, smooth, dark pur-

ple; leaflets unequally incised-serrate; umbels globose, smoothish.
Angelica atropurpurea. *L. & Fl. Cestr. ed. 2. p.* 193.
A. triquinata. *Mx.* and *Bigel.* not of *Nutt. DC. Hook. &c.*
DARK-PURPLE ARCHANGELICA.

Stem 4 to 6 feet high, and 1 or 2 to near 3 inches in diameter at base, hollow, somewhat branching above. *Leaflets* 2 to 5 inches long, ovate; *petioles* very broad, and inflated. *Umbels* finally globose, 6 to 10 or 12 inches in diameter; *umbellets* globose, 1 to 2 inches in diameter; *flowers* greenish-white.
Hab. Moist, low grounds; Brandywine: frequent. *Fl.* May. *Fr.* July.

2. A. hirsùta, *Torr. & Gr.* Stem rather slender, striate, hoary-villous at summit; leaflets equally serrate; umbels spreading, tomentose.
Angelica triquinata. *Nutt. DC. Hook. & Fl. Cestr. ed. 2. p.* 193. not of *Mx.*
HIRSUTE ARCHANGELICA.

Stem 2 to 4 or 5 feet high, and ¼ to ½ an inch in diameter, simple, purple below. *Leaflets* 1 to 2 or 3 inches long, ovate-oblong; *petioles* dilated and clasping at base. *Flowers* white.
Hab. Clearings; borders of woods, and thickets: frequent. *Fl.* July. *Fr.* Sept.

Obs. It appears, from the researches of Prof. A. GRAY, that this is *not* the *A. triquinata* of MICHAUX,—and that Dr. BIGELOW is correct.

†† Carpels *not flattened; each with* 5 *winged or prominent ribs.*

156. THAS'PIUM, *Nutt.*

[Name modified from *Thapsia*,—an allied genus, native of *Thapsos.*]

Fruit ovoid; *carpels* with 5 equidistant winged ribs; *channels* with single *vittae.* Yellowish-green *perennials: leaves* ternately dissected; *involucre* none; *involucels* few-leaved; *flowers* yellow, or rarely dark purple.

* Wings *of the carpels unequal.*

1. T. barbinòde, *Nutt.* Stem sulcate-angled, hairy at the nodes; radical leaves triternately dissected; segments cuneate-ovate, incised-serrate.
NODE-BEARDED THASPIUM. Meadow Parsnep.

Stem about 2 feet high, somewhat branched, smooth, with a short, rather coarse and dense pubescence at the nodes, and base of the petioles. *Stem-leaves* mostly biternate; *leaflets* 1 to 2½ inches long. *Umbels* terminal and dichotomal; *involucels* of 3 or 4 subulate-linear leaves; *flowers* deep yellow; *fruit* linear-elliptic.
Hab. Borders of woods; meadows, &c.: frequent. *Fl.* June. *Fr.* Aug.

** Wings *of the carpels equal.*

2. T. aùreum, *Nutt.* Stem angular, smooth at the nodes; leaves biternately dissected; segments oblong-lanceolate, finely serrate.
Zizia aurea. *Koch.? & Fl. Cestr. ed. 2. p.* 185.
GOLDEN THASPIUM.

Stem 1½ to 2 feet high, somewhat branched above. *Leaflets* 1 to 2 inches long; *petioles* of the radical leaves 6 to 9 inches in length. *Umbels* generally opposite the leaves; *involucels* of 3 or 4 lance-linear leaves; *flowers* yellow; *fruit* oval.
Hab. Borders of woods, near W. Chester: rare. *Fl.* May. *Fr.*

Obs. The plant which I have taken for this, is becoming so rare, and my specimens are so defective, that I may be mistaken in it.—The *T. atropurpùreum, Nutt.* may probably yet be found along the Schuylkill, within this County; but it has not, thus far, been detected.

††† Carpels *laterally compressed, or contracted; ribs not winged.*

157. ZIZ'IA, *Koch.*

[Dedicated to *J. B. Zizii;* a German Botanist, collaborator of *Koch.*]

Fruit oval; *carpels* contracted at the junction so as to appear didymous; *ribs* 5, nearly equal; *channels* with 1 to 3 *vittae.* Mostly smooth, yellowish-green *perennials,*—with yellow *flowers,* and a general resemblance to *Thaspium.*

1. Z. cordàta, *Koch.* Radical leaves undivided, cordate, crenate-dentate; stem-leaves ternately dissected; segments ovate, serrate; ribs of the carpels conspicuous; vittae single.

CORDATE ZIZIA. Heart-leaved Alexanders.

Stem 1 to 2 feet high, somewhat branched above, sometimes pubescent. *Radical leaves* 1 or 2 to 4 inches long, and nearly as wide as long, somewhat glaucous beneath; *petioles* 3 to 9 inches in length. *Stem-leaves* 3-parted, on short petioles, the upper ones sessile. *Umbels* terminal and axillary, on *peduncles* 2 to 6 inches long. *Hab.* Open woods, and borders of thickets: frequent. *Fl.* May. *Fr.* July.

2. Z. integérrima, *DC.* Leaves all bi-tri-ternately dissected; leaflets ovate-oblong, very entire; ribs of the carpels inconspicuous; vittae 3 in each channel.

VERY ENTIRE ZIZIA.

Whole plant glabrous. *Stem* 1½ to 2 feet high, slightly branching above, and sometimes from the base, purplish when young. *Leaflets* 1 to near 2 inches long; *common petioles* dilated, ribbed, and purplish. *Umbels* mostly terminal, on *peduncles* 3 to 6 inches long; *rays* very slender, 1 to 3 inches long, spreading, some of them often divaricate.

Hab. Rocky hills: not common. *Fl.* May. *Fr.* July.

158. BUPLEU'RUM, *Tournef.*

[Gr. *Bous,* an Ox, and *Pleuron,* a rib, or side; but the application is obscure.]

Fruit ovate-oblong; *carpels* somewhat didymous in appearance, 5-ribbed; *channels* with or without *vittae. Annuals,* or *perennials: leaves* simple, mostly entire; *flowers* greenish-yellow; *involucre* sometimes none; *involucels* various.

1. *B. rotundifòlium,* L. Leaves roundish-ovate, very entire, perfoliate; involucre none; involucels of 5 ovate mucronate leaflets, longer than the umbellets; vittae none.

ROUND-LEAVED BUPLEURUM. Thorough-wax.

Annual; smooth; *stem* 1 to 2 feet high, branching. *Leaves* 1 to 3 inches long, rather acute, rounded at base, glaucous beneath. *Umbels* terminal, 5- to 9-rayed. *Fruit* crowned with the disk-like base of the styles, which has a shining waxy appearance; *ribs* filiform.

Hab. Gardens, and waste places. Nat. of Europe. *Fl.* June. *Fr.* Aug.

159. CICU'TA, *L.*

[The ancient Latin name of the Hemlock.]

Fruit subglobose; *carpels* with 5 flattish equal *ribs; channels* with

single prominent *vittae*. Smooth marsh *perennials: leaves* triternately dissected; *involucre* mostly none; *involucels* many-leaved; *flowers* white.

1. C. maculàta, *L.* Stem spotted or streaked; leaflets ovate-lanceolate, acuminate, mucronately serrate, the nerves running to the notches.

SPOTTED CICUTA. Water Hemlock.

Stem 4 to 6 feet high, branching, striate with green and purple, or yellowish brown. *Leaflets* 2 to 3 inches long, petiolulate; *common petioles* often with a membranaceous margin produced into 2 lobes at summit. *Umbels* terminal and axillary; *ribs* of the carpels rather broad,—the *channels* reddish brown, filled with aromatic oily matter.

Hab. Margins of swampy rivulets: frequent. *Fl.* July. *Fr.* Sept.

Obs. The mature *fruit* of this plant has a strong anisate odor.—The *root* is poisonous; and the lives of children, and others, are often endangered and sometimes destroyed by eating it, in mistake for that of the *Sweet Cicely* (*Osmorrhiza longistylis*, *DC.*). The *herbage* is also said to be destructive to cattle, when eaten by them:—all which serves to show the importance of sufficient Botanical knowledge, among the people, to enable them to understand, and avoid or extirpate the evil.

160. SI'UM, *L.*

[Supposed to be from the Celtic, *Siu*, water,—its usual habitat.]

Fruit orbicular-ovate, flattish at the sides; *carpels* with 5 equal prominent obtuse *ribs; vittae* numerous. Aquatic or marsh *perennials: leaves* odd-pinnately dissected; *involucre* and *involucels* many-leaved; *flowers* white.

1. S. latifòlium, *L.* Stem sulcate-angled; leaflets 9 to 13, oblong-lanceolate, incised-serrate, sometimes pinnatifid, unequal at base, sessile, the terminal one petiolulate, often 3-lobed.

BROAD-LEAVED SIUM. Water Parsnep.

Stem 2 to 4 or 5 feet high, stout, angular, with broad furrows, smooth, yellowish-green, much branched. *Leaflets* 2 to 4 inches long, varying from linear-lanceolate to ovate-lanceolate, tapering to an acute point. *Umbels* spreading, of numerous unequal rays; *fruit* crowned with a conspicuous yellowish *disk*.

Hab. Swamps, and margins of streams: frequent. *Fl.* July. *Fr.* Sept.

Obs. A nearly allied plant, with very narrow, sublinear leaflets, has been found along the Schuylkill, on the northern side of the County, which, probably, is the *S. linearе*, of *Mx.* but I have not had an opportunity to examine it, satisfactorily.

161. CRYPTOTAE'NIA, *DC.*

[Gr. *Kryptos*, hidden, and *Tainia*, a fillet; the *vittae* being concealed.]

Fruit linear-elliptic; *styles* subulate, persistent; *carpels* with 5 equal obtuse *ribs; vittae* slender, 1 in each *channel*, and 1 concealed under each *rib*. A smooth *perennial: leaves* mostly trifoliolate, thin; *umbels* unequally rayed, subpaniculate; *involucre* none; *involucels* few-leaved; *flowers* white.

1. C. Canadénsis, *DC.* Leaflets rhombic-ovate to lanceolate, acute, doubly and sharply incised-serrate, subsessile.

CANADIAN CRYPTOTAENIA. Hone-wort.

Stem about 2 feet high, rather slender, branched above. *Leaflets* 2 to 4 inches long, serrate to the very petiole. *Umbels* terminal and subterminal, somewhat in pairs. *Carpels* with linear flattish *ribs; channels* dark brown; *vittae* visible only in a transverse section of the carpels.

Hab. Woods, and shaded places: frequent. *Fl.* June. *Fr.* Aug.

Obs. This is a comparatively harmless native weed,—frequent in shaded places about dwellings: But, there is a *foreigner*, with something of its general habit and aspect (viz. *Aegopòdium Podagrària, L.*), which has been introduced into some lots and gardens, in *Germantown*, near Philadelphia,—and proves to be a *nuisance*, not easily abated. It has hitherto resisted all attempts to get rid of it; and Sir J. E. SMITH, in his *Flora Britannica*, says of it—"*radix repens, vix exstirpanda.*" In DON'S *General System of Gardening and Botany*, it is also remarked of the *Aegopodium*, that "being a great creeper, it cannot be admitted into gardens, for after it gets hold it is next to impossible to eradicate it again." P. COLLINSON, writing to JOHN BARTRAM, says, "it is a notorious running weed in the garden." A plant of such character (and worthless beside,) deserves to be studied, and watched that it may be avoided.

162. A'PIUM, *L.*

[From the Celtic, *Apon*, water; near which it naturally grows.]

Fruit orbicular; *stylopodium* (base of the styles) depressed; *carpels* with 5 filiform equal ribs; *carpophore* (central axis of the fruit) undivided; *vittae* single, or 2 or 3 in the outer *channels*. *Leaves* pinnately dissected; *involucre* and *involucels* none; *flowers* greenish-white.

1. A. GRAVÈOLENS, L. *var.* DULCE, DC. Lower leaves on long stout petioles; segments cuneate, lobed.

STRONG-SCENTED APIUM. Celery.

Biennial; smooth. *Stem* 2 to 3 feet high, branching. *Radical leaves* on stout channelled *petioles* 6 to 12 inches, or more, in length; *stem-leaves* on short petioles. *Umbels* terminal and axillary,—the axillary ones subsessile.

Hab. Gardens, &c. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. The *petioles*, when blanched, become succulent and tender; and are a favorite salad. The *var.* RAPACEUM, DC. or *Turnep-rooted Celery*, is also cultivated by amateurs.

163. PETROSELI'NUM, *Hoffm.*

[Gr. *Petra*, rock, and *Selinum*,—Rock Selinum; from its native habitat.]

Fruit ovate; *stylopodium* conical, short; *carpels* with 5 equal *ribs; carpophore* 2-parted; *channels* with single *vittae*. *Leaves* decompound; *involucre* few-leaved; *involucels* many-leaved; *flowers* greenish-white.

1. P. SATI'VUM, Hoffm. Lower leaflets cuneate-ovate, trifid and incised-dentate,—upper ones linear-lanceolate and nearly entire; involucels subulate-filiform.

CULTIVATED PETROSELINUM. Parsley.

Biennial; smooth. *Stem* 2 to 4 feet high, streaked with green and yellow, branched. *Leaves* shining green,—the lower ones much dissected. *Umbels* pedunculate; *involucre* often of a single linear leaf.

Hab. Gardens, &c. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. The *var.* CRISPUM, DC. or *Curled Parsley*, is also frequent in gardens.

164. CA'RUM, *L.*

[Said to be from *Caria*,—the native country of the plant.]

Fruit ovate-oblong; *stylopodium* depressed; *carpels* with 5 filiform equal *ribs*; *carpophore* bifid; *vittae* single. Mostly *perennials:* smooth; *leaves* pinnately dissected; *segments* multifid; *involucre* and *involucels* various,—sometimes wanting; *flowers* white.

1. C. CÁRUI, L. Leaves bipinnatifid, the segments linear; involucre 1-leaved or none; involucels none.

CARIAN CARUM. Common Caraway.

Biennial? (*perennial, DC.*). *Stem* about 2 feet high, branched. *Radical leaves* rather large; *stem-leaves* multifid. *Fruit* oblong, or elliptic, often oblique at apex. *Hab.* Gardens. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. Cultivated, occasionally, for its highly aromatic *fruit.*

165. FŒNIC'ULUM, *Adans.*

[Latin, diminutive of *Foenum*, hay,—from a similarity of odor.]

Fruit elliptic-oblong, subterete; *stylopodium* conical; *carpels* with 5 prominent obtuse *ribs*; *vittae* single. *Perennial?* (*biennial*, DC.): smooth; *leaves* pinnatifidly decompound; *segments* filiform; *involucre* and *involucels* none; *flowers* yellow.

1. F. VULGÀRE, Gaertn. Stem terete at base; leaves biternately dissected,—the segments subulate-linear, elongated; umbels many-rayed.

COMMON FŒNICULUM. Fennel. Garden Fennel.

Stem 4 to 6 feet high, branching, striate-grooved, purplish-green and somewhat glaucous. *Segments of the leaves* an inch to an inch and half long, almost filiform, the subdivisions often dichotomous; *common petioles* much dilated, sheathing, produced into 2 marginal lobes at summit. *Umbels* of numerous unequal rays. *Hab.* Gardens, &c. Native of Europe. *Fl.* July. *Fr.* Sept.

Obs. The whole plant is highly aromatic. Those who kept *Bees*, in former years, were much in the practice, when those insects *swarmed*—(after ringing the frying-pan, to make them *settle!*)—of rubbing the inside of the *Hive* with this fragrant herb, under the impression that the odor would attach them to their new domicil.—The *F. dulce*, or Sweet Fennel—with the *stem* subcompressed at base, and the *umbels* fewer-rayed—is sometimes, though rarely, to be seen in our gardens.

SUBORDER II. CAMPYLOSPER'MAE.

Inner face of the carpels grooved lengthwise, or the margins curved in.

166. CHAEROPHYL'LUM, *L.*

[Gr. *Chairo*, to gladden, and *Phyllon*, a leaf; the leaves having a pleasant odor.]

Fruit linear-oblong, slightly beaked, contracted at the sides; *carpels* with 5 equal obtuse smooth *ribs*; *channels* with single *vittae*. *Leaves* decompound,—the *segments* lobed, or toothed; *involucre* none, or few-leaved; *involucels* many-leaved; *flowers* chiefly white.

1. C. procúmbens, *Lam.* Stems slender, spreading; segments of the leaflets lance-oblong, rather obtuse; umbels opposite the leaves, few-rayed.

PROCUMBENT CHAEROPHYLLUM. Wild Chervil.

Annual; somewhat hairy, especially when young. *Stem* 6 to 12 or 15 inches long, mostly oblique or procumbent, branching. *Leaves* bipinnately decompound; *segments* more or less bristly-ciliate. *Umbels* on *peduncles* 1 to 3 inches long; *rays* about 3, sometimes fewer; *fruit* dark brown.

Hab. Moist, shaded grounds; Brandywine: not common. *Fl.* April. *Fr.* June.

167. OSMORRHIZA, *Rafin.*

[Gr. *Osme*, odor, and *rhiza*, a root; from its sweet anisate root.]

Fruit linear-oblanceolate, angular, tapering at base, contracted at the sides; *styles* persistent; *carpels* with 5 acute upward-bristly *ribs; vittae* none. *Perennials: roots* thick, and aromatic; *leaves* biternately dissected; *involucre* and *involucels* few-leaved; *umbels* about 4-rayed; *flowers* white.

1. O. longistylis, *DC.* Root strongly anisate; stem rather slender, hoary-pubescent, often purple; leaflets oblong-ovate, incised-serrate; styles filiform, as long as the ovary.

LONG-STYLED OSMORRHIZA. Sweet Cicely.

Stem 2 to 3 feet high, solid with pith, branching. *Radical leaves* 1 or 2, on pubescent purple *petioles* 9 to 12 inches in length. *Umbels* mostly in pairs, or terminating the forked extremities of the stem and branches, sometimes axillary, on *peduncles* 2 or 3 to 6 inches long; *fruit* about half an inch long, tapering to a bristly *stipe*, at base.

Hab. Rich, moist, rocky woods: frequent. *Fl.* May. *Fr.* Aug.

2. O. brevistylis, *DC.* Stem pale green, smoothish below; leaflets pinnatifidly incised; styles conical, not half as long as the ovary.

SHORT-STYLED OSMORRHIZA.

Root of a sweetish, mawkish taste,—something like that of *Aralia nudicaulis, L. Stem* about 2 feet high, mostly fistular, branching. *Leaves* and *umbels* nearly as in the preceding.

Hab. Moist, rich grounds: not common. *Fl.* May. *Fr.* Aug.

168. CONIUM, *L.*

[From *Koneion*, the Greek name of the Hemlock.]

Fruit ovate, flattened at the sides; *stylopodium* dilated at base; *carpels* with 5 equal prominent wavy-crenulate *ribs*,—the *inner face* with a deep narrow groove; *vittae* none. *Biennials: leaves* large, tripinnately decompound; *involucre* few-leaved; *involucels* halved or unilateral, about 3-leaved; *umbels* spreading, many-rayed; *flowers* white.

1. *C. maculàtum,* L. Smooth; stem rather stout, terete, spotted; leaflets lanceolate, pinnatifid; involucels shorter than the umbellets.

SPOTTED CONIUM. Poison Hemlock.

Plant bluish-green and sometimes glaucous. *Root* fusiform or often forked, fleshy and whitish. *Stem* 2 to 4 (sometimes 6 or 8) feet high, branched, fistular, striate with green and yellow, often spotted with dark purple. *Fruit* somewhat

gibbous, crowned with the dilated base of the diverging styles; *carpels* with the *faces* inclining to separate between the base and apex; *channels* brown.
Hab. Waste places. Nat. of Europe. *Fl.* June. *Fr.* Sept.

Obs. This foreigner is naturalized about some old settlements; and being a powerful narcotic *poison*, it ought to be known wherever it exists. It is supposed, indeed, to be the very herb with which the ancient Greeks put their philosophers and statesmen to death, when they got tired of them. The *root* is said not to be poisonous.

SUBORDER III. CŒLOSPER'MAE.

Inner face of the carpels hollowed transversely, or the base and apex curved inward.

169. CORIAN'DRUM, *Hoffm.*

[Gr. *Koris*, a bug; the bruised leaves having the odor of a bed-bug.]

Fruit globose; *stylopodium* conical; *carpels* closely cohering; *ribs* broad, obsolete; *channels* without *vittae*. Mostly *annual:* smooth; *leaves* bipinnately dissected; *involucre* 1-leaved or none; *involucels* halved, about 3-leaved; *umbels* few-rayed; *flowers* white, or tinged with red before expanding.

1. C. SATI'VUM, L. Segments of the lower leaves broadly cuneate, of the upper ones narrow and linear; carpels hemispherical.
CULTIVATED CORIANDRUM. Coriander.

Stem 1 to 2 feet high, slender, somewhat branched at summit. *Umbels* spreading, 3- to 5-rayed; *umbellets* of numerous short unequal rays; *carpels* very concave on the face, cohering by their margins so as to form apparently a simple globose fruit; *commissure* with 2 *vittae* in a loose membrane.
Hab. Gardens. Nat. of Tartary. *Fl.* June. *Fr.* Aug.

Obs. Occasionally cultivated for its aromatic *fruit*. Notwithstanding the offensive odor of the fresh herb, Prof. DE CANDOLLE states that the Tartars prepare a favorite *potage* from it. His words are—"Herba recens in deliciis habetur et ex eâ *jusculum* conficitur, undè ubiquè in hortis Tataricis culta." *Prodr.* 4. *p.* 250. It would probably require a *Tartar palate* to relish soup, prepared with herbage which has the "odor of a bed-bug!"

ORDER XLV. ARALIÀCEAE.

Herbs, or *shrubs; leaves* alternate, mostly compound, without *stipules; flowers* in simple umbels, or compound umbellulate racemes; *calyx-tube* adherent to the ovary; *petals* mostly 5, valvate in the bud; *stamens* as many as the petals, and alternate with them; *ovary* of 2, 3, 5, or more, connate carpels (with as many *styles*), becoming baccate or drupaceous in *fruit*,—sometimes nearly dry; *seeds* solitary, appended to the apex of each cell (or carpel); *embryo* in the apex of fleshy *albumen*.

170. ARA'LIA, *L.*

[Derivation of the name unknown; supposed of Canadian origin.]

Flowers mostly perfect: *calyx* mostly 5-toothed. *Petals* 5. *Styles* 5, finally divaricate. *Fruit* berry-like, often torulose, or 5-lobed. *Perennial herbs*, or *shrubs: flowers* greenish-white.

† Stems *herbaceous*.

1. A. racemòsa, *L.* Stem widely branching, smooth; leaves ternately and quinately decompound, doubly serrate; leaflets cor-

date-ovate; racemes axillary, compound, paniculately umbellulate; involucels small.

RACEMOSE ARALIA. Spikenard.

Root thick, aromatic. *Stem* 3 to 5 feet high, rather stout, with spreading and somewhat dichotomous branches. *Leaflets* 3 to 6 or 8 inches long, slightly hairy, mostly petiolulate. *Berries* small, not torulose, dark purple when mature.

Hab. Rich woods; Brandywine hills: not common. *Fl.* July. *Fr.* Sept.

Obs. This is often introduced into gardens. The *root* and *berries*, infused in alcohol, made a favorite Tincture, in times past, for those who indulged in the perilous habit of taking such stomachics. JOHN BARTRAM, in his appendix to SHORT'S *Medicina Britannica*, printed at Philadelphia, 1751, says the plant was called "*Wild Liquorice.*"

2. A. nudicaùlis, *L.* Stem very short; leaf mostly solitary, subradical, triquinate; leaflets ovate or oblong-oval, serrate; umbels simple, 3 on a naked scape; involucre none.

NAKED-STEM ARALIA. Sarsaparilla.

Root creeping, thickish and long, somewhat aromatic, but mawkish. *Stem* scarcely more than the crown of the root. *Leaf* on an erect *petiole* 6 to 12 inches long, 3-parted at summit,—each division 2 to 4 or 5 inches in length, and bearing 5 odd-pinnate subsessile leaflets. *Scape* 4 to 6 or 8 inches high, divided at summit into 3 smoothish *peduncles* about 2 inches long, each bearing a naked many-flowered globose umbel an inch or inch and half in diameter. *Berries* larger than the preceding, torulose, purplish-black when mature.

Hab. Rich, rocky woodlands: frequent. *Fl.* May. *Fr.* July.

Obs. The *root* of this is sometimes used as a substitute for the *Sarsaparilla*, of the shops (a species of *Smilax*). I believe both the original, and the *substitute*, to be rather *innocent* medicines,—*provided* the disease be not serious!

†† Stems *suffruticose, or woody.*

3. A. hispida, *Mx.* Stem suffruticose and bristly at base; leaves bipinnate; leaflets lance-ovate, incised-serrate; umbels axillary and terminal, on long peduncles.

HISPID ARALIA.

Stem 18 inches to 2 feet high, slender, shrubby at base, and hispid with rigid tawny bristles,—subherbaceous, hirsute, and somewhat paniculately branched above. *Leaflets* 1 to 2 inches long, sessile; *petioles* dilated at base, more or less hispid. *Umbels* corymbose, on branching *peduncles* 2 or 3 to 6 inches in length; *involucre* of numerous subulate leaflets.

Hab. Hills, along Schuylkill: rare. *Fl.* June. *Fr.*

Obs. The mature *fruit*, of this species, I have not seen. The *A. spinòsa*, *L.* or Angelica Tree—a stout prickly shrub, with thick club-like branches, and large bipinnately compound leaves—is occasionally to be seen about old settlements, where it has been introduced.

171. PA'NAX, *L.*

[Gr. *Pan*, all, and *akos*, a remedy; being a supposed *Panacea.*]

Flowers sometimes dioicous: *calyx-teeth* obsolete. *Petals* 5. *Styles* 2 or 3. *Fruit* drupe-like and succulent, or subcoriaceous and nearly dry, 2- or 3-lobed, 2- or 3-celled. *Perennial herbs* (in this County):

leaves compound, usually verticillate in threes at the summit of the stem; *umbel* simple, terminal, pedunculate; *flowers* yellowish-green, or white.

1. P. quinquefòlium, *L.* Root fusiform; leaflets mostly in fives, obovate; styles 2; fruit compressed, reniform or bigibbous, succulent, 2-celled.

FIVE-LEAVED PANAX. Ginseng.

Root 3 to 6 inches long, and about half an inch in diameter, often forked, rugose, whitish. *Stem* 9 to 18 inches high, simple, angular, smooth. *Petioles* 3 or 4 inches long. *Leaflets* unequal,—the 3 principal ones 3 to 5 inches in length, the lateral ones much smaller; *petiolules* ¼ of an inch to an inch long. *Umbel* many-flowered, the central flowers often abortive. *Fruit* drupaceous, shining crimson when mature.

Hab. Rich woods; Brandywine: rare. *Fl.* July. *Fr.* Sept.

Obs. This plant is interesting, as having afforded an article of some commercial importance, in our trade with *China*,—rather than from any inherent virtues.

2. P. trifòlium, *L.* Root globular; leaflets in threes, or sometimes fives, lance-oblong; flowers dioicous; styles 3; fruit trigonous-ovoid, subcoriaceous and dry, 3-celled.

THREE-LEAVED PANAX. Dwarf Ginseng.

Root a globose tuber about half an inch in diameter, rather deep in the ground. *Stem* 4 to 6 or 8 inches high. *Petioles* half an inch to an inch long. *Leaflets* unequal, half an inch to 2 or 3 inches in length, nearly sessile. *Staminate umbel* many-flowered; *pistillate umbel* fewer-flowered (the flowers rarely *perfect*). *Fruit* somewhat 3-lobed, rugose, pale greenish-yellow when mature.

Hab. Moist shaded grounds: frequent. *Fl.* April. *Fr.* May.

Obs. The *pistillate* plant is usually larger than the *staminate* one.

ORDER XLVI. CORNA'CEAE.

Shrubs, or *small trees* (rarely *herbaceous branches* from a *woody rhizoma*); *leaves* mostly opposite, simple and entire, petiolate, without *stipules*; *calyx-tube* adherent to the ovary; *petals* 4, valvate in the bud; *stamens* 4, inserted with the petals on the margin of the *disk* which crowns the ovary; *style* 1; *fruit* drupaceous, mostly 2-celled, 2-seeded; *embryo* nearly as long as the fleshy *albumen*.

172. COR'NUS, *Tournef.*

[Latin, *Cornu*, a horn; perhaps from the horny toughness of the wood.]

Calyx minutely 4-toothed. *Petals* oblong, spreading. *Drupes* berry-like, globose, or oval; *nut* 2- or 3-celled. *Shrubs*, or *small trees*, in this County.

† Flowers *cymose*; involucre *none*; fruit *globose*.

1. C. alternifòlia, *L.* Branches greenish; leaves somewhat alternate, oval, hoary beneath; drupes bluish black.

ALTERNATE-LEAVED CORNUS.

Stem 10 to 15 or 20 feet high; branches irregularly alternate, spreading, streaked with oblong white warts. *Leaves* about 3 inches long; *petioles* about an inch in length. *Flowers* yellowish-white, in depressed spreading cymes.

Hab. Moist thickets; fence-rows, &c.: frequent. *Fl.* May. *Fr.* Aug.

2. C. sericea, *L.* Branches purplish; leaves elliptic-ovate, ferruginous-silky beneath; drupes bright palish blue.
SILKY CORNUS. Red-rod. Swamp Dogwood.

Stems 6 to 10 feet high, slender; young branches and petioles lanuginous. *Leaves* 2 to 5 inches long; *petioles* half an inch to an inch in length. *Cymes* woolly-pubescent; *flowers* yellowish-white. *Drupes* often roundish-obovoid.
Hab. Margins of streams, and swamps: frequent. *Fl.* June. *Fr.* Octo.

3. C. paniculàta, *L'Herit.* Branches grey, erect; leaves ovate-lanceolate, glaucous beneath; cymes paniculate; drupes white.
PANICLED CORNUS. White Dog-wood.

Stem 4 to 6 or 8 feet high; branches slender, smooth. *Leaves* 2 to 3 inches long; *petioles* ¼ to half an inch in length. *Flowers* white, in thyrsoid panicles, which elongate in fruit. *Drupes* depressed-globose, white, with a leaden tinge when mature.
Hab. Thickets, and fence-rows: not common. *Fl.* June. *Fr.* Octo.

† † Flowers *in capitate clusters, with a 4-leaved* involucre; fruit *oval.*

4. C. flórida, *L.* Arborescent; leaves ovate, pubescent when young; leaves of the involucre retuse or obcordate; drupes red.
FLOWERING CORNUS. Common Dogwood.

Stem 15 to 20 (sometimes 30 to 40) feet high; the young branches often verticillate in fours. *Leaves* 3 to 5 inches long, becoming crimson in autumn; *petioles* about ½ an inch in length. *Involucre* about 3 inches in diameter, when expanded, —the leaves in opposite pairs, sessile, white and petal-like, sometimes tinged with purple. *Flowers* greenish-yellow.
Hab. Woodlands: very common. *Fl.* May. *Fr.* Septem.

Obs. The *wood* of this small tree is very close-grained and firm, and valuable for many purposes in mechanics. Cabinet-makers sometimes employ it, in the manufacture of small articles of *furniture,*—in which, my friend Dr. ELWYN assures me, it is very beautiful. The woodman selects it as the best material for wooden *wedges.* The young straight *stems* make good *hoops,* for the cooper; and the slender *verticillate branches* once furnished *distaffs* for *Spinsters,*—in the "good old times," when that description of females had a practical existence in the community. The *bark* is an excellent tonic,—almost rivaling the *Cinchona,* in efficacy. A century since, according to KALM, there was so much faith in the virtues of the Dogwood, that "when the cattle fall down in spring, for want of strength, the people tie a branch of this tree on their neck, thinking it will help them!" Altogether—and without any joke—it is a valuable as well as ornamental little tree,—worthy of a place in lawns and yards.—Observing farmers have remarked, that the proper time to plant Indian Corn (*Zea Mays, L.*) is when the *involucres* of the Dogwood are first developed.

DIVISION II. GAMOPET'ALOUS EXO'GENOUS PLANTS.

FLORAL ENVELOPES usually consisting of both calyx and corolla,—*the petals more or less united.**

ORDER XLVII. CAPRIFOLIA'CEAE.

Shrubs, or rarely *herbaceous; leaves* mostly opposite, and without *stipules; calyx-tube* adherent to the ovary; *stamens* usually as many as the lobes of the *corolla*, and inserted on its tube; *ovary* 2- to 5- celled; *fruit* berrylike, or capsular; *embryo* in the axis of fleshy *albumen*.

TRIBE 1. LONICE'REAE.

Corolla tubular, often irregularly lobed; *style* long, filiform; *stigma* capitate.

173. LONICE'RA, *L.*

[Dedicated to the memory of *Adam Lonicer*, an old German Botanist.]

Calyx-teeth very short. *Corolla* often irregularly 5-lobed, and sometimes gibbous at base. *Ovary* 2- or 3-celled. *Berry* several-seeded. Twining or upright *shrubs: leaves* often connate; *flowers* axillary.

☞ TWINING SHRUBS: leaves *entire, upper ones connate;* flowers *in axillary verticils, more or less fragrant;* calyx-teeth *persistent*; corolla *ringent.*

1. L. gràta, *Ait.* Leaves sub-perennial, obovate, 2 or 3 upper pairs connate, the lower ones subpetiolate; corolla not gibbous at base, tube long.

AGREEABLE LONICERA. American Woodbine. Wild Honeysuckle.

Stem 10 to 15 or 20 feet long, branching, the young branches often pilose. *Leaves* 1 to 2 or 3 inches long, rather obtuse and often slightly emarginate, glaucous and reticulately veined beneath. *Flowers* in verticils of about 6, in the axils of the upper connate leaves; *corolla* externally red or purplish, the *limb* at first nearly white, soon becoming tawny yellow,—the *tube* an inch or more in length, tapering to the base, and somewhat resembling a *Cornucopia*, smooth within. *Stamens* exserted, about equalling the *style*. *Berries* orange red, at maturity.

Hab. Moist, rocky woods; along streams: not common. *Fl.* May. *Fr.* July.

Obs. This species bears considerable resemblance to the common cultivated species (*L. Caprifòlium, L.*),—though the flowers have a rather stronger and less agreeable odor. *Honeysuckles* have always been favorite plants, for decorating arbors, and porticos; and are much frequented by the exquisitely beautiful little Humming-bird. They are thus alluded to, by SHAKSPEARE:—

> "And bid her steal into the pleached bower,
> Where *Honeysuckles*, ripen'd by the sun,
> Forbid the sun to enter;—like favorites,
> Made proud by Princes, that advance their pride
> Against that power that bred it."

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* Some instances of *dialypetalous flowers* occur in this Division, in ORDER LIV. ERICACEAE (viz: in the genus *Clethra*, and Suborders, PYROLEAE and MONOTROPEÆ). The petols are also *nearly distinct*, in the genera *Ilex* and *Prinos*, of the ORDER LV. AQUIFOLIACEÆ.

The plants belonging to ORDER XL. CUCURBITACEÆ although often *gamopetalous*, will be found in the *dialypetaloos division*; also some of the ORDER XXXIV. LEGUMINOSÆ,—as in *Trifolium*, &c. Our native species of *Fraxinus*—belonging to ORDER LXXIV. OLEACEÆ, and arrangod at the end of the GAMOPETALÆ—are *destitute of petals.*

Doctor DARWIN, also, refers to the delightful genus, in the following lines:—

"Fair LONICERA prints the dewy lawn,
And decks with brighter blush the vermil dawn;
Winds round the shadowy rocks, and pansied vales,
And scents with sweeter breath the summer gales;
With artless grace and native ease she charms,
And bears the horn of plenty in her arms."

2. L. parviflòra, *Lam.* Leaves deciduous, oblong, upper pair connate, all others closely sessile; corolla gibbous at base, tube short.

SMALL-FLOWERED LONICERA.

Stem 6 to 8 or 10 feet long, somewhat twining, branches smooth. *Leaves* 2 to 3 or 4 inches long, obtuse, very glaucous beneath. *Flowers* generally in single terminal pedunculate *heads*, which are composed of 2 or 3 verticils: *corolla* yellowish, with tinges of purple externally,—the *tube* about half an inch long, gibbous near the base on the lower side, hairy within. *Stamens* somewhat exserted, a little shorter than the *style*. *Berries* reddish orange, when mature.

Hab. Banks of the Schuylkill: rare. *Fl.* May. *Fr.* July.

174. DIERVIL'LA, *Tournef.*

[Named after *M. Dierville*, a French Surgeon, who sent it to Tournefort.]

Calyx-tube bibracteate at base, tapering at summit; *segments* subulate. *Corolla* nearly regularly 5-lobed. *Capsule* ovoid-oblong, 2-celled, 2-valved, septicidal, many-seeded. Upright slender *shrubs*: *leaves* petiolate, serrate; *peduncles* cymose, axillary and terminal.

1. D. trifida, *Moench.* Leaves ovate, acuminate, smooth; peduncles subterminal, mostly 3-flowered; capsule acuminate.

D. Canadénsis, *Willd. & Fl. Cestr. ed.* 2. *p.* 157.

TRIFID DIERVILLA. Bush Honeysuckle.

Stem 2 to 3 feet high, branching; branches smooth, often slightly quadrangular. *Leaves* 2 to 5 inches long, ciliate; *petioles* ¼ to ½ an inch in length. *Peduncles* in the axils of the superior leaves, half an inch to an inch long, 2- to 3-flowered; *pedicels* bracteate at base. *Corolla* greenish-yellow.

Hab. Rocky woodlands: frequent. *Fl.* June. *Fr.* Sept.

175. TRIOS'TEUM, *L.*

[*Gr. Treis*, three, and *Ostem*, a bone; from its 3 bony seeds, or nuts.]

Calyx-tube ovoid; *segments* lance-linear, foliaceous, persistent. *Corolla* gibbous at base, nearly equally 5-lobed. *Berry* drupaceous, rather dry, 3-celled, with 3 bony 1-seeded *nuts*. *Perennial hairy herbs*: *leaves* sub-connate, entire, tapering at base; *flowers* axillary, sessile, bracteate.

1. T. perfoliàtum, *L.* Softly hairy; leaves spatulate-ovate, abruptly narrowed at base; axils 1- to 3-flowered; flowers dark brownish-purple.

PERFOLIATE TRIOSTEUM. Horse Gentian. Wild Coffee.

Stem 2 to 3 or 4 feet high, simple, somewhat viscid while young. *Leaves* 4 to 6 or 7 inches long, and 2 to 3 or 4 inches wide, often narrowed almost to a petiole at base, but always connate, the margin ciliate-pubescent. *Corolla* about half an inch long, viscid-pubescent. *Berry* oval, orange color when mature.

Hab. Rocky woods; fence-rows, &c.: frequent. *Fl.* May. *Fr.* Sept.

Obs. The *root* of this plant was formerly somewhat noted, as an *Indian* medicine; but is now neglected. JOHN BARTRAM (in the Appendix to SHORT's *Medicina Britannica,*) says, it is "called in our Northern Colonies *Dr. Tinker's Weed;* in Pennsylvania, *Gentian;* and to the Southward, *Fever-root.*"

2. T. angustifòlium, *L.* Bristly hairy; leaves lanceolate, tapering to the base; axils mostly 1-flowered; flowers greenish-yellow, sometimes tinged with purple.
NARROW-LEAVED TRIOSTEUM.

Stem 1 to 2 feet high, simple, rather slender, clothed with spreading and somewhat bristly hairs. *Leaves* 2 to 4 inches long, and ¾ to 1½ inches wide, the long tapering base narrowed almost to a margined petiole, scarcely connate,—the margins of the leaves, bracts, and calyx-segments, ciliate-hairy. *Corolla* about ½ an inch long, rather slender, glandular-pubescent.
Hab. East Nottingham: rare. *Fl.* May. *Fr.*

Obs. Collected in 1852, by Mr. EVAN PUGH, of East Nottingham. This is probably the northern limit of the species.

TRIBE 2. SAMBUCEAE.

Corolla rotate, regularly and deeply 5-lobed; *stigmas* mostly 3, sessile. *Inflorescence* cymose, or thyrsoid.

176. SAMBUCUS, *Tournef.*

[Gr. *Sambuke,* a musical instrument, said to have been made of Elder.]

Calyx-segments minute. *Fruit* a globular berry-like juicy *drupe,* containing 3 or 5 seed-like *nutlets.* Mostly *shrubs,* with large *pith; leaves* odd-pinnately dissected; *leaflets* serrate, or laciniate; *flowers* white.

1. S. Canadénsis, *L.* Leaflets 7 to 11, oblong, acuminate, smooth, petiolulate; cymes flat, 5-parted; fruit purplish black.
CANADIAN SAMBUCUS. Elder-bush. Common Elder.

Stem 5 to 8 or 10 feet high, suffruticose, and finally woody, nodose, branching.—*Leaflets* 2 to 4 inches long, usually 3 pairs and an odd one.
Hab. Thickets; fence-rows, &c.: common. *Fl.* June. *Fr.* Aug.

Obs. This is a rather troublesome plant, to the farmer,—the long roots being very tenacious of life, and inclined to spread extensively along fence-rows and hedges, and even into the fields.

2. S. pùbens, *Mx.* Leaflets 5 to 7, ovate-lanceolate, sometimes pubescent beneath; cymes at first convex, finally conical, or thyrsoid; fruit bright red.
DOWNY SAMBUCUS. Red-berried Elder.

Stem 3 or 4 to 10 or 15 feet high, rather more woody than the preceding, branching. *Leaflets* 3 to 5 inches long,—usually 2 pairs and an odd one; *flowers* greenish-white,—often purple, externally.
Hab. Thickets; W. Nottingham: rare. *Fl.* April. *Fr.* June.

Obs. This species—so common on our mountains, and so remarkable for its thyrsoid inflorescence, and scarlet berries, which are ripe by the time the other is in flower—has been detected in the South-western extremity of the County, by Mr. NATHAN MILNER,—as I learn from my friend JOSHUA HOOPES. In specimens which I have growing, the leaflets are quite *smooth* on both sides.

177. VIBUR'NUM, *L.*

[A classical *Latin* name; etymology obscure.]

Calyx 5-toothed. *Fruit* a 1-celled 1-seeded *drupe*, with scanty *pulp*, and a crustaceous more or less flattened *nut*. *Shrubs: leaves* simple, petiolate; *flowers* usually white, in flat compound mostly terminal *cymes*.

1. V. nùdum, *L.* Leaves lance-oblong, thickish, nearly entire, ferruginous-dotted beneath; cymes on naked peduncles; drupes ovoid, acute.

NAKED VIBURNUM.

Stem 4 to 6 or 8 feet high, slender, branched. *Leaves* 2 to 3 or 4 inches long, varying to oval and obovate; *petioles* about half an inch long, and, with the *peduncles*, covered with a ferruginous scaly pubescence. *Drupes* deep blue when mature, punctate with white scaly dots.

Hab. Great Valley, and Valley hills: rare. *Fl.* May. *Fr.* Sept.

Obs. The *variety, Cassinoides*, of TORREY and GRAY (*V. pyrifolium, Pursh.*),—with obovate-lanceolate and rather smaller leaves—was found in the South-western part of the County, in 1851, by Mr. JOSHUA HOOPES.

2. V. prunifòlium, *L.* Leaves broadly ovàl, thinnish, serrulate; petioles with narrow even margins; cymes sessile on lateral spurs; drupes compressed, oblong-oval.

PLUM-LEAVED VIBURNUM. Black Haw.

Stem 8 to 12 or 15 feet high, much branched. *Leaves* 1 to 2 inches long, smooth and shining above; *petioles* ⅓ to half an inch long. *Drupes* about ½ an inch long, bluish-black when mature, sweetish and esculent.

Hab. Fence-rows, and thickets: frequent. *Fl.* May. *Fr.* October.

3. V. Lentàgo, *L.* Leaves lance-ovate, acuminate, sharply serrate; petioles with wavy margins; cymes sessile, somewhat corymbose, terminal; drupes oval, slightly compressed.

Stem 15 to 20 feet high, branching. *Leaves* 2 to 4 inches long; *petioles* half an inch to an inch long, dilated at base. *Drupes* larger than the preceding, bluish-black, and sweetish, when mature.

Hab. Chester Creek; Wynn's meadows: not common. *Fl.* May. *Fr.* Octo.

4. V. dentàtum, *L.* Leaves orbicular-ovate, coarsely dentate; petioles not margined; cymes pedunculate; drupes subglobose, mucronate.

DENTATE VIBURNUM. Arrow-wood.

Stem 8 to 10 or 12 feet high, branching, the young branches virgate, angular.—*Leaves* 2 to 3 inches in length, and generally as wide as long, often subcordate at base; *petioles* about ¾ of an inch long, and, with the *peduncles*, tomentose-pubescent with branching hairs. *Drupes* dark blue, when mature.

Hab. Low grounds; along rivulets: frequent. *Fl.* June. *Fr.* Septem.

5. V. acerifòlium, *L.* Leaves subcordate, 3-lobed, unequally incised-dentate; drupes oval, compressed, mucronate.

MAPLE-LEAVED VIBURNUM. Maple-leaved Arrow-wood.

Stem 2 or 3 to 5 feet high, slender, somewhat branched. *Leaves* 3 to 5 inches long, and nearly as wide as long, 3-lobed at apex, the lateral lobes shorter and di-

verging; *petioles* about an inch in length, with 2 filiform *stipules* at base. *Flowers* often tinged with red. *Drupes* purplish-black, when mature.
Hab. Moist woodlands: very common. *Fl.* May. *Fr.* Sept.

Obs. The slender stems of this shrub, when the pith is removed, afford good *fuse-sticks*, for blasting rocks; and are much used for that purpose. A species of this genus, commonly cultivated as an ornamental shrub, is the *Guelder-Rose*, or "Snow-ball" (*V. Opulus, L.*),—which the Poet COWPER so beautifully describes, as throwing up its

——— "silver globes, light as the foamy surf,
That the wind severs from the broken wave."

ORDER XLVIII. RUBIÀCEAE.

Herbs, or *shrubs*; *leaves* opposite, entire, connected by interposed *stipules*, or verticillate without apparent stipules;* *calyx-tube* mostly adherent to the ovary; *corolla* regular, 3- 4- or 5-lobed; *stamens* as many as the corolla-lobes, and inserted on its tube; *styles* mostly 2; *fruit* various; *seeds* with copious hard *albumen*.

This Order contains a number of important plants. Among the most interesting, may be mentioned the *Coffee plant* (*Coffea Arabica, L.*)—the *Peruvian Bark tree* (*Cinchona officinalis, L.*)—the *Ipecacuanha* (*Cephaelis Ipecacuanha, Rich.*)—and the *Madder* (*Rubia Tinctorum, L.*). The popular vermifuge, called *Carolina Pink* (*Spigelia Marilandica, L.*)—and the well-known beautiful and fragrant *Cape Jessamine* (*Gardenia florida, L.*)—are also referred to this comprehensive and somewhat anomalous Family.

SUBORDER I. STELLA'TAE.

Leaves verticillate, without apparent *stipules*; *calyx-tube* entirely adherent to the ovary; *corolla-lobes* valvate in the bud. Plants mostly *herbaceous*.

178. GA'LIUM, *L.*

[Gr. *Gala*, milk; which some species were used to curdle.]

Calyx-teeth obsolete. *Corolla* 4- (rarely 3-) parted, rotate. *Fruit* smooth, or uncinately hispid, roundish, dry or slightly fleshy,—composed of twin 1-seeded indehiscent carpels. Slender *herbs*: *stems* square, often retrorsely aculeate; *flowers* small, cymose.

§ 1. ANNUAL: Verticils *about 8-leaved*; peduncles *axillary, few-flowered*.

1. *G. Aparìne*, L. Stem procumbent, aculeate; leaves oblanceolate; flowers white; fruit rather large, uncinately hispid.
Common Cleavers. Goose-grass. Robin-run-the-Hedge.

Stem 4 to 6 feet long; branches short. *Leaves* about an inch and half long, sessile, tapering to the base, in rather distant verticils of 6 or 8. *Flowers* mostly on axillary elongated peduncles.
Hab. Fence-rows, and shaded places. Nat. of Europe. *Fl.* May. *Fr.* July.

§ 2. PERENNIAL: † Verticils *mostly 6-leaved*; flowers *white*.

2. G. asprélium, *Mx.* Stem clambering, aculeate, usually much branched and tangled; leaves oval-lanceolate; flowers very numerous and small; fruit usually smooth.

* That is, the "*interposed stipules*," in this case, are regarded, by some, as being developed to the *size*, and in the *form*, of the *true leaves*,—and thus forming a verticil. Prof. LINDLEY, however, does not concur with this view; but considers all the members of the verticils as *genuine leaves*.

ROUGHISH GALIUM.

Stem flaccid, 2 or 3 feet long (often 4 to 6 feet, when supported on bushes), very rough and adhesive. *Leaves* half an inch to 3 quarters in length, sometimes 4, mostly 6, and 5, in a verticil. Flowering branches divaricate; *peduncles* in pairs, or threes, very slender, rather short.

Hab. Swampy thickets; along rivulets: frequent. *Fl.* July. *Fr.* Sept.

3. G. trifidum, L. Stem ascending, smooth or slightly aculeate; leaves linear-oblanceolate, obtuse; corolla often trifid; fruit smooth.

Also, G. tinctorium, *L. & Fl. Cestr. ed. 2. p.* 100.

THREE-CLEFT GALIUM. Ladies Bed-straw.

Stem 1 to 2 or 3 feet long, slender, branched. *Leaves* half an inch to an inch long, in verticils of 5, or 6,—often in fours on the branches. *Peduncles* mostly in threes, axillary or subterminal, slender, spreading.

Hab. Low grounds, and thickets: frequent. *Fl.* June. *Fr.* Aug.

Obs. The *G. tinctorium, L.* is now regarded as nothing more than *a variety* of this. The *roots* of these were formerly employed, by the Aborigines, for dyeing porcupine quills, and other savage ornaments, of a red color.

4. G. triflòrum, *Mx.* Stem reclining or prostrate, somewhat aculeate; leaves elliptic-lanceolate, cuspidate; peduncles elongated, mostly 3-flowered; fruit uncinately hispid.

THREE-FLOWERED GALIUM.

Stem 2 to 3 or 4 feet long, flaccid, with a few short diverging branches. *Leaves* half an inch to an inch long, somewhat membranaceous, narrowed at base, margins ciliate. *Flowers* greenish. *Fruit* small, clothed with white hooked hairs.

Hab. Woodlands, and moist shaded grounds: frequent. *Fl.* July. *Fr.* Sept.

†† Verticils 4-*leaved.* * Flowers *mostly reddish-brown;* fruit *uncinately hispid.*

5. G. pilòsum, *Ait.* Stem nearly erect and simple, hirsute; leaves oval, hairy, pellucid-punctate, obscurely 3-nerved; peduncles elongated, dichotomous, the branches often 3-flowered; flowers pedicellate.

HAIRY GALIUM.

Stem 1 to 2 feet high, often several from the same root, hirsute on the angles.—*Leaves* about an inch long, and half an inch wide, obtuse, hairy and ciliate.

Hab. Dry, sterile banks, and thickets: frequent. *Fl.* June. *Fr.* Aug.

6. G. circàezans, *Mx.* Stem erect, smoothish; leaves oval or lance-ovate, rather obtuse, distinctly 3-nerved; peduncles divaricate; flowers alternate, subsessile; fruit nodding.

CIRCAEA-LIKE GALIUM. Wild Liquorice.

Stem 12 to 18 inches high, often branched near the base, slightly pubescent on the angles. *Leaves* an inch to an inch and half long, and half an inch to 3 quarters wide, the lower ones often roundish-obovate. *Peduncles* nearly simple, finally geniculate. *Corolla* pale purple, or purplish-white.

Hab. Rich woodlands: frequent. *Fl.* June. *Fr.* Aug.

Obs. This species is easily recognized by the *sweet Liquorice-like* taste of the leaves. There seems to be *a variety* of it, of larger growth, and almost as hairy as *G. pilosum.*

7. G. lanceolàtum, *Torr.* Stem erect, nearly simple, smooth; leaves ovate-lanceolate, tapering to the apex; peduncles trichotomous, finally divaricate; fruit sessile.
LANCEOLATE GALIUM.

Stem 12 to 18 inches high, sparingly branched, quite smooth except at the nodes. *Leaves* 1½ to 2½ inches long, thinnish, not sweet to the taste. *Peduncles* long, subterminal. *Corolla* brownish-purple, or sometimes whitish.
Hab. Moist woodlands: frequent. *Fl.* July. *Fr.* Sept.

Obs. Allied to the preceding; but probably sufficiently distinct.

** Flowers *white;* fruit *hispid, the hairs short and scarcely uncinate.*

8. G. boreàle, *L.* Stem erect, branched, smooth; leaves linear-lanceolate; flowers in terminal thyrsoid panicles.
NORTHERN GALIUM.

Plant somewhat glaucous. *Stem* 1 to 2 feet high, often in bunches, or a number from the same root. *Leaves* an inch to 1¾ inches in length, strongly nerved, tapering to a narrow point, but rather obtuse at apex. *Peduncles* frequently trichotomous.
Hab. Rocky banks of Schuylkill: rare. *Fl.* July. *Fr.* Sept.

Obs. The *root* of this is said to dye a red color. The RUBIA TINCTÒRUM, L. or *Madder*,—a plant nearly allied to *Galium*, and a well-known *Dye*,—is cultivated in the West; and may be occasionally seen in gardens: but it is scarcely entitled to a place in our *Flora*.

SUBORDER II. CINCHO'NEAE.

Leaves mostly opposite, with *stipules* between them; *calyx-tube* adherent to the ovary, or partially free above.

179. DIO'DIA, *L.*

[Gr. *Diodos*, a transit, or passage; from its growing by way-sides.]

Calyx 2- or 4-toothed. *Corolla* funnel-form, 4-lobed. *Fruit* dry, 2-celled, splitting into 2 crustaceous 1-seeded carpels. Low *herbs: leaves* opposite, sublinear; *stipules* bristly-ciliate; *flowers* axillary, sessile.

1. D. tères, *Walt.* Stem terete, branched from the base, pubescent; leaves lance-linear, rigid; calyx 4-toothed; fruit much shorter than the stipular bristles.
TERETE DIODIA. Button-weed.

Annual. Stem 4 to 12 inches high, diffusely branching. *Leaves* an inch to an inch and half long, the margins and keel aculeate-serrulate; *stipules* membranaceous, fringed with 6 or 8 long bristles on each side, between the leaves. *Flowers* pale red, opposite, and generally solitary. *Fruit* quadrangular-obovoid, hispid.
Hab. Sandy banks, and roadsides: frequent. *Fl.* Aug. *Fr.* Octo.

180. CEPHALAN'THUS, *L.*

[Gr. *Kephale*, a head, and *anthos*, a flower; the flowers growing in heads.]

Calyx-tube angular, tapering downward; *border* 4-toothed. *Corolla* tubular, slender, 5-lobed. *Style* much exserted. *Capsule* inversely pyramidal, hard, 2- 4-celled, separating from the base upward into 2 or 4 closed 1-seeded portions. *Shrubs: leaves* opposite, or sometimes verticillate in threes, entire; *flowers* in dense globose pedunculate *heads*.

1. C. occidentàlis, *L.* Leaves ovate-oblong, acuminate, petiolate; peduncles long, terminal and axillary.

WESTERN CEPHALANTHUS. Button-Bush. Pond Dogwood.

Stem 3 to 5 feet high (some old plants much larger); branches opposite. *Leaves* 2 to 3 or 4 inches long; *petioles* about ½ an inch in length. *Heads* of flowers about an inch in diameter; *peduncles* 2 to 3 inches long; *flowers* white.
Hab. Margins of pools, and swamps: frequent. *Fl.* July. *Fr.* Sept.

181. MITCHEL'LA, *L.*

[Named in honor of Dr. *John Mitchell;* an early Virginian Botanist.]

Flowers in pairs, with their ovaries united. *Calyx* 4-toothed. *Corolla* funnel-form, mostly 4-lobed; *lobes* spreading, densely villous inside. *Style* slender; *stigmas* 4. *Fruit* a rather dry berry-like *double drupe*, crowned with the calyx-teeth of the 2 flowers,—each containing 4 bony *nutlets*. A smooth *suffruticose* trailing *evergreen: leaves* opposite, petiolate.

1. M. rèpens, *L.* Leaves roundish-ovate, subcordate, dark green, with a whitish central line; peduncles 2-flowered, axillary and terminal.

CREEPING MITCHELLA. Partridge-Berry.

Stem prostrate, 6 to 12 inches long, branching from the root, and spreading in all directions. *Leaves* ½ an inch to 3 quarters in length; *petioles* ¼ to half an inch long, connected by small acuminate *stipules*. *Flowers* white. *Berries* twin, subglobose, red when mature, insipid, persistent until flowers come again.
Hab. Moist woods, about the roots of trees: frequent. *Fl.* June. *Fr.* Octo.

Obs. A pretty little Evergreen,—well adapted for a covering of the earth, in boxes, or pots, containing large shrubs, in conservatories.

182. HEDYOTIS, *Lam.*

[Gr. *Hedys,* sweet, and *Ous, otos,* Ear; the application not obvious.]

Calyx 4-lobed,—the lobes persistent. *Corolla* mostly funnel-form, or salver-form; *border* 4-parted. *Stigmas* 2. *Ovary* often free at the top, and rising above the calyx-tube. *Capsule* ovoid, or obcordate, 2-celled, many-seeded, opening loculicidally across the summit. Mostly small *herbs*, with minute *stipules* united to the petioles.

1. H. longifòlia, *Hooker.* Leaves linear-lanceolate, acute at both ends, not ciliate; cymules 2- or 3-flowered; corolla funnel-form; capsule ovoid.

LONG-LEAVED HEDYOTIS.

Perennial. Stem 5 to 8 or 10 inches high, 4-angled, often much branched.—*Leaves* ¾ of an inch to 2 inches long; *stem-leaves* sessile,—the *radical* ones oblanceolate, narrowed at base almost to a *petiole*. *Flowers* purple.
Hab. Hills, above Pugh-town: rare. *Fl.* June. *Fr.* August.

2. H. caerùlea, *Hooker.* Leaves oblong-spatulate, and oblanceolate; peduncles elongated, 1-flowered; corolla salver-form; capsule obcordate.

BLUE HEDYOTIS. Innocence. Bluets. Dwarf Pink.

Perennial? smooth. *Stems* numerous, 3 to 5 inches high, erect, slender, quadrangular, dichotomous. *Radical leaves* about half an inch long, spatulate; *stem-leaves* ¼ of an inch long, oblanceolate. *Flowers* blue, with a yellow throat.
Hab. Grassy banks; woodlands, &c.: common. *Fl.* April. *Fr.* June.

ORDER XLIX. VALERIANA'CEAE.

Herbs; leaves opposite, without *stipules; calyx-tube* adherent to the ovary; *corolla* tubular, mostly 5-lobed; *stamens* fewer than the corolla-lobes (usually 2 or 3), inserted on the tube; *stigmas* 1 to 3; *fruit* dry, indehiscent, 1- to 3-celled, by abortion 1-seeded; *seed* suspended, destitute of *albumen*.

183. FE'DIA, *Gaertn.*

[Etymology obscure; supposed to be derived from the Latin, *Haedus*, a kid.]

Calyx-teeth 3 to 5, or obsolete. *Fruit* 3-celled,—2 of the cells empty, the other 1-seeded, cellular-gibbous on the back. *Leaves* spatulate-oblong; *flowers* in dense *cymules*.

1. *F. olitòria*, Vahl. Fruit compressed, oblique,—the fertile cell with a corky mass at the back, the sterile ones often confluent; flowers pale blue.

Valerianella radiata. *DC. & Fl. Cestr. ed.* 2. *p.* 11.

POT-HERB FEDIA. Lamb's Lettuce. Corn-Salad.

Annual. Stem 4 to 12 inches high, dichotomously branching. *Leaves* half an inch to 2 inches long, sessile, subdentate, somewhat ciliate on the margin. *Fruit* finally broader than long.

Hab. Meadow banks, and roadsides. Nat. of Europe. *Fl.* May. *Fr.* June.

Obs. A similar plant, with *milk-white flowers*, is occasionally seen, which is supposed to be the true *F. radiata*.

ORDER L. DIPSA'CEAE.

Herbs; leaves mostly opposite, without *stipules; flowers* in dense involucrate *heads; calyx-tube* adherent to the ovary,—the *border* entire, or toothed; *corolla* tubular, 4- or 5-lobed; *stamens* mostly 4, distinct; *style* filiform; *stigma* simple; *fruit* akene-like, 1-celled, 1-seeded; *seed* pendulous: *embryo* nearly as long as the fleshy *albumen*.

184. DIP'SACUS, *Tournef.*

[Gr. *dipsao*, to thirst; the stem-leaves holding water at their junction.]

Involucre many-leaved, longer than the *bracts* (or subfoliaceous *chaff*) of the *receptacle: Florets* each with a 4-sided calyx-like *involucel* closely investing the ovary and fruit. *Border of the calyx* minute, cup-shaped, entire. *Corolla* with 4 erect lobes. Stout *biennials: leaves* often connate; *heads* ovoid-oblong,—the *florets* commencing to open in a ring about the *middle* of the head, and proceeding in opposite directions!

1. *D. sylvéstris*, Mill. Leaves lance-oblong, serrate; involucre longer than the head; bracts straight and flexible.

WILD DIPSACUS. Wild Teasel.

Stem 3 to 5 feet high, branched, angular and prickly. *Radical leaves* 8 to 12 inches long, crenate; *stem-leaves* 3 or 4 to 6 or 8 inches long, sessile, subconnate: all more or less prickly on the midrib, and sometimes on the margin. *Leaves of the involucre* unequal, lance-linear, curved upward and inward, pungent at apex. *Heads* of flowers ovoid-oblong, 2 to 3 inches in length; *corolla* pale purple. *Bracts* (or *chaff of the receptacle*) oblong-cuneate, keeled, abruptly tapering into a *straight* flexible awn-like acumination, longer than the florets.

Hab. Roadsides; fence-rows, &c. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. This foreigner is rather abundant, in some localities,—and being a coarse worthless *weed*, requires the attention of the farmer

who would keep his premises in neat condition. Doctor DARWIN thus indulges his imagination, in reference to its supposed thirsty character:—

"When droops the sickening herb, the blossom fades,
And parch'd earth gapes beneath the withering glades,—
With languid steps fair DIPSACA retreats,—
'Fall, gentle dews!' the fainting nymph repeats;
Seeks the low dell, and in the sultry shade
Invokes, in vain, the Naiads to her aid."

2. D. FULLO'NUM, Mill. Leaves obovate-oblong, the upper ones entire; involucre shorter than the head; bracts recurved at apex, rigid.

FULLERS' DIPSACUS. Fuller's Teasel.

Stem, leaves, and general character, similar to the preceding. *Heads* of flowers elliptical; *bracts* (or *chaff of the receptacle*) terminating in a rigid subulate *recurved* acumination.

Hab. Gardens, and lots. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. This species is sometimes cultivated, by cloth manufacturers, for the sake of the *heads;* the rigid recurved points of the *bracts*, on the mature heads, being used as a kind of card, to raise the *nap* on woollen cloth.

ORDER LI. COMPOS'ITAE.

Mostly *herbs; leaves* alternate, or opposite, often lobed or dissected, never truly compound, and not *stipulate; flowers* in close *heads*,—composed of many *florets* (perfect or imperfect) upon a *common receptacle*, and embraced by (mostly numerous) leaflets, or *scales*, which form a *general involucre; calyx-tube* closely adherent to the ovary,—the *limb*, or *border*, of the calyx (called *pappus*), consisting of *hairs, awns*, or *scales*, or sometimes obsolete; *corolla* either *tubular* and 5-lobed, or *ligulate* and 5-toothed; *stamens* mostly 5, inserted on the corolla,—the *anthers* united, forming a tube round the *style*, which is 2-cleft at summit, with *stigmatic glands*, in *lines*, on the inner surface of the *branches; fruit* an *akene*, containing a single erect *seed* destitute of *albumen*.*

SUBORDER I. TUBULIFLO'RAE.

Florets of the *disk* tubular, mostly perfect,—of the *ray* (when present) ligulate, and either pistillate or neutral.

TRIBE 1. VERNONIA'CEAE.

Heads discoid; *florets* all alike, perfect and tubular; *style-branches* slender, filiform or subulate, hairy all over,—the *stigmatic lines* only on the lower part.

185. VERNO'NIA, *Schreb.*

[Named in honor of *William Vernon*, an English Botanist.]

Heads many-flowered, in corymbose cymes. *Involucre* shorter than

* This Order is so *natural*, and at the same time so enormously *large* (containing between 800 and 900 *genera*, with *species* almost innumerable), that it is difficult to discriminate, satisfactorily, among such kindred multitudes. The Botanists, consequently, have been obliged to seize upon any features—however small, or inconspicuous—that are *constant*, and will serve the purpose: hence, they have resorted to such minute characters as are afforded by *style-branches, stigmatic lines, anther-tails*, &c. The student will, therefore, do well to make himself familiar with these nice distinctions.

the florets,—the *scales* imbricated and appressed. *Receptacle* naked. *Akenes* clavate, ribbed. *Pappus* double,—the inner of numerous capillary bristles, the outer short and scale-like. *Perennials: leaves* alternate; *flowers* mostly bright purple.

1. V. Noveboracénsis, *Willd,* Leaves oblong-lanceolate; scales of the involucre mostly with a long filiform flexuose point. V. praealta. *Willd. & Fl. Cestr. ed. 2. p.* 448. not of *DC.*
New-York Vernonia. Iron-weed.

Stem 2 or 3 to 6 or 7 feet high, sulcate-striate, roughish-pubescent, somewhat branching above, finally hard and subligneous. *Leaves* 3 to 6 or 8 inches long, subsessile, serrate, roughish and subcoriaceous. *Akenes* scabrous with short hairs; *pappus* dirty white, or sometimes purplish, scabrous.
Hab. Moist meadows; thickets, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. This is a worthless and rather troublesome weed, in low meadow grounds.

TRIBE 2. EUPATORIA'CEAE.

Style-branches obtuse or clavate, usually elongated, pubescent on the outside,—*stigmatic lines* below the middle of the branches; *anthers* not *tailed* at base.

SUBTRIBE 1. EUPATORIE'AE.

Heads discoid; *florets* all alike, perfect and tubular,—usually purple, or white, almost never yellow; *receptacle* naked.

186. LIA'TRIS, *Schreb.*

[A name of unknown derivation.]

Heads mostly many-flowered, in long racemes, or spikes. *Scales of the involucre* imbricated and appressed. *Akenes* slender, tapering to the base, about 10-ribbed; *pappus* of many plumose or scabrous capillary bristles. *Perennials: roots* often tuberous; *stems* usually simple; *leaves* alternate, entire, mostly long and narrow; *flowers* rose-purple.

☞ Corolla *smooth inside;* pappus *merely scabrous, or barbellate.*

1. L. scariòsa, *Willd.* Leaves lanceolate,—the radical ones oblong; heads subglobose; scales of the involucre spatulate, with broad scarious margins.
Scarious Liatris.

Stem 1 or 2 to 5 feet high, rather stout, more or less pubescent. *Leaves* 3 to 6 inches long,—the lower ones tapering to a *petiole*. *Heads* of flowers half an inch to near an inch in diameter, in a terminal raceme or spike; *scales* of the involucre with conspicuously scarious and often colored margins. *Akenes* villous; *pappus* subplumose.
Hab. Banks of streams: rare. *Fl.* Aug. *Fr.* Octo.

Obs. This handsome species was detected near Buck Run, in this County, in 1847, by Miss Sarah Coates,—a lady of extraordinary Botanical acumen, and attainments.

2. L. spicàta, *Willd.* Leaves sublinear; heads oblong; scales of the involucre ovate and oblong, obtuse, with narrow scarious margins.
Spiked Liatris. Button Snake-root. Blue Blazing Star.

Stem 2 to 4 or 5 feet high, striate, smoothish, very leafy. *Leaves* 3 or 4 to 6 or 8

inches long,—the upper ones very short and almost subulate. *Heads* of flowers about half an inch long, subcylindric, crowded in a terminal spike 6 to 12 or 15 inches in length; *outer scales* ovate, the *inner ones* oblong,—the margins often purple. *Akenes* hirsute, or finally smooth; *pappus* scabrous or barbellate.
Hab. Borders of woods; clearings, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. The *root* of this has been deemed medicinal. JOHN BARTRAM, in his Appendix to SHORT's *Medicina Britannica*, calls the plant "*Jacea*," and "*Throat-wort*."

187. KU'HNIA, *L.*

[Dedicated to Doctor *Adam Kuhn*, of Philadelphia; a pupil of *Linnaeus*.]

Heads 10- to 25-flowered, in a small paniculate corymb. *Scales of the involucre* few, lanceolate, loosely imbricated. *Akenes* cylindric, finely striate; *pappus* a single series of very plumose bristles. *Perennials: leaves* mostly alternate, resinous-dotted; *flowers* white, or ochroleucous.

1. K. eupatorioides, *L.* Leaves lanceolate serrate and petiolate, or linear entire and sessile; heads of flowers cylindric.
Also, K. Critonia. *Willd. & Fl. Cestr. ed.* 2. *p.* 449.
EUPATORIUM-LIKE KUHNIA.

Stem 2 to 3 feet high, slender, somewhat corymbosely branched, pubescent.—*Leaves* 1 or 2 to 3 or 4 inches long. *Corymb* paniculate, or sometimes rather short and dense. *Akenes* pubescent; *pappus* white, or often tawny.
Hab. Dry banks; Great Valley: rare. *Fl.* Sept. *Fr.* Octo.

Obs. The *K. Critonia*, *Willd.* is now regarded as a narrow-leaved *variety*. It is rather less rare, here, than the other form.

188. EUPATO'RIUM, *Tournef.*

[Dedicated to *Eupator Mithridates*,—who brought the plant into notice.]

Heads 3- to many-flowered, mostly corymbose. *Involucre* oblong; *scales* imbricated in 2 or more series, or sometimes nearly equal in a single series. *Florets* tubular, scarcely dilated at throat. *Akenes* 5-angled; *pappus* a single row of slender roughish bristles. *Receptacle* flat. *Perennials: leaves* mostly opposite or verticillate, often resinous-dotted; *flowers* white, or purplish.

† Heads 5- *to* 10-*flowered*; scales *closely imbricated in several series of unequal length*; leaves *verticillate*, *petiolate*; flowers *purplish*.

1. E. purpùreum, *L.* Stem stout, simple; leaves 3 to 6 in a whorl, lance-oblong or lance-ovate, serrate; corymb large, compound.
Also, E. trifoliatum. *L. & Fl. Cestr. ed.* 2. *p.* 453.
PURPLE EUPATORIUM.

Stem 3 or 4 to 6 or 7 feet high, fistular, smoothish and glaucous-purple, or sometimes solid with pith, spotted, and more or less pubescent. *Leaves* 3 or 4 to 8 or 10 inches long; *petioles* half an inch to 2 inches in length. *Heads* of flowers in a terminal corymb of varying size, and shades of purple.
Hab. Moist low grounds, and thickets: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. Some 4 or 5 forms of this plant, heretofore considered as *species*, by different authors, are now better regarded as mere *varieties*.

†† Heads 5- *to* 20-*flowered;* scales 8 *to* 15, *unequal, more or less imbricated;* leaves *mostly opposite, sessile, sometimes connate;* flowers *white.*

2. E. teucrifòlium, *Willd.* Leaves ovate-lanceolate, coarsely incised-dentate near the base; inner scales of the involucre lance-oblong, rather acute, but not acuminate.

E. verbenaefolium. *Mx. & Fl. Cestr. ed.* 2. *p.* 450.

TEUCRIUM-LEAVED EUPATORIUM.

Stem 2 to 3 feet high, corymbosely branched at summit, roughish-pubescent.—*Leaves* 2 to 4 inches long, obtuse at base, the upper ones smaller and entire. *Heads* of flowers somewhat clustered.

Hab. Low swampy grounds; thickets, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

3. E. rotundifòlium, *L.* Leaves roundish-ovate, subcordate at base, crenate-serrate; inner scales of the involucre lance-linear, abruptly acuminate.

ROUND-LEAVED EUPATORIUM.

Stem about 2 feet high, slender, corymbose at summit, roughish-pubescent.—*Leaves* 1 to near 2 inches long, and nearly as wide as long, subcordate or truncate at base, resinous-dotted. *Heads* of flowers in a dense flat-topped corymb.

Hab. Slaty, hilly woodlands: not common. *Fl.* Aug. *Fr.* Sept.

4. E. sessilifòlium, *L.* Leaves long-lanceolate, acute, rounded at base, and gradually tapering to the slender apex, sharply serrate, smooth; scales of the involucre lance-oblong, obtuse.

SESSILE-LEAVED EUPATORIUM.

Stem 2 to 3 or 4 feet high, slender, corymbose at summit, smooth, the branches pubescent. *Leaves* 2 or 3 to 6 inches long, the base often subcordate and apparently somewhat clasping, the under surface paler and minutely dotted. *Heads* of flowers clustered; *scales* punctate with brown dots.

Hab. Borders of woods, and thickets: frequent. *Fl.* Aug. *Fr.* Sept.

5. E. perfoliàtum, *L.* Leaves oblong-lanceolate, connate-perfoliate, rugose-veined, crenate-serrate, very pubescent beneath; scales of the involucre lance-linear, acute.

PERFOLIATE EUPATORIUM. Thorough-stem. Bone-set. Indian Sage.

Stem 2 to 4 feet high, rather stout, corymbose at summit, hirsutely pubescent,—the branches whitish and very pubescent. *Leaves* 4 to 6 or 8 inches long, more or less completely united at base, rarely *ternate,* minutely resinous-dotted beneath.—*Heads* of flowers clustered, in large corymbs.

Hab. Low, swampy grounds: common. *Fl.* July. *Fr.* Sept.

Obs. This species is generally known for its medicinal properties,—which are valuable, when rightly managed.

††† Heads 8- *to* 30- *or* 40-*flowered;* scales *in a single series, nearly equal;* leaves *opposite, petiolate;* flowers *very white.*

6. E. ageratoides, *L.* Leaves broad-ovate, acuminate, coarsely and acutely serrate, thin and smoothish; petioles rather long; scales of the involucre smoothish.

AGERATUM-LIKE EUPATORIUM.

Stem 2 to 3 feet high somewhat branched, smooth,—the summit and branches pubescent. *Leaves* 2 to 4 or 5 inches long, the base dilated, often almost truncate, so as to make the leaves nearly deltoid, sometimes abruptly tapering to the *peti-*

ole,—which varies from ½ an inch to 2 or 3 inches in length. *Heads* o fflowers in cymose corymbs.

Hab. Moist woodlands, and thickets: frequent. *Fl.* Aug. *Fr.* Sept.

7. E. aromáticum, *L.* Leaves lance-ovate, acute, obtusely serrate, thickish and somewhat rugose-veined; petioles rather short; scales of the involucre pubescent.

AROMATIC EUPATORIUM.

Stem 1½ to 2 feet high, nearly simple, or corymbose at summit, roughish-pubescent. *Leaves* an inch and half to 3 inches long; *petioles* ¼ of an inch to near an inch in length. *Heads* of flowers in small erect corymbs; *florets* rather larger than in the preceding.

Hab. Rocky banks; thickets and clearings: frequent. *Fl.* Aug. *Fr.* Sept.

189. MIKA'NIA, *Willd.*

[Dedicated to Prof. *Joseph Mikan;* a Botanist of Prague.]

Heads mostly 4-flowered; *involucre* of 4 or 5 nearly equal *scales.*—*Receptacle* small, flat. *Florets* dilated at throat,—the *akenes* as in *Eupatorium.* Clambering *perennials: leaves* opposite, petiolate; *flowers* flesh-colored, in axillary corymbs.

1. M. scándens, *Willd.* Stem volubile, or clambering, nearly smooth; leaves subhastate-cordate, acuminate, repand-dentate.

CLIMBING MIKANIA. Climbing Hemp-weed.

Stem 3 to 5 or 6 feet long, slender and volubile. *Leaves* an inch and half to 3 or 4 inches long, resembling those of the common *Buckwheat; petioles* 1 to 2½ inches in length. *Heads* of flowers in clustered cymose corymbs, on axillary branches 3 to 6 inches in length,—the branches with a pair of leaves near the corymbs; *scales* of the involucre roughish-pubescent.

Hab. Swampy thickets; along rivulets: not common. *Fl.* Aug. *Fr.* Sept.

190. CONOCLIN'IUM, *DC.*

[Gr. *Konos*, a cone, and *klinē*, a bed; referring to the conical receptacle.]

Heads many-flowered; *involucre* campanulate; *scales* subulate-linear, imbricated. *Receptacle* conical. *Florets* and *akenes* as in *Eupatorium.* Erect *perennials: leaves* opposite, petiolate; *flowers* bluish-purple, in crowded terminal corymbs.

1. C. cœlestinum, *DC.* Roughish-pubescent; leaves lance-ovate and deltoid-oblong, obtusely serrate, somewhat rugose-veined. Eupatorium cœlestinum. *L. & Fl. Cestr. ed.* 2. *p.* 452.

HEAVENLY, OR SKY-COLORED CONOCLINIUM.

Stem 1 to 2 or 3 feet high, branching, often growing in bunches, roughish-pubescent. *Leaves* an inch and half to 3 inches long, hairy on the nerves beneath; *petioles* ¼ of an inch to an inch in length. *Heads* of flowers in rather dense cymose corymbs, showy and fragrant.

Hab. Moist thickets; Londongrove: rare. *Fl.* Aug. Sept. *Fr.* Octo.

Obs. This pretty plant is often, and deservedly, introduced into gardens.

TRIBE 3. ASTEROI'DEAE.

Style-branches in the perfect florets flattish, lance-linear, smooth up to where the *stigmatic lines* terminate,—prolonged above this into a flattened appendage, which is uniformly pubescent externally. *Leaves* mostly alternate.

SUBTRIBE 1. ASTERIN'EAE.

Heads mostly radiate,—the *disk-florets* perfect, and the *ray-florets* pistillate; *anthers* not *tailed* at base; *receptacle* not chaffy, mostly flat, and alveolate, or punctate.

§ 1. Rays *never yellow.*

191. SERICOCAR'PUS, *Nees.*

[Gr. *serikos*, silky, and *karpos*, fruit; descriptive of the akenes.]

Heads rather few-flowered; *rays* about 5. *Involucre* oblong, or turbinate; *scales* imbricated, whitish, with green subsquarrose *tips.*—*Akenes* short, inversely pyramidal, densely silky-pilose; *pappus* simple, of roughish capillary bristles. Tufted yellowish-green *perennials: leaves* mostly sessile; *heads* in small corymbose clusters; *rays* white.

1. S. solidagineus, *Nees.* Stem angular, smooth; leaves sublinear, obtuse, entire; involucre oblong; pappus white.

SOLIDAGO-LIKE SERICOCARPUS.

Stem about 2 feet high, slender, nearly simple, or with a few corymbose branches at summit. *Leaves* 1 to 2 inches long, linear or spatulate-linear, obscurely punctate and 3-nerved, smooth with the margin scabrous. *Akenes* clothed with hoary shining silky-looking appressed hairs.

Hab. Moist woodlands: somewhat rare. *Fl.* Aug. *Fr.* Octo.

2. S. conyzoides, *Nees.* Stem terete, pubescent; leaves lance-oval, rather acute, subserrate; involucre turbinate; pappus tawny-ferruginous.

CONYZA-LIKE SERICOCARPUS.

Stem 1 to 2 feet high, rather slender but rigid, smoothish, and often purple below, corymbose at summit. *Leaves* 1 to 3 inches long, ciliate,—the radical ones tapering at base to a margined ciliate *petiole* nearly as long as the leaf. *Akenes* short, silky-villous.

Hab. Woodlands, and clearings: frequent. *Fl.* July. *Fr.* Sept.

192. AS'TER, *L.*

[Gr. *Aster*, a star; the radiated heads of flowers resembling stars.]

Heads many flowered; *rays* numerous in a single series. *Involucre* sub-campanulate; *scales* more or less imbricated, with herbaceous or subfoliaceous *tips.* *Akenes* usually compressed, cuneate, pubescent; *pappus* simple, scabrous. Mostly *perennials: radical and lower leaves* often cordate at base; *heads* of flowers corymbose, paniculate, or racemose; *rays* white, purple, violet, or blue.

† Scale-tips *appressed, slightly herbaceous;* rays *white, or nearly so.*

1. A. corymbosus, *Ait.* Stem rather slender and flexuose, smooth; leaves cordate and ovate, acuminate, unequally and sharply serrate, thin and smooth, on slender petioles; corymb rather loose and open, on slender dichotomous branches.

Eurybia corymbosa. *Cassini, & Fl. Cestr. ed.* 2. *p.* 469.

CORYMBOSE ASTER.

Stem about 2 feet high, branched at summit, often purple. *Leaves* 2 to 4 or 5 inches long; *petioles* 1 to 2 inches in length, usually not margined. *Heads* of flowers middle size, often few; *involucre* smoothish.

Hab. Open woodlands: frequent. *Fl.* July. *Fr.* Sept.

2. A. macrophyl'lus, *L.* Stem rather stout, mostly roughish-pubescent; leaves roundish-cordate and ovate, acuminate, crenate-serrate, thickish and rough, hirsute beneath, on margined petioles, —the radical leaves large; corymb on rigid spreading branches.
Eurybia macrophylla. *Cass. & Fl. Cestr. ed.* 2. *p.* 469.
LARGE-LEAVED ASTER.

Stem 18 inches to 2 feet high, corymbosely and stiffly branched, often purple.—*Radical leaves* 3 or 4 to 8 inches long, and 2 to 6 inches wide, cordate at base, the lobes often large and overlapping; *petioles* 3 to 6 or 8 inches in length; *stem-leaves* much smaller, ovate, abruptly narrowed to a margined petiole,—the uppermost ones sessile. *Heads* of flowers rather large; *involucre* roughish-pubescent; *rays* white, often tinged with purple.
Hab. Woodlands; clearings, &c.: frequent. *Fl.* Aug. *Fr.* Octo.

†† Scale-tips *more or less spreading and herbaceous.*
* Rays *violet, or purplish-blue*; heads *rather large, showy.*

3. A. Rádula, *Ait.* Stem smooth, corymbose at summit; leaves oblong-lanceolate, acute, serrate, thickish and scabrous, sessile; heads of flowers few, on naked peduncles; rays violet-purple; akenes smooth.
A. nudiflorus. *Nutt. & Fl. Cestr. ed.* 2. *p.* 462.
RASP ASTER.

Stem 2 to 3 feet high, simple. *Leaves* about 3 inches long, the upper ones not much smaller, entire, and often cuneately tapering at base. *Heads* of flowers on naked peduncles 2 or 3 inches in length, often somewhat in threes at the summit of the branches, the lateral ones longest; *involucre* smooth.
Hab. Low grounds; Great Valley: rare. *Fl.* Aug. *Fr.* Septem.

4. A. pàtens, *Ait.* Roughish-pubescent; leaves oblong, entire, clasping and auriculate at base; rays bluish-purple; akenes silky-pilose.
SPREADING ASTER.

Stem 18 inches to 2 or 3 feet high, slender, branched above,—the branches often elongated, spreading, and clothed with minute bract-like leaves. *Leaves* half an inch to 2 or three inches long, scabrous and serrulate-ciliate. *Heads* of flowers about medium size (larger in the *var. phlogifolius*), subsolitary on the slender branches; *involucre* minutely scabrous.
Hab. Moist woodlands: frequent. *Fl.* Aug. *Fr.* Octo.

Obs. There is *a variety* of this,—with larger, thinner and smoother leaves, contracted below the middle, and more conspicuously auriculate,—which is more common than the *patens* proper. Dr. MUHLENBERG considered it as a distinct *species*, and called it *A. phlogifolius.*

5. A. laèvis, *L.* Glabrous and somewhat glaucous; leaves linear-lanceolate, nearly entire, thickish and coriaceous,—the upper ones more or less clasping; akenes smoothish.
SMOOTH, OR POLISHED ASTER.

Stem 2 to 3 feet high, often dark purple near the base, more or less branched at summit. *Radical leaves* 1 or 2 to 4 inches long, spatulate-ovate or oblong, narrowed to a margined *petiole* about as long as the leaf; *stem-leaves* 2 to 5 inches long, varying from lance-linear to ovate-lanceolate, sessile, or the broader ones abruptly narrowed to a margined petiole. *Heads* of flowers corymbose-paniculate; *scales* of the involucre white, with green keel and tip; *rays* long and showy, mostly deep violet-purple, sometimes paler; *disk* yellowish.

Hab. Borders of woods, and thickets: frequent. *Fl.* Aug. *Fr.* Octo.

Obs. This is a variable plant,—and a number of species have been founded on its several features; but they are all so essentially alike, that they may be safely regarded as mere *varieties.*

6. A. undulàtus, *L.* Roughish-pubescent and somewhat hoary; leaves cordate and ovate, with wavy and subserrate margins, abruptly narrowed to margined clasping petioles, which are dilated again at base,—the upper ones sessile; involucre obovoid, pubescent; akenes slightly pubescent.

WAVY ASTER.

Stem 1 to 3 feet high, often purple, paniculate and frequently bushy at summit,—the branchlets leafy. *Radical leaves* 1 to 2 inches long, oblong-cordate, sometimes reniform; *petioles* 1 to 3 inches long; *stem-leaves* 1 to 3 or 4 inches long, —those on the branches small and bract-like, oblong, ciliate. *Heads* of flowers medium size, somewhat racemose; *rays* pale violet-purple, or bluish; *disk* yellow, becoming purplish; *akenes* finally smoothish.

Hab. Dry woodlands; fence-rows, &c.: common. *Fl.* Sept. *Fr.* Octo.

Obs. This is another variable species—as, indeed, there are many, —but they have been, generally, well and judiciously disposed of, by TORREY and GRAY.

** Rays *pale purple, or whitish;* heads *rather small.*

7. A. cordifòlius, *L.* Stem with pubescent spreading branches above, smooth below; leaves cordate, acuminate, serrate, on ciliate scarcely margined petioles; involucre obconical, smoothish; scales all appressed; akenes smooth.

HEART-LEAVED ASTER.

Stem 1 to 2 or 3 feet high, somewhat flexuose, paniculate at summit. *Leaves* 1 to 3 or 4 inches long; *petioles* 1 to 2 inches long, narrowly margined; *upper leaves* spatulate-ovate. *Heads* of flowers racemose-paniculate, with small *bracts; rays* pale purple, or sometimes nearly white.

Hab. Woodlands: frequent. *Fl.* Sept. *Fr.* Octo.

8. A. sagittæfòlius, *Willd.* Stem with ascending paniculate branches; leaves on narrowly margined petioles,—lower ones sagittate-cordate, serrate,—upper ones lanceolate, acute at each end, often entire; involucre oblong, loosely imbricated; scales subulate-linear.

A. paniculatus. *Muhl. & Fl. Cestr. ed.* 2. *p.* 464.

ARROW-LEAVED ASTER.

Stem 2 to 3 or 4 feet high, smooth, with numerous erect branches above. *Radical leaves* 2 to 5 inches long, on *petioles* 2 to 6 inches in length; *stem-leaves* gradually smaller,—those on the branches sessile. *Heads* of flowers numerous, racemose-paniculate,—the racemes often compound, or thyrsoid, on the branches; *rays* pale purple, or bluish, sometimes nearly white; *disk* yellow, or brown: *akenes* smooth.

Hab. Woodlands; along the Brandywine: frequent. *Fl.* Aug. *Fr.* Octo.

*** Rays *mostly white:* heads *small and numerous.*

9. A. ericoides, *L.* Diffusely branched; branchlets subsecund; leaves spatulate-oblong and linear, nearly entire; involucre somewhat hemispherical, loosely imbricated; scales linear-oblong, acute.

A. tenuifolius. *Fl. Cestr. ed.* 2. *p.* 467. *not of Linn.*

ERICA, OR HEATH-LIKE ASTER.

Stem 1 to 2 or 3 feet high, smooth or slightly pubescent, often bushy by reason of the numerous leafy branches. *Radical leaves* 1 to 3 or 4 inches long, sparingly serrate, ciliate, tapering to a *petiole* nearly as long as the leaf; *stem-leaves* 1 to 3 inches long,—those on the branches smaller, subulate-linear or oblong, acute at each end. *Heads* of flowers numerous, small (about half an inch in diameter, including the rays), solitary on the ascending and somewhat secund leafy peduncles, or branchlets; *rays* sometimes tinged with purple; *disk* yellow; *akenes* minutely pubescent.

Hab. Old fields; roadsides, &c.: very common. *Fl.* Aug. *Fr.* Octo.

Obs. This plant, in some of its various forms, is more abundant in our neglected fields, in the character of a *weed*, than any other species of *Aster*.

10. A. miser, *L?* & *Ait.* More or less hairy and branched; branches often slender, spreading or pendent; leaves oblong-lanceolate, acute at each end, serrate in the middle; heads of flowers racemose or scattered.

Also, A. parviflorus. *Nees. & Fl. Cestr. ed.* 2. *p.* 466.

MISERABLE, OR STARVED ASTER.

Stem 6 inches to 3 or 4 feet high,—in the dwarf specimens generally simple, the larger ones often much branched. *Radical leaves* spatulate-lanceolate, narrowed to a *petiole* at base: *stem-leaves* 1 to 3 or 4 inches long, more or less lanceolate in form. *Heads* of flowers clustered in short axillary racemes, or in loose paniculate or sometimes pendulous racemes; *rays* short, white or tinged with purple; *disk* brownish, or finally purplish; *akenes* pubescent.

Hab. Sterile old fields; thickets, &c.: frequent. *Fl.* Sept. *Fr.* Octo.

Obs. A numerous list, which have figured in the books as *species*, are now reduced to *varieties* of this. There is such a resemblance in all their poor starved heads of flowers, that an attentive observer can readily recognize them as belonging to *A. miser*.

† † † Scale-tips *recurved or loosely spreading, subfoliaceous;* rays *violet-purple;* heads *rather large, often showy.*

11. A. simplex, *Willd.* Smoothish; usually tall; branches and heads subcorymbose; leaves linear-lanceolate, sessile, subserrate, the upper ones entire; scales of the involucre lance-linear, unequal. A. salicifolius, *Ait. & Fl. Cestr. ed.* 2. *p.* 467.

SIMPLE ASTER.

Stem 2 to 5 or 6 feet high, often purple, branched above, with hairy lines decurrent from the base of the leaves. *Leaves* 1 to 4 inches long; *radical* ones oblong-spatulate, tapering and ciliate towards the base; *stem-leaves* slender, very acute, remotely and sparingly but sharply serrate; *branch-leaves* cuspidate, entire.—*Heads* of flowers medium size; *involucre* smoothish; *rays* pale bluish-purple; *disk* yellowish, finally purplish-brown; *akenes* pubescent.

Hab. Along swampy rivulets: frequent. *Fl.* Sept. *Fr.* Octo.

12. A. puniceus, *L.* Hirsute; rather stout; paniculately branched; leaves lance-oblong, sessile and clasping, appressed-serrate in the middle; scales of the involucre subulate-linear, nearly equal.

RED (STALKED) ASTER.

Stem 3 to 6 feet high, rough with short conic bristles, purple, or sometimes green. *Leaves* 2 or 3 to 4 or 5 inches long, more or less tapering at base, often

sparingly serrate. *Heads* of flowers paniculate; *scales* of the involucre with a white membranaceous margin, minutely ciliate.
Hab. Swampy thickets, and low grounds: frequent. *Fl.* Sept. *Fr.* Octo.

13. A. prenanthoides, *Muhl.* Hairy in lines; corymbose-paniculate; leaves spatulate-lanceolate, auriculate-clasping, incised-serrate in the middle; scales of the involucre linear and squarrose.
PRENANTHES-LIKE ASTER.

Stem 2 to 4 or 5 feet high, smoothish, or sometimes muricately scabrous, often purple, the branches conspicuously hairy in lines. *Leaves* 2 or 3 to 6 or 8 inches long, with an entire acumination, contracted and entire below the middle, dilated and auriculate at base. *Heads* of flowers often numerous, in a spreading corymbose panicle; *rays* pale violet-purple, or lilac, sometimes nearly white; *akenes* cuneate-oblong, nerved, hairy, yellowish.
Hab. Moist, shaded grounds; Brandywine: frequent. *Fl.* Sept. *Fr.* Octo.

Obs. This is generally a well-marked species,—but some forms of it approach pretty near to the preceding.

14. A. Novae-Angliae, *L.* Hirsute; stout; corymbose at summit; leaves linear-lanceolate, entire, auriculate-clasping; scales of the involucre foliaceous, lance-linear, loosely spreading.
NEW-ENGLAND ASTER.

Stem 3 to 5 or 6 feet high, scabrous, mostly dark purple, often numerous from the same root. *Leaves* 1 to 2 or 3 inches long, tapering nearly from base to apex, numerous, the upper ones mostly purplish. *Heads* of flowers racemose-corymbose, numerous, showy; *involucre* and *peduncles* glandular-pubescent, somewhat viscid, often dark purple; *rays* bright purple with a tinge of violet; *disk* yellow; *akenes* hirsute; *receptacle* alveolate, the pits with dentate margins.
Hab. Low grounds; Great Valley: rare. *Fl.* Sept. *Fr.* Octo.

Obs. This is, perhaps, the handsomest of our native *Asters*,—and is frequently cultivated for its showy autumnal flowers.

193. ERI'GERON, *L.*

[Gr. *Er*, spring, and *Geron*, an old man; the plant being hoary in spring.]

Heads many-flowered; *rays* numerous, in more than one series, very narrow. *Involucre* mostly hemispherical; *scales* narrow, nearly equal, and almost in a single row. *Receptacle* punctate. *Akenes* compressed, 2-nerved, pubescent; *pappus* a single row of capillary rough bristles,—and often with an outer row of short bristles, or chaffy scales. *Leaves* alternate, generally sessile; *heads* paniculate, or corymbose, sometimes small; *rays* white, or purplish.

† Pappus *single*. * Rays *inconspicuous, white*.

1. E. Canadénse, *L.* Stem hirsute, paniculately branching; leaves lance-linear, mostly entire; heads small, numerous, racemose-paniculate.
CANADIAN ERIGERON. Horse-weed. Butter-weed.

Annual. *Stem* 6 inches to 5 or 6 feet high. *Leaves* 1 to 3 or 4 inches long, hairy and ciliate,—the lower ones sparingly dentate. *Heads* of flowers loosely racemose on the branches: *rays* capillary, scarcely longer than the straw-colored pappus; *akenes* sparsely hairy.
Hab. Fields, and roadsides: every where common. *Fl.* Aug. *Fr.* Sept.

Obs. This almost universal *weed* is very variable in size. In rich soils it becomes quite stout; while on dry, sterile banks, it is often a very dwarf, or starveling.

** Rays *crowded and rather conspicuous, purplish.*

2. E. bellidifòlium, *Muhl.* Hoary-villous; stem simple and few-leaved; leaves spatulate and lance-oblong; heads large, few, corymbose; rays broadish.
E. pulchellus. *Mx. & Fl. Cestr. ed.* 2. not of *DC.*
DAISY-LEAVED ERIGERON. Poor Robert's Plantain.

Perennial: stoloniferous. *Stem* 9 to 18 inches high. *Radical leaves* 1 to 3 inches long, spatulate and obovate, contracted to a margined *petiole; stem-leaves* sub-serrate,—the upper ones entire or denticulate, somewhat clasping. *Heads* of flowers 2 or 3 to 5 (rarely 7 or 9), in a loose terminal corymb,—the lower peduncles axillary, long and flaccid; *rays* pale bluish-purple; *akenes* smooth.
Hab. Borders of woods, and thickets: frequent. *Fl.* May. *Fr.* June.

3. E. Philadélphicum, *L.* Pubescent; stem simple, leafy, leaves lance-oblong, subserrate,—the upper ones clasping, the lower ones spatulate or cuneate-oblong; heads medium size, loosely corymbose; rays very narrow and numerous.
PHILADELPHIAN ERIGERON.

Perennial? *Stem* 2 to 3 feet high. *Radical leaves* 3 to 6 inches long, cuneately tapering to a margined *petiole* about as long as the leaf; *stem-leaves* gradually smaller. *Heads* of flowers mostly few; *rays* pale purple or flesh-color; *akenes* sparsely hispid.
Hab. Woodlands; along Brandywine: frequent. *Fl.* June. *Fr.* July.

†† Pappus *double,—the outer row of minute scales;* rays *white, or nearly so.*

4. E. ánnuum, *Pers.* Radical leaves ovate, coarsely dentate,—stem-leaves lanceolate, serrate in the middle; rays shortish, tinged with purple.
E. heterophyllus. *Muhl. & Fl. Cestr. ed.* 2. *p.* 472.
ANNUAL ERIGERON.

Biennial? *Stem* 2 to 3 or 4 feet high, often angular, more or less hirsute, corymbose at summit. *Radical leaves* 2 to 4 inches long, and nearly as wide as long; *petioles* about twice as long as the leaves, narrow-margined, dilated at base; *stem-leaves* gradually smaller,—the upper ones cuneate at base, and sessile,—the lower ones often ovate, and on margined petioles. *Heads* of flowers rather small, or medium size; *akenes* hirsute.
Hab. Pastures, and waste places: frequent. *Fl.* June. *Fr.* Aug.

5. E. strigòsum, *Muhl.* Radical leaves spatulate-lanceolate; stem-leaves linear-lanceolate,—all nearly entire; rays longish, white.
STRIGOSE ERIGERON. Flea-bane. Daisy.

Annual? *Stem* 2 to 3 or 4 feet high, angular and sulcate-striate, more or less strigosely hairy, corymbose above, or sometimes simple. *Leaves* 1 to 3 inches long,—the radical and lower ones contracted to a margined *petiole* nearly as long as the leaf. *Heads* of flowers rather small; *akenes* sparsely hirsute; *pappus* scanty, brittle.
Hab. Pastures, and upland meadows: common. *Fl.* June. *Fr.* July.

Obs. This is a very common weed,—especially in the first crop of upland meadows, after the usual routine grain crops.

194. DIPLOPAP'PUS, *Cassini.*

[Gr. *diploos*, double, and *Pappos*, pappus; it being in two rows.]

Heads many-flowered; *rays* 8 to 12, in a single series. *Involucre* turbinate-campanulate; *scales* imbricated, lance-linear, keeled, the *tips* not herbaceous. *Akenes* flattish; *pappus* double,—the outer row of short stiff bristles. *Perennials: leaves* alternate, entire; *heads* solitary, or corymbose.

† Rays *violet-purple;* akenes *silky-villous;* inner pappus *uniform.*

1. D. linarifòlius, *Hooker.* Stem slender, terete, suffruticose; leaves linear, rigid, keeled, serrulate-ciliate; heads solitary, large.

LINARIA-LEAVED DIPLOPAPPUS.

Stem 9 to 18 inches high, very leafy, roughish-puberulent, often purple, simple, or with a few short corymbose branches at summit. *Leaves* about an inch long, often glaucous beneath. *Heads* of flowers showy, large for the size of the plant; *disk* yellow; *pappus* white or slightly tawny.

Hab. Hilly, rocky woodlands: frequent. *Fl.* Sept. *Fr.* Octo.

†† Rays *ochroleucous;* akenes *smoothish;* inner pappus *unequal.*

2. D. umbellàtus, *Torr. & Gray.* Stem rather stout, striate-angular; leaves long-lanceolate, acuminate; heads numerous, in compound flat corymbs.

D. amygdalinus. *Fl. Cestr. ed.* 2. *p.* 473.

UMBELLATE DIPLOPAPPUS.

Stem 2 to 4 feet high, smoothish, or scabrous on the angles, branched above.—*Leaves* 2 to 4 inches long, slightly revolute on the margin, narrowed to a short petiole. *Heads* of flowers medium size, on slender roughish-pubescent peduncles; *pappus* whitish, or sometimes reddish-tawny,—the hairs of the inner series slightly thickened at apex.

Hab. Moist thickets, and low grounds: frequent. *Fl.* Aug. *Fr.* Octo.

3. D. cornifòlius, *Darlingt.* Stem slender, terete, smoothish, sparingly and dichotomously corymbose-paniculate at summit; leaves elliptic or rhombic-ovate, acute at both ends; heads few, middle sized.

CORNUS-LEAVED DIPLOPAPPUS.

Stem 1 to 2 feet high, often flexuose, pilose in lines. *Leaves* 2 to 4 inches long, subsessile, roughly hairy on the margin, midrib, and veins beneath. *Heads* of flowers often in pairs, or the branches dichotomous; *pappus* reddish-tawny,—the hairs of the inner series thickened at apex.

Hab. Woodlands; clearings, &c.: frequent. *Fl.* Aug. *Fr.* Octo.

‡ 2. Rays *almost always yellow.*

195. SOLIDA'GO, *L.*

[Latin, *solido*, to make firm, or unite; from its supposed healing virtues.]

Heads usually small and few-flowered; *rays* about 5, in a single series. *Involucre* oblong; *scales* generally appressed, and without herbaceous *tips*. *Akenes* subterete, many-ribbed; *pappus* single, of equal capillary bristles. *Receptacle* small, mostly naked. *Perennials: stems* commonly virgate; *leaves* subsessile, never cordate; *heads* commonly racemose-paniculate.

§ 1. Scales *with spreading herbaceous tips;* heads *in a leafy interrupted compound* spike. [CHRYSASTRUM. *Torr. & Gray.*]

1. S. squarròsa, *Muhl.* Stem stout, striate, smooth below, pubescent above; leaves lance-oblong,—the lower ones spatulate-oval, serrate; heads many-flowered.

SQUARROSE SOLIDAGO.

Stem 2 to 4 feet high, simple. *Radical leaves* 3 to 6 inches long, contracted to a margined *petiole* 2 to 4 inches in length; *stem-leaves* gradually smaller; all subcoriaceous, scabrous on the margin. *Heads* of flowers rather large, in dense axillary clusters, forming a leafy spike; *involucre* puberulent; *scales* oblong, minutely lacerate-ciliate, with the apex spreading or reflexed; *rays* rather long; *akenes* smooth.

Hab. Along Schuylkill: not common. *Fl.* Aug. *Fr.* Octo.

§ 2. Scales *without herbaceous tips.* [VIRGAUREA, *Tourneſ.*]

† Racemes *short, dense, terminal, or closely axillary.*

2. S. bicolor, *L.* Hairy and greyish; leaves lance-oval, the lower ones serrate; racemes terminal, erect, leafy; rays ochroleucous.

TWO-COLORED SOLIDAGO.

Stem 1 to 3 feet high, mostly simple, sometimes with leafy branches at summit. *Radical leaves* 2 to 6 inches long, often spatulate, contracted to a *petiole* nearly as long as the leaf; *stem-leaves* gradually smaller and less serrate, the upper ones entire. *Heads* of flowers in a compound leafy terminal raceme; *involucre* smoothish; *rays* medium size; *akenes* striate, sparsely pubescent, finally smooth.

Hab. Woods, clearings, and low grounds: frequent. *Fl.* Aug. *Fr.* Octo.

3. S. latifòlia, *L.* Smoothish; stem angular, flexuose; leaves broadly oval, acuminate at each end, coarsely and sharply serrate; racemes axillary, oblong.

S. flexicaulis, *var.* latifolia. *Fl. Cestr. ed.* 2. *p.* 460.

BROAD-LEAVED SOLIDAGO.

Stem 18 inches to 3 feet high, simple, often flexuose. *Leaves* 3 or 4 inches long, conspicuously acuminate, and almost laciniately serrate, abruptly narrowed to a tapering margined *petiole* about as long as the acumination at apex. *Heads* of flowers in short racemose axillary clusters; *involucre* smooth; *akenes* hairy.

Hab. Rich woodlands: frequent. *Fl.* Septem. *Fr.* Octo.

Obs. The *S. flexicaulis, L.* has been partly referred to *S. caesia,*—while the *var. latifolia* is admitted to the rank of a *species,* which may be readily known by its remarkable leaves.

4. S. caèsia, *L.* Smooth; stem terete, purple and glaucous; leaves oblong-lanceolate, irregularly serrate; racemes axillary, subglobose.

GREY-BLUE SOLIDAGO. Golden Rod.

Stem 1 to 2 or 3 feet high, slender, simple, or sometimes considerably branched. *Leaves* 2 to 3 or 4 inches long, scabrous on the margin. *Heads* of flowers in numerous axillary and mostly subglobose clusters; *involucre* smoothish; *akenes* pubescent.

Hab. Rich woodlands, and thickets: frequent. *Fl.* Septem. *Fr.* Octo.

Obs. The *Solidagines* are all known, more or less, by the name of *Golden rod;* but this species is so called by way of eminence, in

Chester County. JOHN BARTRAM, in his Appendix to SHORT's *Medicina Britannica*, says this is the Golden Rod "so famous for the bite of a *Rattle-snake;*" and, like many other "famous" cures, is probably little worth, in such cases.

†† Racemes *terminal, erect.* * Heads *small.*

5. S. pubérula, *Nutt.* Minutely hoary-pubescent; leaves lanceolate, nearly entire; racemes dense, leafy.
PUBERULENT SOLIDAGO.

Stem 2 to 3 feet high, simple, striate, often purple. *Leaves* 1 to 3 or 4 inches long, the lower ones rather oblanceolate, all scabrous on the margin. *Heads* of flowers in short erect axillary racemes,—forming altogether a kind of compound leafy spike 4 to 8 or 10 inches in length; *involucre* puberulent, yellowish; *rays* middle-sized: *akenes* minutely pubescent.
Hab. Swamps, and low grounds; J. D. Steele's: rare. *Fl.* Aug. *Fr.* Octo.

** Heads *rather large.*

6. S. speciòsa, *Nutt.* Stem stout, sulcate-striate, smooth; leaves ovate-lanceolate, thickish; racemes thyrsoid; rays large.
HANDSOME, OR SHOWY SOLIDAGO.

Stem 3 to 5 or 6 feet high, often purple, simple, or virgately branched. *Radical leaves* 4 to 6 or 8 inches long, ovate, more or less serrate, on margined *petioles* 2 to 4 or 5 inches in length; *stem-leaves* gradually smaller, narrowed to a short *petiole*,—all smooth, coriaceous, and scabrous on the margin. *Heads* of flowers numerous, clustered on longish axillary branches, which form a kind of terminal panicle; *involucre* smooth; *akenes* striate, smooth.
Hab. Copses; banks of Schuylkill, &c.: rare. *Fl.* Sept. *Fr.* Octo.

††† Racemes *secund, spreading or recurved.*
* Heads *and* leaves *rather large.*

7. S. pátula, *Muhl.* Stem striate-angled, smooth; leaves oval, acute, serrate, very scabrous above, smooth beneath; racemes paniculate, spreading.
SPREADING SOLIDAGO.

Stem 2 to 4 feet high, dark green, or sometimes purple. *Radical leaves* 3 to 6 inches long, crenate-serrate, subcoriaceous, abruptly narrowed to a margined *petiole* about as long as the leaf; *stem-leaves* gradually smaller, narrowed at base, sessile. *Heads* of flowers in secund spreading paniculate racemes; *involucre* minutely pubescent; *rays* middle-sized; *akenes* slightly puberulent and bristly.
Hab. Low grounds; thickets &c.: frequent. *Fl.* Aug. *Fr.* Octo.

Obs. This species is easily recognized by the remarkable shagreen-like roughness of the upper surface of the leaves.

8. S. argùta, *Ait.* Smooth; leaves thickish, elliptic-lanceolate, acuminate, sharply and unequally serrate, smooth on both sides, the margins scabrous-ciliate; racemes dense, smooth, finally elongated and recurved.
S. ciliaris. *Muhl. & Fl. Cestr. ed.* 2. *p.* 455.
SHARP (NOTCHED) SOLIDAGO.

Stem 2 to 3 feet high. *Radical leaves* 4 to 6 or 8 inches long, subcoriaceous, tapering to a margined ciliate *petiole* 2 to 4 inches in length; *stem-leaves* varying to linear-lanceolate, narrowed to a short *petiole*. *Heads* of flowers in secund paniculate racemes; *involucre* smoothish; *akenes* somewhat pubescent.

Hab. Meadows, fields, and woods: frequent. *Fl.* Aug. *Fr.* Sept.

9. S. Muhlenbérgii, *Torr. & Gray.* Smooth; stem striate-angled; leaves thinnish, lance-ovate and elliptic-lanceolate, sharply serrate, acuminate at both ends; racemes pubescent, paniculate.
S. arguta. *Mühl. & Fl. Cestr. ed.* 2. *p.* 458. not of *Ait.*
MUHLENBERG'S SOLIDAGO.

Stem 2 to 3 feet high, simple, or virgately branched. *Radical leaves* 3 to 6 inches long, spatulate-ovate, on margined *petioles; stem-leaves* narrowed at base, subsessile; all thinnish and chartaceous. *Heads* of flowers in secund but seldom recurved racemes, in an elongated and rather slender panicle; *involucre* smoothish; *rays* spatulate-oblong; *akenes* smooth, or minutely puberulent.
Hab. Low, shaded grounds: frequent. *Fl.* Aug. *Fr.* Sept.

** Heads, *and* (*reticulate-veined*) leaves, *rather small.*

10. S. altíssima, *L.* Hirsute; leaves ovate-lanceolate and lance-oblong, acute, serrate, rugose-veined and thickish; racemes spreading, or recurved.
HIGHEST SOLIDAGO.

Stem 3 to 6 or 7 feet high, often purple. *Leaves* 1 to 3 or 4 inches long, irregularly serrate, sessile. *Heads* of flowers in secund spreading racemes; *involucre* smoothish; *scales* linear; *rays* 6 to 9, small; *akenes* pubescent.
Hab. Low grounds; borders of thickets: frequent. *Fl.* Aug. *Fr.* Octo.

Obs. This is variable in size, and in some of its features,—but constantly rough and homely; and quite frequent in moist thickets.

11. S. ulmifòlia, *Muhl.* Stem smoothish, striate,—the branches hairy; leaves lance-oblong and elliptic-ovate, acuminate, tapering at base, coarsely serrate, thinnish, ciliate, hairy beneath; racemes paniculate.
ELM-LEAVED SOLIDAGO.

Stem 3 or 4 feet high, often with long slender branches at summit. *Leaves* 2 to 4 or 5 inches long, reticulately veined, finally smoothish above. *Heads* of flowers in secund racemes, often on long slender straggling branches; *involucre* smooth; *scales* lance-oblong, rather acute; *rays* about 4, short; *akenes* hairy.
Hab. Low grounds; woods and thickets: frequent. *Fl.* Aug. *Fr.* Octo.

12. S. odòra, *Ait.* Stem striate, pubescent in lines; leaves linear-lanceolate, acute, entire, smooth, pellucid-punctate, scabrous on the margin; racemes paniculate.
ODOROUS, OR FRAGRANT SOLIDAGO.

Stem about 3 feet high, simple, rather slender. *Leaves* 1 or 2 to 4 or 5 inches long, scarcely narrowed at base, sessile. *Heads* of flowers in secund racemes, which are mostly spreading or recurved, and form a terminal pyramidal panicle; *involucre* smoothish; *scales* lance-linear; *rays* oblong or oblanceolate; *akenes* hairy.
Hab. Borders of woods, and thickets: not common. *Fl.* Aug. *Fr.* Octo.

Obs. This is an agreeably fragrant, and rather pretty species.

*** Heads *middle-size;* plant *clothed with short cinereous pubescence.*

13. S. nemoràlis, *Ait.* Stem often corymbose at summit; leaves spatulate-oblong and oblanceolate, crenate-serrate, or entire, roughish-pubescent.
WOOD, OR GROVE SOLIDAGO.

Stem 1 to 2 or 3 feet high. *Radical leaves* 1 to 4 or 5 inches long, tapering to a *petiole* 1 to 3 inches in length; *stem-leaves* narrower, tapering almost to a petiole—*Heads* of flowers in secund racemes, on recurved branches (often in axillary clusters); *involucre* smoothish; *scales* lance-oblong, obtuse; *rays* 6 to 9, spatulate-oblong; *akenes* pubescent with white hairs.
Hab. Old fields; roadsides, and borders of woods: common. *Fl.* Aug. *Fr.* Octo.

Obs. This common species is easily known by its ash-colored or bluish-gray aspect.

**** Heads *small;* leaves *lanceolate*, 3-*ribbed*.

14. S. Canadénsis, *L.* Stem roughish-pubescent; scales of the involucre sublinear, rather obtuse; akenes scabrous-pubescent.
CANADIAN SOLIDAGO.

Stem 2 to 5 or 6 feet high, stout and simple, somewhat corymbose-paniculate at summit. *Leaves* 2 or 3 to 5 or 6 inches long, acute or acuminate, sessile, roughish above, softly pilose and somewhat hoary beneath. *Heads* of flowers in secund racemes, on recurved branches; *rays* inconspicuous.
Hab. Hilly woodlands; fence-rows, &c.: frequent. *Fl.* Aug. *Fr.* Octo.

15. S. serótina, *Ait.* Stem smooth, often purplish and glaucous; scales of the involucre lance-oblong, rather acute, ciliate: akenes finally smoothish.
S. gigantea. *Fl. Cestr. ed.* 2. *p.* 455. not of *Ait.*
LATE SOLIDAGO.

Stem 4 to 7 or 8 feet high, stout. *Leaves* 2 to 4 inches long, acuminate, roughish above and on the margin, subsessile. *Heads* of flowers in secund paniculate racemes; *rays* rather larger than in the preceding species.
Hab. Low grounds; borders of thickets: frequent. *Fl.* Aug. *Fr.* Octo.

§ 3. Stem *corymbosely branched;* heads *small, sessile in little clusters;* receptacle *fimbrillate.* [EUTHAMIA, *Nutt.*]

16. S. lanceolàta, *L.* Leaves lance-linear, acute, very entire, somewhat scabrous; corymbs terminal, flat-topped.
LANCEOLATE SOLIDAGO.

Stem 2 to 4 feet high, much branched, angular-striate, with green and yellow stripes, roughish-pubescent. *Leaves* 2 or 3 to 5 inches long, narrow, sessile. *Heads* of flowers aggregated in clusters at the summit of the corymbose branches; *involucre* smoothish, shining and slightly viscid: *scales* lance-oblong, rather obtuse, appressed, deeper green at apex; *rays* 15 to 20, small; *akenes* pubescent.
Hab. Moist low grounds; borders of thickets: frequent. *Fl.* Aug. *Fr.* Octo.

196. CHRYSOPSIS, *Nutt.*

[Gr. *Chrysos*, gold, and *Opsis*, aspect; in allusion to the yellow florets.]

Heads many-flowered; *rays* numerous. *Involucre* campanulate, or turbinate; *scales* linear, imbricated, without herbaceous *tips*. *Akenes* compressed, obovate-oblong, hairy; *pappus* double, the outer row of short chaffy bristles. *Receptacle* flat. Chiefly *perennials:* silky-villous, or hairy; *heads* rather large, terminal, corymbose.

1. C. Mariàna, *Nutt.* Silky-lanuginous; stem rather stout, leafy; leaves spatulate-lanceolate and elliptic-oblong, nearly entire.
Diplopappus Marianus. *Hook. & Fl. Cestr. ed.* 2. *p.* 475.

MARYLAND CHRYSOPSIS.

Stem 1 to 2 feet high, simple, terete, often purple. *Leaves* 2 to 4 or 5 inches long,—the *radical* and *lower* ones narrowed to a *petiole*,—the *upper* ones sessile.—*Heads* of flowers few, mostly in a subumbellate corymb; *involucre* glandular-pubescent, viscid; *rays* and *disk* yellow; *akenes* hirsute, reddish-brown.
Hab. Sandy soils; Oxford, and N. Valley hill: rare. *Fl.* Sept. *Fr.* Octo.

SUBTRIBE 2. INULE'AE.

Heads radiate, with the *florets* as in *Asterineae; anthers* with bristle-like *tails* at base; *receptacle* naked. *Leaves* alternate; *rays* and *disk* the same color.

197. IN'ULA, *L.*

[The ancient Latin name; of obscure meaning.]

Heads large, many-flowered; *rays* in a single series, very numerous, linear. *Involucral scales* loosely imbricated, in several series, the outer ones foliaceous. *Akenes* 4-sided, or terete; *pappus* of capillary bristles. Mostly *perennials: leaves* often clasping; *heads* solitary, or corymbose; *florets* yellow.

1. *I. Helènium*, L. Stout; pubescent; leaves large, oblong-ovate, those of the stem clasping; akenes 4-sided.
Elecampane.

Stem 3 to 5 feet high, sulcate, branching above. *Leaves* 9 to 18 inches long, and 4 to 6 or 8 inches wide, acute or acuminate, denticulate, hoary-tomentose beneath,—the *radical* ones *petiolate*. *Outer scales* of the *involucre* ovate, tomentose. *Anthers* produced at base into 2 *tails*, or bristle-like appendages. *Akenes* smooth; *pappus* pale tawny.
Hab. Roadsides. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. The large *root* of this plant is mucilaginous; and was formerly in some repute as a popular remedy for coughs,—and even as a preventative of *Hydrophobia*, among the credulous.

TRIBE 4. SENECIONID'EAE.

Style-branches linear, externally convex, hairy or pencil-tufted at apex,—either truncate, or produced into a cone, or hairy appendage; the *stigmatic lines* terminating at the base of the cone or appendage, and not confluent. *Leaves* opposite, or alternate.

SUBTRIBE 1. MELAMPODIN'EAE.

Florets all imperfect (i. e. staminate, or pistillate, only),—either in the *same head*, when the *pistillate* are in the border,—or in *separate heads; anthers* without *tails* at base; *pappus* mostly none, sometimes 2-horned, never of capillary bristles; *receptacle* mostly chaffy.

198. POLYM'NIA, *L.*

[Dedicated (with little taste in the selection) to one of the *Muses*.]

Heads rather small, many-flowered; *rays* several, in a single series, pistillate and fertile; *disk-florets* apparently perfect, but sterile.—*Involucre* somewhat hemispherical; *scales* in 2 series,—the *outer* about 5, foliaceous, large and spreading,—the *inner* numerous, small and membranaceous. *Akenes* obovoid, subcompressed, smooth. *Receptacle* flat; *chaff* membranaceous. Stout *perennials: leaves* mostly opposite, petiolate, with *stipule-like appendages*.

1. P. Canadénsis, *L.* Viscid-pubescent; leaves angulate and

hastate-lobed, the lower ones pinnatifid; rays small, trifid, whitish or ochroleucous.

CANADIAN POLYMNIA.

Stem 2 to 4 or 5 feet high, branching. *Leaves* 4 to 8 or 10 inches long, and 3 to 6 inches broad, very thin, mostly 3-lobed and rather dilated towards the apex, deeply hastate-lobed at base, often alternate,—the *lower* ones deeply pinnatifid, with clasping stipule-like appendages at the base of the petiole. *Heads* of flowers small, loosely paniculate; *rays* scarcely 1 third of an inch long. *Akenes* dark brown, with a prominent rib on each margin, and one on the inner face; crowned with a whitish protuberant ring.

Hab. Moist, rich woods: rare. *Fl.* Aug. *Fr.* Sept.

Obs. This species, formerly indigenous along the Brandywine, is now extremely rare,—except in the gardens of the curious. The recent plant has a considerable odor,—something between that of *Yarrow* and *Tansey*.

2. P. Uvedàlia, *L.* Roughish-pubescent; leaves broad-ovate, sinuate-lobed, the lower ones sub-palmate; rays elongated, 3-toothed, deep yellow.

UVEDAL'S POLYMNIA.

Stem 3 or 4 to 6 or 8 feet high, stouter than the preceding, often with opposite axillary branches above. *Leaves* 4 to 10 or 12 inches long, thin, ciliate,—the *lower* ones nearly as wide as long, 3- to 5-lobed, abruptly contracted at base to a tapering winged *petiole* which is somewhat sinuate-lobed, and 2 to 4 inches in length. *Heads* of flowers larger than in the preceding, paniculate; *rays* about an inch long.

Hab. Great Valley; near Brooke's Mill: rare. *Fl.* Aug. *Fr.* Sept.

199. AMBRO'SIA, *Tournef.*

[Poetically, *Food of the Gods;* a name singularly inappropriate to our plant.]

Heads monoicous,—the *staminate* ones 5- to 20-flowered, in terminal racemes,—the *pistillate* 1-flowered, in bracteate clusters of 2 or 3 to 5, sessile at the base of the racemes, or in the axils of the upper leaves. *Involucre* of the *staminate* heads flattish; *scales* several, united into a cup; *florets* all funnel-form. *Involucre* of the *pistillate florets* turbinate, closely embracing the akene, like a utricle, acuminate, with 4 to 8 (usually 5 or 6) pointed tubercles near the summit. *Corolla* none. *Akene* obovoid. Chiefly *annuals: leaves* opposite and alternate, petiolate, lobed or pinnatifidly dissected.

1. A. trífida, *L.* Stem tall and stout, rough-hairy; leaves palmately 3- to 5-lobed, lobes oval-lanceolate.

TRIFID AMBROSIA.

Stem 3 to 6 or 8 feet high, angular, branched. *Leaves* 4 to 6 or 8 inches long, usually 3-lobed (sometimes undivided), opposite, hairy and scabrous, on slightly margined ciliate *petioles* about an inch in length. *Staminate heads* numerous, in long terminal paniculate racemes; *florets* whitish. *Involucre* of the *pistillate florets* strongly 5- or 6-ribbed,—the *ribs* with as many acute points at top.

Hab. Low grounds; waste places, &c.: frequent. *Fl.* Aug. *Fr.* Octo.

Obs. A coarse homely *weed*, and frequent enough,—but not so abundant as the following species. If the generic *name* has reference to the mythological *Ambrosia*, it must be something like *Lucus, a non lucendo!* I should have supposed it more likely to have been

in commemoration of some obscure Botanist, named *Ambrose;* but the authorities are otherwise.

2. A. artemisiaefòlia, *L.* Stem rather slender and diffusely branched, villous and roughish; leaves bipinnatifid, the upper ones simply pinnatifid.

A. elatior. *L. & Fl. Cestr. ed.* 2. *p.* 479.

ARTEMISIA-LEAVED AMBROSIA. Bitter-weed. Rag-weed.

Stem 1 to 3 or 4 feet high, usually bushy. *Leaves* 2 to 4 inches long; *petioles* ¼ of an inch to an inch in length, mostly ciliate with long white hairs. *Staminate heads* small, in terminal slender spicate racemes. *Pistillate florets* in axillary bracteate clusters, below the staminate racemes: sometimes the heads are *dioicous*, —i. e. the *terminal racemes* (or rather interrupted *spikes*, in that case,)—as well as the clusters beneath,—are *all pistillate!* and the flowers in small sessile bracteate clusters. *Involucre* of the *pistillate florets* scarcely ribbed. *Akene* mucronate, dark brown.

Hab. Cultivated fields, and pastures: common. *Fl.* Aug. *Fr.* Octo.

Obs. This worthless *weed* is apt to spring up wherever the ground is broken with the plough,—and to be particularly abundant among the stubble, after a crop of wheat: but, if the land be good, the plant seems to be smothered or choked out, the next season, by the clover and grasses.

200. XAN'THIUM, *Tournef.*

[Gr. *Xanthos*, yellow; a color said to be afforded by the plant.]

Heads monoicous, in spicate clusters,—the *staminate* above, many-flowered. *Involucre* of the *staminate heads* subglobose; *scales* distinct; *florets* clavate. *Pistillate heads* 2-flowered,—the *involucre* oblong, closed, coriaceous, armed with hooked prickles, and 1 or 2 strong beaks at apex; *corolla* filiform. *Akenes* oblong, compressed. *Annuals: leaves* alternate, petiolate, lobed, or dentate.

1. *X. strumàrium,* L. Leaves broad-ovate, somewhat 3-lobed; petioles not spinose at base; pistillate involucre with 2 strong straight beaks at apex.

SCROFULOUS XANTHIUM. Clot-weed. Cockle-bur.

Stem 1 to 3 feet high, angular, branching, scabrous-pubescent. *Leaves* 3 to 6 inches in length, and nearly as wide as long, subcordate at base, but cuneately produced in the centre, at the junction of the 3 principal nerves; *petioles* 2 to 4 inches long. *Heads* of flowers in axillary racemose clusters,—the *pistillate* ones at the base of the racemes.

Hab. Farm-yards; roadsides, &c. Nat. of Europe. *Fl.* Aug. *Fr.* Octo.

Obs. This is evidently, I think, a stranger, here,—and is an obnoxious weed, though not disposed to spread rapidly. The *burs* are a great annoyance, in the fleeces of sheep.

2. *X. spinòsum,* L. Leaves ovate-lanceolate, hoary-tomentose beneath; petioles triply spinose at base; pistillate involucre with a single inconspicuous beak at apex.

SPINOSE XANTHIUM. Thorny Clot-weed.

Stem 2 or 3 feet high, terete, striate, pubescent, branched. *Leaves* 1 to 3 inches long, sometimes 3-lobed, or with a lobe-like tooth on each side, narrowed at base to a short pubescent *petiole,*—on each side of which is a triple or 3-forked yellowish

spine, the branches about an inch long, and very sharp. *Heads* of flowers axillary, mostly solitary.

Hab. Farm-yards, and waste places. Nat. of Europe. *Fl.* Sept. *Fr.* Octo.

Obs. This execrable foreign weed has found its way into our County, but is happily yet rare; and it behooves every good citizen to extirpate it, wherever it may appear. Some years since, the authorities of one of our cities—where it was becoming a great nuisance, in the streets—enacted an *ordinance* against the plant,—denouncing it by the name of *Canada Thistle!* The misnomer probably did not impair the efficacy of the ordinance: But it would be more reputable to all concerned, if they could avoid confounding objects which are essentially distinct,—and learn to designate even *weeds* by their proper names.

SUBTRIBE 2. HELIAN'THEAE.

Heads mostly radiate,—the *disk-florets* always perfect; *anthers* blackish, without *tails* at base; *pappus* none, or crown-form, or consisting of awns, or awn like chaff, —never capillary, nor of uniform distinct chaffy scales. *Receptacle* chaffy. *Leaves* often opposite.

201. HELIOP'SIS, *Persoon.*

[Gr. *Helios*, the sun, and *opsis*, aspect; resembling the sun, or sun-flowers.]

Heads many-flowered; *ray-florets* 10, or more, pistillate. *Involucral scales* in 2 or 3 series,—the *outer* ones foliaceous, and somewhat spreading,—the *inner*, shorter than the disk. *Akenes* of the disk 4-angled, smooth; *pappus* none, or a mere border. *Receptacle* convex; *chaff* long, linear. *Perennials:* resembling *Helianthus; leaves* opposite, petiolate; *flowers* yellow.

1. H. laèvis, *Pers.* Smoothish; leaves lance-ovate or oblong-ovate, serrate; involucre pubescent, the outer scales lance-oblong, spreading, subserrate at apex.

Smooth Heliopsis. False Sunflower.

Stem 2 to 4 feet high, di-or tri-chotomously branching at summit. *Leaves* 2 or 3 to 6 inches long, 3-nerved, obtuse at base, or abruptly narrowed to a *petiole* half an inch to an inch in length. *Heads* of flowers middle-sized, on long naked terminal peduncles; *rays* an inch to an inch and a half long. *Akenes* of the *disk* 4-angled, of the *ray* 3-angled, with the outer side convex,—all truncate at apex, reddish-brown.

Hab. Banks of streams: frequent. *Fl.* July. *Fr.* Sept.

202. RUDBECK'IA, *L.*

[In honor of *Olaus Rudbeck*, father and son; Swedish Botanists.]

Heads many-flowered; *ray-florets* neutral. *Involucral scales* in about 2 series, foliaceous, spreading. *Akenes* 4-angled; *pappus* a minute crown-like border. *Receptacle* more or less conical; *chaff* short, concave, not rigid. Chiefly *perennials: leaves* alternate; *rays* yellow, generally long and drooping.

† Disk *oblong-conical, greenish-yellow.*

1. R. laciniàta, *L.* Stem smooth; lower leaves pinnatifid,—upper ones 3- to 5-lobed, or lance-ovate and entire; pappus crenate.

Laciniate Rudbeckia. Jagged-leaved Cone-flower.

Stem 4 to 6 or 8 feet high, striate, branching. *Radical* and *lower leaves* 4 to 8 or 10 inches long, deeply pinnatifid,—*segments* about 5, oval-lanceolate, incised-serrate or laciniate, the terminal one trifid; *petioles* 2 to 4 or 5 inches in length; upper leaves trifid or entire, subsessile. *Heads* of flowers rather large, corymbose-paniculate; *rays* 1 to 2 inches long. *Chaff* of the *receptacle* cuneate-oblong, concave and keeled, obtuse, tomentose at summit.
Hab. Moist, low grounds; thickets, &c.: frequent. *Fl.* July. *Fr.* Sept.

†† Disk *broadly conical, or hemispherical, dark purple.*

2. R. fúlgida, *Ait.* Stem hairy; radical leaves ovate, petiolate, —stem-leaves spatulate-oblong and lanceolate, sessile and somewhat clasping; disk hemispherical.
SHINING RUDBECKIA.

Stem about 2 feet high, rather slender, virgately branched, or sometimes simple. *Leaves* 2 to 4 inches long, sparingly denticulate, the *radical* ones on *petioles* 1 to 2 inches in length. *Heads* of flowers rather small, solitary on the long peduncle-like branches. *Chaff* of the *receptacle* spatulate-linear, abruptly acute, nearly smooth.
Hab. Old fields; borders of thickets, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

3. R. hírta, *L.* Hirsute; lower leaves spatulate, petiolate,—upper ones ovate-lanceolate, sessile; disk conical.
ROUGH-HAIRED RUDBECKIA.

Perennial? *Stem* 18 inches to 3 or 4 feet high, rather stout, often simple, or branched near the base. *Leaves* 2 to 3 or 4 inches long,—the *radical* ones on hirsute *petioles* 1 to 2 inches in length. *Heads* of flowers middle-sized, on long stoutish striate-sulcate naked peduncles. *Chaff* of the *receptacle* sublinear, rather acute, hairy and ciliate at summit.
Hab. Fence-rows, and thickets: not common. *Fl.* July. *Fr.* Sept.

203. HELIAN'THUS, *L.*

[Gr. *Helios*, the sun, and *anthos*, a flower; from its radiate flowers.]

Heads many-flowered, sometimes very broad; *ray-florets* numerous, neutral. *Involucral scales* in 3 or more series, imbricated, foliaceous, subsquarrose. *Akenes* 4-sided, laterally compressed, not winged, embraced by the folded persistent *chaff* of the usually flat *receptacle; pappus* mostly 2 (sometimes several) unequal chaff-like deciduous awns, or acute scales. Chiefly *perennials: heads* corymbose, or solitary; *rays* yellow.

† Leaves *chiefly opposite, 3-nerved.*

1. H. divaricàtus, *L.* Leaves sessile, lance-ovate, rounded or truncate at base, tapering to the apex, more or less serrate, thickish and rough.
DIVARICATE HELIANTHUS.

Stem 2 to 4 or 5 feet high, slender, smoothish, di- or tri-chotomously branched above, often nearly simple. *Leaves* 3 to 5 or 6 inches long, all opposite and divaricate. *Heads* of flowers small, and few (often 3, the middle one dichotomal); *rays* 8 to 10 or 12, yellow, with orange veins, about ¾ of an inch long. *Akenes* striate; *pappus* subulate-chaffy, ciliate.
Hab. Borders of woods, and thickets: frequent. *Fl.* July. *Fr.* Sept.

2. H. decapétalus, *L.* Leaves ovate-oblong, acuminate, re-

motely but sharply and sometimes coarsely serrate, contracted at base to a cuneate margined petiole, thinnish, green and sparsely hairy on both sides.
H. frondosus. *Hook. & Fl. Cestr. ed.* 2. *p.* 493.
TEN-PETALED HELIANTHUS.

Stem 3 to 5 feet high, rather slender, somewhat angular, smooth below, with alternate axillary scabrous branches at summit. *Leaves* 3 to 6 inches long; *petioles* half an inch to near 2 inches in length. *Heads* of flowers rather small; *rays* 8 or 10, pale sulphur-yellow, about an inch in length. *Akenes* compressed, obovate-oblong.
Hab. Along the Brandywine: frequent. *Fl.* August. *Fr.* October.

3. H. strumòsus, *L.* Leaves ovate-lanceolate, on short petioles, more or less serrate with small appressed teeth, scabrous above, softly pubescent and whitish beneath.
H. mollis. *Willd. & Florul. Cestr. p.* 92. not of *Lam.*
H. decapetalus. *Fl. Cestr. ed.* 2. *p.* 483. not of *L.*
SCROFULOUS HELIANTHUS.

Stem 2 to 4 feet high, rather slender, roughish-pubescent and somewhat branched at summit. *Leaves* 3 to 6 or 8 inches long, abruptly contracted at base to a *petiole* 1 third to 3 fourths of an inch in length. *Heads* of flowers middle-sized: *rays* about 10, yellow, with orange veins, an inch to an inch and a half in length. *Akenes* sub-compressed, obovate, variegated, hairy at summit; *pappus* of subulate-lanceolate chaffy scales about as long as the akene, and 2 or 3 additional smaller ones which are ovate, acute, and lacerately fringed.
Hab. Borders of woods, and thickets: frequent. *Fl.* Aug. *Fr.* Octo.

†† Leaves *chiefly alternate, and penninerved.*

4. H. gigánteus, *L.* Leaves lanceolate, acute at each end, more or less serrate, thick and rough-hairy, subsessile.
GIGANTIC HELIANTHUS. Wild Sunflower.

Stem 5 to 8 feet high, rather stout, terete, more or less hirsute and scabrous, corymbose-paniculate at summit. *Leaves* 2 or 3 to 6 inches long, narrowed almost to a petiole at base; the narrow portion ciliate,—the *lower* leaves often opposite.—*Heads* of flowers rather large; *rays* 12 to 20, yellow, with orange veins, about an inch in length. *Akenes* cuneate-oblong; *pappus* of 2 lance-subulate finely lacerate chaffy scales.
Hab. Borders of Thickets: frequent. *Fl.* Aug. *Fr.* Octo.

††† Leaves *alternate, 3-nerved.*

5. H. TUBERO'SUS, L. Root tuberiferous, perennial; stem branching; leaves subcordate and ovate, serrate-dentate, scabrous, on ciliate petioles.
TUBEROUS HELIANTHUS. Jerusalem Artichoke.

Stem 4 to 6 or 8 feet high, stout, terete, branching, hirsute and scabrous. *Leaves* 4 to 6 or 8 inches long, abrubtly contracted at base to a narrow cuneately-tapering margined *petiole* 1 to 2 or 3 inches in length,—the lower leaves subcordate, and often opposite (rarely ternate). *Heads* of flowers rather large; *rays* about an inch long. *Akenes* as in the preceding.
Hab. Gardens, and lots. Nat. of Brazil. *Fl.* Aug. *Fr.* Octo.

Obs. This is often cultivated for its fleshy *tubers*,—which are used for pickles. It is nearly *naturalized* in some places.

6. *H. ánnuus*, L. Root fibrous, annual; stem stout, nearly simple; leaves cordate and broadly ovate, petiolate; heads subsolitary, very large.

ANNUAL HELIANTHUS. Garden Sunflower.

Stem 4 to 6 or 8 feet high. *Leaves* 6 to 10 or 12 inches long, and 4 to 6 or 8 inches broad, on *petioles* 3 to 6 inches in length. *Heads* of flowers 4 to 8 or 10 inches in diameter, flat, often nodding; rays 1 to 2 inches long. *Akenes* obovate-oblong, striate, somewhat pubescent, leaden brown, with white margins, and stripes.

Hab. Gardens, &c. Nat. of Peru. *Fl.* Aug. *Fr.* Octo.

Obs. This species is almost *naturalized*, in many gardens,—being much cultivated as a showy plant. It is said to be worth cultivating, for the *oil* afforded by the *akenes*. Doctor DARWIN thus sings of the Sunflower:—

"Great HELIANTHUS guides o'er twilight plains
In gay solemnity his Dervise-trains;
Marshal'd in *fives* each gaudy band proceeds,
Each gaudy band a plumed Lady * leads;
With zealous step he climbs the upland lawn,
And bows in homage to the rising dawn;
Imbibes with eagle eye the golden ray,
And watches, as it moves, the orb of day."—

204. ACTINOM'ERIS, *Nuttall.*

[Gr. *Aktin*, a ray, and *meris*, a part; the heads being but partially rayed.]

Heads many-flowered; *ray-florets* few, distant, neutral. *Involucral scales* in 1 to 3 series, foliaceous. *Akenes* 4-angled, laterally compressed, 2-winged; *pappus* 2 smoothish persistent *awns*. *Chaff* of the small convex *receptacle* embracing the outer winged margin of the akenes. Tall *perennials: leaves* penninerved, mostly alternate, and decurrent; *heads* corymbed; *flowers* chiefly yellow.

1. A. squarròsa, *Nutt.* Stem winged above; leaves lanceolate, acuminate at each end; scales of the involucre in 2 series, finally reflexed; disk subglobose, in fruit squarrose; akenes broadly winged.

SQUARROSE ACTINOMERIS.

Stem 3 to 6 or 8 feet high, rather slender, roughish-pubescent, yellowish, with green wings decurrent from the leaves. *Leaves* 4 to 6 or 8 inches long, serrate, narrowed at base to a tapering margined *petiole*,—the margin decurrent on the stem. *Heads* of flowers rather small, in a terminal leafy corymbose panicle; *rays* 3 to 5 or 6, about an inch long. *Akenes* much compressed, obovate, somewhat hairy; *pappus* of 2 subulate diverging awns.

Hab. Moist grounds; along streams: not common. *Fl.* Aug. *Fr.* Sept.

205. BI'DENS, *L.*

[Latin, *bi-dens*, having 2 teeth; alluding to the *awns* of the fruit.]

Heads many- (or sometimes few-) flowered; *ray-florets* neutral, often few and inconspicuous, sometimes wanting. *Involucral scales* in 2 series,—the *outer* commonly large and foliaceous. *Akenes* obcom-

* In reference to this phrase, Dr. D. remarks, in a note, that "the seeds of many plants of this class are furnished with *a plume*, by which admirable mechanism, they are disseminated by the winds far from their parent stem, and look like a shuttlecock, as they fly." This is true of many syngenesious plants; but unluckily for the Poet's *Botany*, is not at all applicable to the pappus of *Helianthus*.

pressed, or slender and 4-sided; *pappus* 2 to 4 or 5 rigid persistent retrorsely-hispid *awns*. *Receptacle* flattish; *chaff* deciduous. Mostly *annuals: leaves* opposite, penninerved; *flowers* generally yellow.

† Akenes *flat, with ciliate margins, not tapering at summit.*

* Rays *usually wanting.*

1. B. frondòsa, *L.* Leaves odd-pinnately divided in fives and threes, the leaflets lanceolate, serrate; akenes 2-awned, ciliate with erect hairs.

FRONDOSE, OR FOLIACEOUS BIDENS. Bur-Marigold.

Stem 2 to 4 or 5 feet high, angular, branched, sparsely pilose, often dark purple. *Leaflets* 2 to 4 or 5 inches long, with short margined *petioles; common petiole* 1 to 3 inches long, somewhat margined. *Heads* of flowers rather small, on long slender naked axillary branches; *involucre* double,—the *outer scales* 8 to 10 or 12, foliaceous, unequal, much longer than the head, ciliate near the base; *rays* none.—*Akenes* obovate-cuneate, antrorsely ciliate; *awns* longer than the florets.

Hab. Gardens; fence-rows, &c.: common. *Fl.* Aug. *Fr.* Octo.

Obs. A homely, troublesome weed, in gardens, and lots. The adhesive akenes, of all the species, are a well-known annoyance.

2. B. connàta, *Muhl.* Leaves lanceolate, serrate, tapering at base to margined subconnate petioles; akenes 3- or 4-awned, retrorsely hispid-ciliate.

B. petiolata. *Nutt. & Fl. Cestr. ed.* 2. *p.* 486.

CONNATE BIDENS.

Stem 1 to 2 or 3 feet high, striate, branched, smooth, often purple. *Leaves* 2 to 5 or 6 inches long, with a long entire acumination, smooth. *Heads* of flowers middle-sized; *involucre* double,—the *outer scales* about 5, foliaceous, much longer than the head; *rays* generally wanting. *Akenes* striate, retrorsely hispid on the margins; *pappus* 3 or 4 retrorsely hispid *awns*,—the 2 middle ones shorter, and of these the inner one often entirely wanting.

Hab. Low, swampy grounds; ditches, &c.: frequent. *Fl.* Sept. *Fr.* Octo.

* * Rays *numerous and conspicuous.*

3. B. chrysanthemoides, *Mx.* Leaves oblong-lanceolate, tapering at each end, dentate-serrate, sessile and connate; akenes 2- to 4-awned, retrorsely aculeate-ciliate.

CHRYSANTHEMUM-LIKE BIDENS. Beggar-ticks.

Stem 1 to 2 feet high, erect, or reclining at base, often angular, smooth, branched, the branches opposite and axillary. *Leaves* 3 to 6 inches long, smooth, roughish on the margin. *Heads* of flowers rather large, solitary on the branches, often somewhat nodding; *involucre* double,—the *outer scales* about 8, foliaceous, spreading, the largest ones nearly as long as the bright yellow *rays*. *Akenes* somewhat keeled on the flatted sides; *pappus* usually 4 (sometimes 2, or 3) retrorsely hispid *awns* about as long as the disk florets.

Hab. Low grounds; along swampy rivulets: frequent. *Fl.* Aug. *Fr.* Octo.

† † Akenes *4-sided, long and slender, tapering at summit.*

4. B. bipinnàta, *L.* Leaves bipinnately dissected, petiolate; rays about 3, small; akenes 3- or 4-awned, sublinear, sulcate, smoothish.

BIPINNATE BIDENS. Spanish Needles.

Stem 2 to 4 feet high, 4-angled, smooth, branched. *Leaves* 2 to 4 or 5 inches

long, deltoid-ovate in their outline; *segments* lance-ovate, mostly cuneate and attenuate at base; *petiole* 1 to 3 or 4 inches in length. *Heads* of flowers small, oblong, on long naked sulcate-angular axillary and terminal peduncles; *involucre* double,—the *scales* connate at base, the *outer* ones about 8, rather shorter and narrower than the *inner* ones; *rays* obovate, yellow, with dark veins. *Akenes* about ¾ of an inch long, sprinkled with short erect hairs; *pappus* of 3 or 4 retrorsely hispid *awns*.

Hab. Gardens, and cultivated lots: common. *Fl.* Aug. *Fr.* Octo.

SUBTRIBE 3. HELENIE'AE.

Disk-florets apparently perfect, but sometimes sterile; *pappus* composed of several distinct *chaffy-scales*; *receptacle* naked or chaffy.

206. HELE'NIUM, *L.*

[Said to be named after *Helen*, the wife of Menelaus.]

Heads many-flowered; *ray-florets* numerous, pistillate, cuneate, 3- to 5-lobed at apex. *Involucral scales* in 2 series,—the *outer* foliaceous, subulate-lanceolate, reflexed, the *inner* fewer and much shorter, chaffy. *Akenes* turbinate, ribbed; *pappus* of 5 to 8 thin 1-nerved acuminate or awned chaffy scales. *Receptacle* hemispherical, nearly naked. *Leaves* alternate, sessile and decurrent; *heads* terminal on the corymbose branches; *flowers* yellow.

1. H. autumnàle, *L.* Stem angular, and somewhat winged; leaves lanceolate, acuminate, serrate; disk subglobose; rays drooping.

AUTUMNAL HELENIUM. Sneeze-weed.

Plant pale cinereous-green, from its minute pubescence: *perennial*. *Stem* 2 to 5 feet high, corymbose-paniculate, the branches angular and leafy. *Leaves* 2 to 4 inches long, narrowed at base. *Heads* of flowers middle-sized; *peduncles* 1 to 2 inches long, thickened near the involucre; *rays* strongly veined.

Hab. Margins of streams: frequent. *Fl.* Aug. *Fr.* Octo.

SUBTRIBE 4. ANTHEMID'EAE.

Heads radiate, or discoid, never dioicous; *disk-florets* sometimes abortive; *anthers* without *tails* at base; *pappus* none, or a very small crown. *Leaves* alternate, often much dissected.

§ 1. Heads *of flowers radiate.*

207. MARU'TA, *Cassini.*

[ ]

Heads many-flowered; *ray-florets* mostly neutral. *Involucre* hemispherical. *Akenes* obovoid, ribbed; *pappus* none. *Receptacle* prominently convex, *chaffy* all over, or only at summit. Fetid *annuals: leaves* bi-tri-pinnately dissected.

1. *M. Cótula*, DC. Involucral scales with whitish scarious margins; receptacle chaffy at summit, only.

Anthemis Cotula. *L. & Fl. Cestr. ed.* 2. *p.* 489.

Fetid Chamomile. Richardson's Pink. Dog's Fennel.

Stem 6 to 12 inches high, mostly erect, leafy, and bushily branched. *Leaves* 1 to 2 inches long, subsessile, green, bipinnately dissected; *segments* linear, acute.—*Heads* of flowers terminal on leafless peduncles; *rays* white, *disk* yellow. *Receptacle* oblong-conical; *chaff* subulate, shorter than the florets.

Hab. Farm yards, lanes, &c. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This worthless little *weed* is extensively naturalized among us; and may be readily distinguished from the *Wild Chamomile*, by its strong repulsive odor.

208. AN'THEMIS, *L.*

[Gr. *Anthemon*, a flower; from the number it produces.]

Heads many-flowered; *ray-florets* pistillate. *Involucre* campanulate. *Akenes* terete, or obtusely 4-corned; *pappus* none, or a minute crown. *Receptacle* conical, with membranaceous *chaff* among the florets. *Annuals*, or *perennials:* sometimes aromatic; *leaves* bipinnately dissected; *heads* with yellow *disks*, and white *rays*.

1. *A. arvénsis*, L. Stem erect, hairy; chaff of the receptacle lanceolate, cuspidate, longer than the florets; pappus a very short crown-form margin.

FIELD ANTHEMIS. Wild Chamomile.

Annual; nearly inodorous. *Stem* 9 to 15 inches high, striate, branched.—*Leaves* ¾ of an inch to an inch and a half long, clothed with cinereous hairs; *segments* flat, lance-linear, acute; *petioles* about half an inch in length. *Involucral scales* with the margins and apex scarious and rather tawny.

Hab. Cultivated grounds. Nat. of Europe. *Fl.* June. *Fr.* Aug.

2. A. NOB'ILIS, L. Stems decumbent, spreading, villous; chaff of the receptacle lanceolate, not cuspidate, shorter than the florets; pappus nearly obsolete.

NOBLE ANTHEMIS. Garden Chamomile.

Perennial; aromatic. *Stem* 4 to 8 or 10 inches long, branching from the base, leafy. *Leaves* 1 to 2 inches long, subsessile; *segments* subulate. *Heads* of flowers rather large; *disk* convex, finally conical; *rays* elliptic-oblong, finally reflexed.

Hab. Gardens. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. The whole herb is a fine aromatic bitter,—particularly the *heads of flowers*. It is an old and still prevalent opinion, that this plant thrives better for being trampled upon, or kept prostrate,—whence it was popularly called "*the Whig Plant*," during the revolutionary contest, in the United States. The *notion* is thus incidentally alluded to, by SHAKSPEARE, in the first part of *King Henry IV.*—"For though the *Camomile*, the more it is trodden on the faster it grows—yet youth, the more it is wasted the sooner it wears."

209. ACHILLE'A, *L.*

[Named after *Achilles;* a medical Greek, who first used the plant.]

Heads several-flowered; *ray-florets* few and short, pistillate; *tube* of the *disk-florets* obcompressed, margined. *Involucre* obovoid-oblong. *Akenes* obcompressed, oblong, somewhat margined; *pappus* none. *Receptacle* small, flattish, chaffy. *Perennials: leaves* alternate, often pinnatifidly dissected; *heads* small, in flat dense corymbs.

1. *A. Millefòlium*, L. Stem mostly simple; leaves bipinnatifid, the segments linear, incised-serrate; rays 4 or 5, roundish-obovate.

THOUSAND-LEAF ACHILLEA. Yarrow. Milfoil.

Stem 2 to 3 feet high, sulcate-striate, hairy and somewhat lanuginous, leafy.—*Leaves* 2 or 3 to 6 inches long—the *radical* ones often still longer,—subsessile,

more or less pilose. *Heads* of flowers numerous, fragrant; *involucral scales* with a prominent keel or midrib; *rays* white, or often tinged with purple; *disk-florets* whitish,—the *tube* green, sprinkled with resinous particles; *chaff* of the *receptacle* lance-oblong, acute.

Hab. Pastures, &c. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This plant, also, is a pleasant aromatic bitter—and though spoken of, in England, as of some value in pastures,—is universally regarded, here, as a mere *weed*.

210. LEUCAN'THEMUM, *Tournef.*

[Gr. *Leukos* white, and *anthemon*, a flower; in reference to its white rays.]

Heads many-flowered; *ray-florets* numerous, pistillate; *disk-florets* obcompressed. *Involucre* almost flatly spreading; *scales* with scarious margins. *Akenes* all similar, subterete, striate or ribbed, smooth; *pappus* none. *Receptacle* flattish, naked. *Perennials: leaves* mostly pinnatifid or incised-dentate; *heads* rather large, solitary and terminal; *disk* yellow, *rays* white.

1. *L. vulgàre*, Lam. Stem erect, nearly simple, rather naked above; radical leaves spatulate, petiolate,—stem-leaves oblong, sessile and clasping, all incised-dentate; involucral scales with narrow russet-brown margins.

Chrysanthemum leucanthemum. *L. & Fl. Cestr. ed.* 2. *p.* 490.

COMMON LEUCANTHEMUM. Ox-eye Daisy. White Weed.

Stem 1 to near 2 feet high, angular, somewhat hairy, purplish on the angles.—*Leaves* ¾ of an inch to near 2 inches long; *radical leaves* on *petioles* 1 to 3 inches long. *Heads* of flowers 1 to 2 inches in diameter, including the spreading *rays*, which are about equal in length to the diameter of the disk. *Akenes* dark purple between the ribs.

Hab. Fields, and meadows. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This foreigner is a great nuisance, on the farms in Eastern Pennsylvania,—especially in the vicinity of Philadelphia, where it has abounded for more than *a century*, and seems likely still to prevail. JOHN BARTRAM, in his Correspondence, speaks of it as "a very destructive weed, in meadow and pasture grounds, choking the grass and taking full possession of the ground, so that the fields will look as white as if covered with snow; but (he says) the hoe and plough will destroy this weed." No doubt, those implements, adequately applied, might abate the nuisance; but so long as there are negligent, slovenly farmers among us, it will be vain to hope for its thorough extirpation.

§ 2. Heads *of flowers all discoid, or nearly so.*

211. TANACE'TUM, *L.*

[Corrupted from the Gr. *Athanasia*, undying; from its durable flowers.]

Heads many-flowered; *florets* all perfect,—or the *marginal* ones pistillate, trifid, and obsoletely radiate. *Involucre* campanulate; *scales* dry. *Akenes* angular, with a large epigynous disk; *pappus* a minute crown. *Receptacle* more or less convex, naked. *Perennials: leaves* alternate, dissected; *heads* densely corymbose, yellow.

1. *T. vulgàre*, L. Smoothish; leaves bipinnately parted, the lobes and rachis incised-serrate; rays terete; pappus 5-lobed.
COMMON TANACETUM. Tansey.

Stems 2 to 4 feet high, somewhat branched above, usually growing in clusters. *Leaves* subsessile, 3 to 6 or 8 inches long, interruptedly pseudo-pinnate, *Heads* of flowers depressed-hemispherical; *involucre* smoothish; *florets* deep yellow; *akenes* 5-angled, smooth.
Hab. Gardens; roadsides, &c. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. This was introduced, as a popular domestic medicine,—and is now very extensively naturalized.

212. ARTEMIS'IA, *L.*

[Dedicated to *Artemis*,—the Diana of the Greeks.]

Heads few- or many-flowered; *marginal florets* pistillate, or sometimes all similar and apparently perfect. *Involucre* subglobose; *scales* dry, with scarious margins. *Akenes* obovoid, with an epigynous disk; *pappus* none. *Receptacle* small, flattish, naked, or hairy.—*Perennials: leaves* alternate, usually pinnatifid; *heads* in panicled spikes, or racemes; *florets* yellowish, inconspicuous.

‡1. Receptacle *naked.* † Central florets *abortive;* stem *herbaceous.*

1. A. DRACUN'CULUS, L. Radical leaves trifid at apex, stem-leaves linear-lanceolate, subdentate or entire; heads racemose-paniculate.
LITTLE-DRAGON ARTEMISIA. Tarragon.

Plant green and glabrous. *Stem* 2 to 3 feet high, branching. *Leaves* 1 to 2 or 3 inches long, lanceolate, sessile, mostly entire, narrowed at each end, those on the branches smaller. *Heads* of flowers globose, small, racemose on the spreading paniculate branches.
Hab. Gardens. Nat. of Siberia. *Fl.* Aug. *Fr.* Sept.

Obs. This is cultivated, occasionally, for the sake of its aromatic *herbage*,—which is said to impart a fine flavor to vinegar.

†† Florets *all fertile.* * Stem *fruticose.*

2. A. ABRO'TANUM, L. Lower leaves bipinnatifid,—upper ones simply pinnatifid, segments capillaceous, elongated; heads virgate-paniculate.
DEATH-HINDERING ARTEMISIA. Southern-wood. Old Man.

Plant minutely puberulent. *Stems* 2 to 3 or 4 feet high, nearly simple, angular, leafy, numerous from the root. *Leaves* half an inch to an inch and a half long; *petioles* about ½ an inch long. *Heads* of flowers hemispherical, nodding, numerous in axillary racemes, forming a long slender leafy racemose panicle.
Hab. Gardens. Nat. of Europe. *Fl.* Aug. *Fr.* Octo.

Obs. Cultivated as one of the popular aromatic bitter herbs.

** Stem *herbaceous.*

3. *A. vulgàris*, L. Leaves whitish-tomentose beneath, deeply pinnatifid, the segments often incised; heads in leafy spreading spicate panicles.
COMMON ARTEMISIA. Mug-wort.

Stems 2 to 3 or 4 feet high, branching, leafy, often purplish. *Leaves* subsessile, 1 to 3 inches long, segments linear-lanceolate, ½ an inch to 2 inches in length,—

the upper leaves entire. *Heads* of flowers ovoid, nodding or finally erect; *involucre* hoary-tomentose.

Hab. Gardens, and waste places: Native of Europe. *Fl.* Aug. *Fr.* Sept.

Obs. Introduced, and naturalized, in a few localities.

§ 2. Receptacle *hairy;* stem *suffruticose.*

4. A. ABSIN'THIUM, L. Silky-hoary; leaves bipinnatifid, the segments lance-oblong, obtuse; heads in leafy paniculate racemes.
DISAGREEABLE ARTEMISIA. Worm-wood.

Plant hoary with a short and rather dense silky pubescence. *Stems* 2 to 4 feet high, numerous from the root, angular, branching above. *Leaves* half an inch to 2 inches long; *petioles* about as long as the leaves. *Heads* of flowers hemispherical, numerous. *Akenes* obconic-oblong. *Receptacle* very hairy.

Hab. Gardens. Nat. of Europe. *Fl.* Aug. *Fr.* Sept.

Obs. This plant—proverbial for its bitterness—is kept in many gardens, for its medicinal properties.

SUBTRIBE 5. GNAPHALIN'EAE.

Heads all discoid, sometimes *dioicous; involucral scales* mostly dry and scarious; *pistillate florets* with filiform corolla; *anthers* with *tails* at base; *pappus* hair-like, or bristly. Floccose-woolly herbs; *leaves* alternate.

213. GNAPHA'LIUM, *L.*

[Gr. *Gnaphalon,* soft down, or wool; with which the plants are clothed.]

Heads many-flowered; *central florets* perfect; *marginal* ones pistillate, very slender, in several series. *Akenes* obovoid-oblong; *pappus* capillary, in a single series. *Receptacle* flat, naked. *Leaves* sessile, sometimes decurrent, entire; *heads* clustered, or corymbed.

1. G. polycéphalum, *Mx.* Stem erect, paniculate; leaves linear-lanceolate, naked and green above, woolly beneath; heads ochroleucous.
MANY-HEADED GNAPHALIUM. Life-everlasting.

Annual. Stem 1 to 2 feet high, paniculately branched above. *Leaves* 1 to 3 inches long, somewhat wavy on the margins. *Heads* of flowers rather small, numerous, ovoid-oblong, in dense sub-corymbose clusters at the summits of the branches; *florets* yellowish, very fragrant.

Hab. Old fields, and pastures: common. *Fl.* Aug. *Fr.* Octo.

2. G. uliginòsum, *L.* Stem low, diffusely branched; leaves sublinear, woolly on both sides; heads yellowish-tawny.
MIRE, OR MARSH GNAPHALIUM. Marsh Cud-weed.

Annual: plant ash-colored. *Stem* 3 or 4 to 6 or 8 inches high, bushy or much branched from the base, leafy and very woolly. *Leaves* about an inch long.—*Heads* of flowers small, in dense clusters in the bosom of the leaves at the summit of the branches; *involucre* very woolly at base.

Hab. Low grounds; exsiccated ponds, &c.: frequent. *Fl.* July. *Fr.* Aug.

3. G. purpùreum, *L.* Stem simple; leaves oblong-spatulate, rather obtuse, green above, white and woolly beneath; heads purplish-tawny, or leaden color.
PURPLE GNAPHALIUM.

Perennial? plant bluish leaden color. *Stem* 6 to 12 or 15 inches high. *Leaves* ¾ of an inch to an inch and a half long,—the upper surface somewhat lanuginous,

but bluish-green,—the under surface densely clothed with a white tomentum.—*Heads* of flowers small, in compact axillary and terminal clusters; *involucre* somewhat ventricose, lanuginous at base; *scales* smooth; *florets* white, with a minute purplish limb.

Hab. Dry, open woods; clearings, &c.: frequent. *Fl.* July. *Fr.* Aug.

Obs. Further observation has led me to doubt whether this species be really *perennial*. As TORREY and GRAY remark, it certainly has the appearance of an *annual*.

214. ANTENNA'RIA, *Gaertn.*

[The sterile pappus resembling the *Antennæ* of some insects.]

Heads many-flowered, *dioicous* or nearly so; *pistillate florets* very slender. *Akenes* oblong; *pappus* in a single series, filiform in the fertile heads, *clavate* in the sterile ones. *Receptacle* flat, or convex, not chaffy. *Perennials: leaves* sessile, entire; *heads* corymbose: *involucre* dry and scarious, often pearly white; *florets* yellowish.

1. A. margaritàcea, *R. Br.* Stem erect, sub-simple, corymbose at summit; leaves lance-linear, lanuginous above, tomentose beneath; involucral scales obtuse, pearly white.

Gnaphalium margaritaceum. *L. & Fl. Cestr. ed.* 2. *p.* 494.

PEARLY ANTENNARIA.

Stem 1 to near 2 feet high, leafy and hoary-tomentose. *Leaves* 2 to 4 inches long, sublinear, acuminate, narrowed at base. *Heads* of flowers rather large, roundish-ovoid, crowded in a terminal corymb; *disk* tawny; *receptacle* flat, pitted.

Hab. Slaty hills, near West Chester: rare. *Fl.* Aug. *Fr.* Sept.

Obs. This species—so remarkable for its beautiful pearly heads—is occasionally found on our dry hills; but, to me, it has the appearance of a stray plant among us.

2. A. plantaginifòlia, *Hook.* Stem simple, with procumbent runners at base; radical leaves spatulate, or elliptic and 3-nerved: corymb clustered; involucral scales greenish.

Gnaphalium dioicum, and var. *L. & Fl. Cestr. ed.* 2. *p.* 494–5.

PLANTAIN-LEAVED ANTENNARIA. White Plantain. Cat-foot.

Stem 2 or 3 to 8 or 10 inches high, hoary with a bluish tinge,—often with 2 or 3 procumbent offsets from the base, which are nearly as long as the upright scape-like stem. *Radical leaves* 1 to 2 or 3 inches long, obvate-spatulate, or oval and strongly 3-nerved, narrowed to a margined *petiole; stem-leaves* small, lanceolate.—*Heads* of flowers few (3 to 6 or 8), oblong or subturbinate, in a dense terminal cluster. *Receptacle* convex, pitted.

Hab. Sterile knolls, in low grounds: frequent. *Fl.* April. *Fr.* May.

Obs. This species, as now constituted, certainly presents two strongly marked *varieties*,—one of which nearly approaches the *A dioica*, of Europe, in appearance.

215. FILA'GO, *Tournef.*

[Latin, *Filum*, a thread; from the cottony hairs that cover it.]

Heads many-flowered; *central florets* apparently perfect, but abortive,—the others pistillate. *Akenes* oblong; *pappus* of the *centra* florets capillary,—of the *outer* ones mostly wanting, or caducous.—*Receptacle* columnar or turbinate, naked at summit, chaffy at base.

the *chaff* resembling involucral scales, each covering a pistillate floret. *Annuals: leaves* sessile, entire; *heads* in capitate clusters.

1. *F. Germánica*, L. Stem mostly dichotomous; leaves linear-lanceolate, erect; heads in terminal and dichotomal clusters; involucral scales cuspidate, woolly at base.
Gnaphalium Germanicum. *L. & Fl. Cestr. ed.* 2. *p.* 493.
GERMAN FILAGO. Common Cud-weed.

Stem 6 to 9 inches high, woolly, mostly dichotomous above, or with 2 or more proliferous spreading branches arising from the central clusters of woolly heads,—sometimes branching from near the root. *Leaves* half an inch to three quarters in length, woolly on both sides, somewhat clasping. *Heads* of flowers small, in dense roundish-ovoid clusters.
Hab. Dry hills; roadsides, &c. Nat. of Europe. *Fl.* July. *Fr.* Aug.

Obs. This seems clearly to be an introduced plant,—and has only found its way, as yet, into the northern portion of the County.

SUBTRIBE 6. SENECIO'NEAE.

Heads discoid, or radiate, never *dioicous: marginal florets* pistillate; *anthers* without *tails* at base; *pappus* capillary, often soft and white; *receptacle* mostly naked. *Leaves* generally alternate.

216. ERECHTI'TES, *Rafin.*

[The ancient Greek name of some species of *Senecio*.]

Heads many-flowered, discoid,—the *florets* all fertile. *Involucre* cylindric-oblong, smooth; *scales* in a single series, linear, acute, with subulate *bractlets* at base. *Akenes* oblong, tapering at apex; *pappus* copious, soft and silky, very white. Coarse *annuals: leaves* undivided; *heads* corymbose-paniculate; *florets* whitish, very slender.

1. E. hieracifòlia, *Rafin.* Smoothish; stem striate-sulcate, often virgate; leaves lance-oblong, acute, sessile,—the upper ones auriculate at base and somewhat clasping, unequally dentate.
Senecio hieracifolius. *L. & Fl. Cestr. ed.* 2. *p.* 498.
HIERACIUM-LEAVED ERECHTITES. Fire-weed.

Stem 2 to 4 or 5 feet high, stout, succulent and tender when young, paniculately branched, or occasionally subsimple and virgate. *Leaves* 3 to 6 or 8 inches long. *Heads* of flowers in small cymose corymbs terminating the paniculate branches.
Hab. Moist grounds; recent clearings, &c.: common. *Fl.* July. *Fr.* Sept.

Obs. This plant is remarkable for its prevalence, in and around spots where brush-wood has been burned;—whence its popular name of "*fireweed.*"

217. CACA'LIA, *L.*

[An ancient Greek name, of uncertain meaning.]

Heads few- or many-flowered, discoid; *florets* all perfect. *Involucre* ovoid-oblong; *scales* in a single series, with a few *bractlets* at base. *Akenes* oblong, smoothish; *pappus* of numerous roughish hair-like bristles. *Receptacle* flat, naked, or sometimes with a conical cluster of concrete chaff in the centre. Smooth *perennials: leaves* often petiolate; *heads* in flat corymbs; *flowers* whitish.

1. C. atriplicifòlia, *L.* Lower leaves broad-cordate, sinuate-

angled and dentate,—upper ones rhomboid and cuneate, coarsely dentate; heads about 5-flowered.

ATRIPLEX-LEAVED CACALIA. Indian Plantain.

Stem 3 to 5 or 6 feet high, striate, often purplish, but glaucous withal. *Leaves* conspicuously nerved, pale or yellowish green above, glaucous beneath,—the *radical* ones 4 to 6 inches in length, and about as wide as long, on striate *petioles* 3 to 6 or 8 inches long,—*stem-leaves* gradually smaller, the uppermost often oblong and entire, and the *petioles* gradually shorter. *Heads* of flowers small, numerous.—*Receptacle* with an acute membranous *column* in the centre, longer than the akenes, and apparently formed of connate chaffy scales.

Hab. Woodlands, and moist shaded grounds: frequent. *Fl.* July. *Fr.* Sept.

218. SENE'CIO, *L.*

[Latin, *Senex*, an old man; the pappus resembling a white beard.]

Heads many-flowered,—either *discoid* with the florets all perfect, or *radiate* with the ray-florets pistillate. *Involucre* subcylindric; *scales* in a single series, or with *bractlets* at base. *Akenes* oblong, ribbed; *pappus* of numerous soft slender hairs. *Receptacle* flat, naked. *Heads* mostly corymbed; *florets* chiefly yellow.

† Heads *discoid: Annuals.*

1. *S. vulgàris*, L. Leaves pinnatifid and dentate,—the lowest petiolate, the upper clasping; heads nodding.

COMMON SENECIO. Groundsel.

Stem 6 to 12 or 15 inches high, paniculately branching, angular, mostly smoothish. *Leaves* 1 to 3 inches long,—the upper ones somewhat auricled and clasping,—the *lower* ones on *petioles* ½ an inch to an inch in length. *Involucre* somewhat conical, smooth; *scales* often sphacelate, or blackish, at apex, bracteolate at base.—*Akenes* pubescent on the ribs.

Hab. West-Chester. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. This homely little *weed* was detected in the streets of West Chester, in 1846, by Mr. PENNOCK PASSMORE; and in 1850 was exceedingly multiplied in the same locality,—though scarcely to be seen, the succeeding year. Prof. DE CANDOLLE says it has migrated almost every where, with European men; but whether it is likely to become troublesome to our farmers, is not yet ascertained.

†† Heads *radiate: Perennials.*

2. S. aùreus, *L.* Radical leaves roundish-cordate, obovate, or lance-oblong,—stem-leaves lyrate, or lanceolate and pinnatifid; corymb umbel-like.

Also, S. obovatus, and Balsamitae. *Muhl. & Fl. Cestr. ed.* 2. *p.* 497.

GOLDEN SENECIO. Rag-wort. Squaw-weed.

Stem 1 to 2 feet high, striate, smoothish, or floccose-woolly when young. *Radical leaves* 1 to 3 inches long, varying from cordate to obovate, and lanceolate; *petioles* 1 or 2 to 6 or 8 inches long; *stem-leaves* sessile and often clasping. *Heads* of flowers on peduncle-like subumbellate branches.

Hab. Banks of streams, and moist grounds: frequent. *Fl.* May. *Fr.* July.

Obs. TORREY and GRAY have reduced two of MUHLENBERG'S *species* (along with 2 or 3 others) to the grade of *varieties*; which may be well enough, whenever practicable, in a genus that comprises near 600 species.

219. AR'NICA, *L.*

[Name supposed to be corrupted from *Ptarmica.*]

Heads many-flowered, radiate; *ray-florets* pistillate. *Involucre* campanulate; *scales* somewhat in 2 series, lanceolate, equal. *Akenes* tapering downwards, somewhat ribbed; *pappus* a single row of rough bristles. *Receptacle* flat, fimbrillate. *Perennials: leaves* opposite; *heads* large, single, or few and loosely corymbed; *flowers* yellow.

1. A. nudicaùlis, *Ell.* Hirsute; stem scape-like, with a pair of lance-ovate sessile leaves near the middle; radical leaves ovate-oblong, clustered, decussate.

NAKED-STEM ARNICA. Leopard's Bane.

Stem 1 to 2 feet high, simple, with a few peduncle-like branches at summit.—*Radical leaves* 2 to 4 inches long, sessile, nearly entire, usually 3 or 4 pairs, spreading on the ground, strongly nerved. *Heads* of flowers large. *Akenes* sparsely pilose, nearly black when mature.

Hab. Moist meadows; Penn township: rare. *Fl.* June. *Fr.* July.

Obs. Prof. GRAY seems to have overlooked this species, when preparing his *Manual.* It appears to be truly indigenous, in the locality named.

TRIBE 5. CYNA'REAE.

Heads discoid, usually large, sometimes *dioicous; involucral scales* imbricated in many series; *style,* in the perfect florets, often nodosely thickened near the summit; branches distinct, or concrete, puberulent externally,—the *stigmatic lines* extending to their apex, and there confluent.

220. CENTAURE'A, *L.*

[Named from the *Centaur,* Chiron; who, it is said, used the plant.]

Heads many-flowered; *florets* unequal,—the marginal ones mostly enlarged, or falsely radiate, and neutral. *Involucre* roundish-ovoid; *scales* variously margined, or appendaged. *Akenes* compressed; *pappus* one or more series of rough bristles, or sometimes wanting. *Receptacle* bristly. *Leaves* alternate; *heads* solitary.

1. *C. Cy'anus,* L. Hoary-lanuginous; leaves lance-linear, sessile, entire, or toothed at base; involucral scales fringe-margined; pappus very short.

BLUE CENTAUREA. Blue-bottle. Ragged Robbin. Blue Bonnets.

Annual. Stem 18 inches to 3 feet high, much branched. *Leaves* 2 to 6 inches long, sometimes pinnatifid near the base. *Heads* of flowers pedunculate; *florets* mostly blue,—the marginal ones obsoletely pistillate, enlarged and funnel-form, with a long tube. *Akenes* with a lateral *areola.*

Hab. Gardens, and waste places. Nat. of Europe. *Fl.* July, *Fr.* Aug.

Obs. Partially naturalized; and, if not attended to, may become a troublesome *weed,*—as it is in Europe.

221. CYNA'RA, *Vaill.*

[Gr. *Kyon, kynos,* a dog; the involucral spines resembling dog's teeth.]

Heads many-flowered; *florets* all equal. *Involucre* ovoid; *scales* coriaceous, produced into a lanceolate appendage which is spinescent at apex. *Anthers* with an obtuse appendage. *Style-branches*

entirely concrete. *Akenes* compressed, obovate, smooth,—the *areola* broad, and somewhat oblique: *pappus* in several series, long, plumose. *Receptacle* flat, fimbrillate. Spinose *perennials: leaves* alternate, mostly pinnatifid-lobed, not decurrent; *heads* very large, with a thick fleshy *receptacle; florets* bright violet-purple.

1. C. Scolymus, L. Stem stout; leaves deeply bipinnatifid, subspinose, tomentose beneath; involucral scales ovate, thick and fleshy at base.
French Artichoke.

Stem 3 to 5 feet high, branching above, striate and tomentose. *Leaves* 1 to near 2 feet long. *Heads* 2 to 3 inches in diameter; *styles* conspicuously exserted,—the concrete branches bright purplish-blue.
Hab. Gardens. Nat. country uncertain. *Fl.* Aug. *Fr.* Sept.

Obs. Cultivated occasionally, by the curious, for the sake of the *fleshy receptacle*, and *bases* of the involucral scales.

222. CIR'SIUM, *Tournef.*

[Gr. *Kirsos*, a swelled vein: for which it was a supposed remedy.]

Heads many-flowered; *florets* all similar and perfect, or rarely imperfectly *dioicous*. *Involucre* roundish-ovoid; *scales* mostly tipt with a spine. *Anthers* with a linear-subulate appendage; *filaments* often hairy. *Style-branches* concrete nearly to the apex. *Akenes* oblong, compressed; *pappus* of many hairs united in a ring at base, plumose to the middle. *Receptacle* fimbrillate. *Leaves* alternate, mostly sessile, often pinnatifid and prickly; *heads* usually large, terminating the branches; *flowers* generally purplish.

† Involucral scales *all tipt with a spreading spine.*

1. *C. lanceolàtum*, Scop. Leaves pinnatifid, decurrent, forming a prickly winged stem, prickly-hispid on the upper surface, cobwebby beneath, the segments lanceolate.
Carduus lanceolatus. *L. & Fl. Cestr. ed.* 2. *p.* 436.
Lanceolate Cirsium. Common Thistle.

Biennial. Stem 2 to 4 feet high, stout, branching. *Leaves* 4 to 8 or 12 inches long,—the *radical* ones (as is usual with *biennials,*) much larger than the *cauline*. *Heads* ovoid, about an inch in diameter; *florets* purple; *anthers* yellowish.
Hab. Pastures; roadsides, &c.: Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. A troublesome foreigner,—delighting in a rich soil; and requiring some attention to keep it in subjection.

†† Inner scales *unarmed, appressed;* filaments *hairy.*
* Leaves *white-woolly beneath.*

2. C. dis'color, *Spreng.* Leaves all pinnatifid, smoothish and green above, densely tomentose and bluish-white beneath.
Carduus discolor. *Nutt. & Fl. Cestr. ed.* 2. *p.* 437.
Two-colored Cirsium.

Biennial. Stem 2 to 5 feet high, with rather slender spreading leafy branches, pubescent with crisped membranous hairs. *Leaves* 3 or 4 to 12 or 15 inches long, those on the branches small. *Heads* ovoid-oblong, 1 to 2 inches in length; *florets* reddish-purple; *anthers* whitish.
Hdb. Old fields; borders of thickets: frequent. *Fl.* Aug. *Fr.* Sept.

3. C. altis'simum, *Spreng.* Radical leaves pinnatifid, petiolate, stem-leaves undivided, lance-oblong, dentate, roughish above, hoary-tomentose beneath.
Carduus altissimus. *L. & Fl. Cestr. ed.* 2. *p.* 439.
TALLEST CIRSIUM.

Perennial? *Stem* 3 to 6 or 8 feet high, branching and slender above, roughish-pubescent. *Radical leaves* 12 to 18 inches long, and 3 to 5 or 6 inches wide, denticulate, and ciliate with spinescent bristles. *Heads* oblong-ovoid, about an inch in diameter, with linear-lanceolate spinescent-ciliate *bracts* at base; *involucral scales* of a livid color near the apex, terminating in a subulate spine. *Florets* purple, often palish.
Hab. Borders of thickets; fence-rows, &c.: not common. *Fl.* Aug. *Fr.* Sept.

* * Leaves *green on both sides,* or *loosely lanuginous beneath; pinnatifid.*

4. C. mùticum, *Mx.* Stem tall, with slender paniculate rather naked branches; heads subglobose; involucral scales unarmed, closely appressed, viscid and cobwebby.
Carduus muticus. *Nutt. & Fl. Cestr. ed.* 2. *p.* 438.
MUTIC, OR POINTLESS CIRSIUM.

Perennial? *Stem* 3 to 5 or 6 feet high, rather slender, angular-sulcate and striate, pubescent; branches virgate, few-leaved. *Leaves* 4 to 12 inches long; segments lanceolate, spinulose. *Heads* half an inch to an inch in diameter; *florets* purple.
Hab. Low grounds; swampy thickets: frequent. *Fl.* Aug. *Fr.* Sept.

5. C. pùmilum, *Spreng.* Stem low, stout; leaves partly clasping, with irregular undulate very prickly segments; heads few, large, conspicuously bracteate; outer involucral scales with short spines; florets pale red.
Carduus pumilus. *Nutt. & Fl. Cestr. ed.* 2. *p.* 437.
DWARF CIRSIUM.

Biennial? Plant pale greyish-green. *Stem* 1 to 2 feet high, thick and sparingly branched, striate and hairy. *Leaves* 4 to 12 or 15 inches long (the radical ones large), densely hairy on the midrib beneath. *Heads* usually 1 to 3, roundish-ovoid, 1 to 2 inches in diameter, with large pinnatifid spinose *bracts* at base; *florets* often 2 inches in length, pale reddish-purple, with whitish *anthers.*
Hab. Sterile old fields, and low grounds: frequent. *Fl.* July. *Fr.* Aug.

Obs. The flowers of this species are quite fragrant, and the heads rather handsome,—being the largest of any of our native thistles.

6. *C. horrídulum,* Mx. Stem stout; leaves partly clasping, acutely lobed, very spinose with yellowish prickles; heads few, large, with a verticil of pectinately-spinose bracts at base; involucral scales scarcely spinose; florets pale yellow.
Carduus spinosissimus. *Fl. Cestr. ed.* 2. *p.* 438.
RUGGED CIRSIUM. Yellow Thistle.

Perennial? *Stem* 18 inches to 2 or 3 feet high, mostly simple, striate, lanuginous. *Leaves* 4 to 10 inches long. *Heads* often solitary, sometimes as large as in the preceding species; *bracts* about as long as the involucre: *involucral scales* tapering to a subulate point.
Hab. Fields; Londongrove: rare. *Fl.* July. *Fr.* Aug.

Obs. This repulsive plant may be indigenous to the U. States,—but it is evidently a *stranger* in this County; and our farmers would do well to keep it such.

† † † Involucral scales *all unarmed:* heads *small, imperfectly dioicous.*

7. *C. arvénse*, Scop. Rhizoma creeping; stem slender, paniculate at summit; leaves sinuate-pinnatifid, ciliate-spinose, undulate; heads numerous, ovoid.
Carduus arvensis. *Sm. & Fl. Cestr. ed.* 2. *p.* 439.
FIELD CIRSIUM. Canada Thistle.

Rhizoma perennial,—creeping horizontally 6 or 8 inches below the surface of the ground, and sending up erect *biennial branches*, or aerial *stems*, which are 18 inches to 3 feet high. *Leaves* 4 to 8 or 10 inches long, slightly decurrent, the radical ones curled or wavy. *Heads* about half an inch in diameter, subpedunculate; *involucral scales* smoothish, minutely ciliate; *florets* pale lilac-purple; *anthers* whitish, *filaments* nearly smooth. *Akenes* linear-oblong, slightly 4-cornered; *pappus* finally longer than the florets.
Hab. Fields, &c. Nat. of Europe. *Fl.* July. *Fr.* Aug.

Obs. This foreigner (which, from the common name, seems to have reached us by way of *Canada,*) is justly regarded as one of the vilest vegetable pests that has yet invaded our country. It is, happily, yet rare in *Chester County;* and ought to be most vigilantly watched, and promptly extirpated whenever it makes its appearance.

223. LAP'PA, *Tournef.*

[Gr. *labein*, to lay hold; from its hooked tenacious involucres.]

Heads many-flowered; *florets* all similar and perfect. *Involucre* globose; *scales* coriaceous, appressed at base, spreading and abruptly subulate above, with a rigid incurved point. *Anthers* with bristly appendages or tips, and subulate *tails* at base. *Style-branches* free and divergent. *Akenes* oblong, compressed, transversely rugose; *pappus* of numerous short rough deciduous bristles. *Receptacle* bristly. *Biennials? leaves* alternate, petiolate, large; *heads* rather small; *florets* purple, with bluish *anthers.*

1. *L. mȧjor*, Gaertn. Lower leaves cordate-oblong, upper ones ovate; involucre smoothish, or loosely cobwebby.
Arctium Lappa. *L. & Fl. Cestr. ed.* 2. *p.* 436.
GREATER LAPPA. Burdock.

Stem 2 to 4 or 6 feet high, paniculately branching, roughish-pubescent. *Leaves* green and roughish above, paler and cobwebby-tomentose beneath,—*radical* ones 1 to 2 feet long, wavy and erosely dentate on the margin (sometimes pinnatifid, or deeply and coarsely dentate); *petioles* 9 to 18 inches in length; *stem-leaves* gradually smaller, and more or less ovate. *Heads* roundish-ovoid, ½ an inch to ¾ in diameter, on short peduncles, terminal and axillary.
Hab. Waste places. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. Every body, that has been in contact with its *burs*, knows this coarse homely *weed;* but every body does not take care to keep it in due subjection. The remarkable *variety*, with pinnatifid leaves, is quite frequent about the streets of West Chester.

SUBORDER II. LIGULAEFLO'RAE.

Florets all ligulate and perfect, disposed in a radiatiform head.

TRIBE 6. CICHORA'CEAE.

Style-branches slender, rather obtuse, uniformly pubescent; *stigmatic lines* termi-

nating near the middle. *Herbs* with a *milky juice! leaves* alternate; *receptacle* generally naked.

224. CICHO'RIUM, *Tournef.*

[Formed from *Chicouryeh*,—the Arabic name of the plant.]

Heads many-flowered. *Involucral scales* in 2 series,—the outer about 5 in number, short and spreading—the inner 8 or 10. *Akenes* turbinate, striate, smooth; *pappus* crown-like, formed of numerous minute chaffy obtuse *scales*.

1. *C. Inty'bus*, L. Radical leaves runcinate, hispidly scabrous on the midrib,—stem-leaves oblong, sinuate-dentate or entire, partly clasping; heads axillary, subsessile, mostly in pairs.
Wild Succory. Chicory.

Perennial. *Stem* 2 to 4 feet high, with virgate roughish-pubescent branches.—*Radical leaves* 4 to 8 or 10 inches long; *stem-leaves* smaller, inconspicuous on the branches. *Heads* of flowers axillary on the side of the stem and branches, in pairs, or often solitary; *florets* blue, or purplish, sometimes white.
Hab. Fields, and meadows. Nat. of Europe. *Fl.* Aug. *Fr.* Sept.

Obs. This foreigner is becoming frequent in the northern side of our County,—and is justly ranked among the unprofitable intruders.

2. C. ENDIVIA, Willd. *var.* SATIVA, DC. Radical leaves obovate-oblong, sinuate-dentate, or pinnatifid, smoothish,——stem-leaves auriculately dilated at base; heads aggregated in twos and fours in the axils of the upper leaves, or solitary on elongated branches.
Garden Succory. Endive.

Biennial, or sometimes *annual*. *Stem* 2 to 3 feet high, somewhat branched, fistular, smoothish, or sparsely hirsute. *Radical leaves* 6 to 12 inches long, tapering to the base, toothed, or pinnatifid with the margin curled and lacerate. Outer *involucral scales* hispid-ciliate; *florets* violet-purple, sometimes white.
Hab. Gardens. Nat. of India. *Fl.* July. *Fr.* Sept.

Obs. This is cultivated for the young *radical leaves*,—which are *etiolated* or blanched by the exclusion of light, and then used as a Salad. The sort with *crisped leaves* is considered as the best for the table.

225. KRIG'IA, *Schreber.*

[Named in honor of *David Krieg;* a German Botanist.]

Heads several- (15- to 20-) flowered. *Involucral scales* several, somewhat in a double series. *Akenes* turbinate, striate-angular; *pappus* double,—the *outer* of 5 rounded chaffy *scales*—the *inner* of as many alternating slender *bristles*. Small *annuals: leaves* mostly all radical; *heads* solitary, small, on naked elongating simple *scapes; florets* yellow.

1. K. Virginica, *Willd.* Leaves mostly lyrate, smooth and glaucous,—the earlier ones rounded or spatulate.
VIRGINIAN KRIGIA. Dwarf Dandelion.

Leaves 1 to 2 or 3 inches in length, often lanceolate and sinuate-dentate, narrowed to a *petiole* at base. *Scape* 3 to 9 inches high, slender, usually 2 to 4 or 5 from the root, sometimes solitary. *Involucral scales* linear-lanceolate, nearly equal, spreading. *Akenes* reddish-brown, crowned with 5 cuneate-obovate membranous scales, and 5 scabrous white bristles.
Hab. Dry, sandy ground; roadsides, &c.: frequent. *Fl.* May. *Fr.* June.

Obs. This little plant varies considerably, in the different stages of its progress to maturity.

226. CYN'THIA, *Don.*

[Probably from Mount *Cynthus;* which was sacred to Apollo & Diana.]

Heads many-flowered. *Involucral scales* somewhat in 2 rows.—*Akenes* oblong, striate; *pappus* double,—the *outer* of numerous minute chaffy *scales*—the *inner* of many elongated deciduous *hairs.* Smoothish glaucous *perennials: leaves* chiefly radical; *heads* few, terminal, rather large; *florets* deep yellow.

1. C. Virginica, *Don.* Stem mostly bifid or trifid at summit, few-leaved; radical leaves lanceolate, entire, sessile and clasping.

C. amplexicaulis. *Beck, and Fl. Cestr. ed.* 2. *p.* 441.

VIRGINIAN CYNTHIA.

Stem 12 to 18 inches high, often 2 or 3 from the root, somewhat dichotomously branched at summit, or often with 3 slender naked upright peduncles, and with a clasping leaf at the forks. *Radical leaves* 3 to 6 inches long, narrowed to a petiole at base. *Involucral scales* lance-linear, united at base, arranged alternately somewhat in a double series.

Hab. Meadows, on the slaty hills: not common. *Fl.* May. *Fr.* July.

227. TRAGOPO'GON, *Tournef.*

[Gr. *Tragos,* a goat, and *Pogon,* a beard; in allusion to the pappus.]

Heads many-flowered. *Involucral scales* 8 to 16, in a nearly single series, somewhat united at base, finally reflexed. *Akenes* striate, scabrous, terminating in a long continuous *beak; pappus* in several series, all plumose except the *outer* ones, which are longer than the rest. *Leaves* sublinear, with parallel nerves.

1. T. PORRIFO'LIUM, L. Root fusiform, fleshy; leaves lance-linear, acuminate, very entire, sessile and clasping; heads on terminal clavate fistular peduncles.

LEEK-LEAVED TRAGOPOGON. Oyster-plant. Salsify.

Plant smooth and somewhat glaucous; *biennial? Stem* 3 to 4 or 5 feet high, somewhat dichotomously branching. *Leaves* 6 to 12 or 15 inches long, distichously arranged, ovately dilated at base, and tapering to a long slender acumination.—*Involucral scales* lanceolate, longer than the *florets,* which are violet-purple with a fuscous or greenish-brown tinge. *Akenes* lance-oblong, tapering to a smooth slender *beak* about an inch in length, with the *pappus* at summit.

Hab. Gardens. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. Cultivated for its fleshy *root,*—which, when properly cooked, has something of the flavor of fried *Oysters;* whence one of its common names.

228. HIERA'CIUM, *Tournef.*

[Gr. *Hierax,* a hawk; being supposed a sharpener of that bird's vision.]

Heads many-flowered. *Involucre* ovoid-oblong; *scales* more or less imbricated. *Akenes* oblong, striate, not beaked; *pappus* a single series of tawny fragile bristles. *Perennials: leaves* entire, or dentate, usually crowded at the base of the stem; *heads* panicled, or single; *florets* yellow.

1. H. scàbrum, *Mx.* Stem rather stout, leafy, hirsute; leaves obovate or oval; panicle oblong; peduncles thickish, divaricate, glandular-hirsute.
H. Gronovii, *var. b.* foliosum. *Mx. & Fl. Cestr. ed.* 2. *p.* 447.
SCABROUS HIERACIUM. Rough Hawkweed.

Stem 2 to near 3 feet high, mostly simple, racemose-paniculate at summit.—*Leaves* 1 to 5 inches long,—the *lower* ones tapering almost to a *petiole* at base; *stem-leaves* sessile. *Heads* of flowers rather small; *involucre* nearly cylindrical, glandular-hirsute. *Akenes* not tapering at summit.
Hab. Woodlands, and borders of thickets: frequent. *Fl.* Aug. *Fr.* Sept.

2. H. Gronòvii, *L.* Stem virgate, leafy and very hairy below, nearly leafless above; leaves lance-oblong; panicle corymbose; peduncles rather slender, glandular-pilose.
H. Gronovii, *var. a.* nudicaule. *Mx. & Fl. Cestr. ed.* 2. *p.* 447.
GRONOVIUS' HIERACIUM.

Stem 1 to 2 or 3 feet high. *Leaves* 2 to 6 inches in length,—the *radical* and *lower* ones somewhat spatulate or obovate-oblong, on *petioles* about an inch long; *upper stem-leaves* sessile and partly clasping. *Heads* of flowers small. *Akenes* tapering at summit.
Hab. Open woods; sterile meadows: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. This, and the preceding species, are nearly related,—and have been regarded as *varieties*, by respectable Botanists. They seem, however, to be nearly as distinct as this last is from the following.

3. H. venòsum, *L.* Stem scape-like, mostly leafless, smooth; leaves obovate and ovate-oblong, purple-veined; peduncles smoothish.
VEINED HIERACIUM. Rattle-snake weed.

Stem 1 to 2 feet high, naked or with few leaves, corymbose-paniculate at summit. *Leaves* mostly all radical, 2 to 4 or 5 inches long, tapering almost to a *petiole* at base, sometimes nearly veinless. *Heads* of flowers in a loose paniculate corymb, rather large; *involucre* smoothish. *Akenes* linear-oblong.
Hab. Open woods; clearings, &c.: frequent. *Fl.* June. *Fr.* July.

Obs. Some years since, this plant was announced as an antidote to the poison of the Rattlesnake; but it seems to have shared the fate of all such antidotes.

4. H. paniculàtum, *L.* Stem slender, leafy, loosely and paniculately branched; leaves lanceolate, thin and smooth; peduncles very slender, diverging.
PANICULATE HIERACIUM. Panicled Hawkweed.

Stem 2 to 3 or 4 feet high, slender and diffusely branched. *Leaves* 1 to 3 or 4 inches long, acute at each end, remotely denticulate, sessile. *Heads* of flowers small, on minutely bracteate pedicels; *involucre* smooth. *Akenes* short, not tapering.
Hab. Woodlands; old meadows, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

229. NAB'ALUS, *Cassini.*

[Perhaps from the Gr. *Nabla*, a harp; in allusion to its sometimes lyrate leaves.]
Heads usually few-flowered, and nodding. *Involucre* cylindric; *scales* 5 to 14, in a single series, with a few *bractlets* at base. *Akenes*

linear-oblong, striate, not beaked; *pappus* in several series of rough tawny bristles. *Perennials: leaves* petiolate, very variable; *heads* in racemose-paniculate fascicles; *florets* greenish-white, or ochroleucous, often tinged with purple.

1. N. álbus, *Hook.* Rather stout, purplish and glaucous; leaves angular-hastate, palmate-lobed, and sinuate-pinnatifid, the upper ones ovate; heads purplish, 8- to 12-flowered.
Prenanthes alba. *L. & Fl. Cestr. ed.* 2. *p.* 444.
WHITE NABALUS. Lion's foot. Rattlesnake-root. Gall of the earth.

Stem 2 or 3 to 5 or 6 feet high, smooth, sometimes nearly simple, often much branched. *Leaves* 2 to 6 or 8 inches long, and often as wide as long, varying from triangular-hastate to palmate-lobed and pinnatifid,—the *radical* ones large; *petioles* 4 to 8 or 10 inches long. *Florets* ochroleucous, often with purplish tinge. *Hab.* Woods, clearings, and copses: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. The *root* of this is said to be intensely bitter,—and is one of the many *Indian*, or frontier, remedies for the bite of snakes.

2. N. altissimus, *Hook.* Rather slender, greenish; leaves deltoid, sub-cordate, and ovate, dentate, thin; heads greenish, about 5-flowered.
TALLEST NABALUS.

Stem 3 to 5 feet high, paniculately branched, smooth. *Leaves* 2 to 5 or 6 inches long; *petioles* 3 to 6 or 8 inches in length. *Heads* of flowers slender, in small axillary and loose terminal fascicles, forming a long leafy panicle; *florets* yellowish. *Hab.* Moist woods, and copses: frequent. *Fl.* Aug. *Fr.* Sept.

230. TARAX'ACUM, *Haller.*

[Gr. *Tarasso*, to stir, or disturb; in allusion to supposed active properties.]

Heads many-flowered. *Involucral scales* in two series,—the outer or lower ones short, the upper ones long, linear and erect. *Akenes* oblong, ribbed, muricate on the ribs and at summit, the apex finally produced into a long filiform *beak*, which bears at summit a copious white capillary *pappus*. Stemless *perennials: leaves*, consequently, all radical, pinnatifid or runcinate; *heads* large, solitary on fistular *scapes; florets* yellow.

1. *T. Dens-leònis*, Desf. Leaves lance-oblong, unequally and acutely runcinate; involucral scales not corniculate at apex, the outer ones reflexed; akenes spinellose at summit.
Leontodon Taraxacum. *L. & Fl. Cestr. ed.* 2. *p.* 443.
LION-TOOTH TARAXACUM. Dandelion (from *Dent de Lion*).

Plant at first pubescent, at length smooth. *Leaves* 4 to 10 or 12 inches long.—*Scapes* several from the root, 4 to 12 inches high (elongating), terete. *Involucre* oblong,—the *inner scales* appressed, with scarious margins—the *outer* reflexed, slightly ciliate,—finally the entire involucre reflexed. *Akenes* terminating in a slender *beak*, which is short at first, then suddenly elongating about ¾ of an inch, and diverging, with the pappus at summit, so as to form a globose head.
Hab. Pastures; roadsides, &c. Nat. of Europe. *Fl.* April. *Fr.* May.

Obs. This foreigner—although not a very obnoxious weed—is more abundant than welcome; and is, moreover, difficult to get rid of,—as myriads of seeds are annually wafted over the country by means of the pappus. The young radical *leaves*, when blanched, are said to make a good substitute for *Endive*, as a salad.

231. LACTU'CA, *Tournef.*

[Latin, *Lac*, milk; in reference to its milky juice.]

Heads several-flowered. *Involucre* subcylindric; *scales* unequal, imbricated in 2 to 4 series. *Akenes* flatly obcompressed, abruptly contracted into a filiform *beak*, which bears a copious and fugacious *pappus* of fine white soft hairs. Smooth *leafy-stemmed* herbs; *heads* small, numerous, paniculate; *florets* of various colors—yellow, blue, purple or changeable.

Florets *mostly yellow.*

1. L. elongàta, *Muhl.* var. *a.* longifolia, *Torr. & Gr.* Lower leaves runcinate-pinnatifid, clasping,—upper ones linear-lanceolate, entire, sessile; heads racemose-paniculate.

ELONGATED LACTUCA. Wild Lettuce.

Biennial? *Stem* 3 to 6 or 8 feet high, sparingly branched. *Lower leaves* 6 to 12 inches long, variable in form—runcinate, sublyrate, or long-lanceolate with 2 or 3 conspicuous lanceolate divaricate segments on each side near the middle; *upper leaves* gradually smaller. *Heads* of flowers in a long racemose panicle. *Akenes* oval, rather longer than the *beak*.

Hab. Fence-rows; thickets, &c.: frequent. *Fl.* July. *Fr.* Aug.

2. L. SATI'VA, L. Leaves entire,—radical ones erect, oval, wavy,—stem-leaves cordate, clasping; heads corymbose-paniculate.

CULTIVATED LACTUCA. Garden Lettuce. Common Salad.

Annual; yellowish-green and glaucous,—sometimes fuscous, and tinged with dark purple. *Stem* 2 to 4 feet high; branches clothed with numerous small leaves. *Lower leaves* 4 to 6 or 8 inches long; *upper* ones gradually smaller. *Heads* of flowers terminal. *Akenes* lance-obovate, about half as long as the *beak*.

Hab. Gardens. Nat. of India. *Fl.* July. *Fr.* Aug.

Obs. This plant—called "*Salad*," *par excellence*—is universally known, and cultivated. The forms known as "*Curled*," and "*Head*" *Salad*, are considered as *distinct species*, by Prof. DE CANDOLLE.

232. MULGE'DIUM, *Cassini.*

[Latin, *mulgeo*, to milk; in reference to its copious milky juice.]

Heads many-flowered. *Involucre*, &c. nearly as in *Lactuca; scales* often tinged with dark purple. *Akenes* ancipitally compressed, ribbed, contracted at summit to a very short thickish *beak*, which is expanded at apex into a ciliate *disk* bearing a copious deciduous *pappus* of soft yet rather brittle hairs.

† Pappus *white;* florets *blue.*

1. M. acuminàtum, *DC.* Radical leaves slightly runcinate; stem-leaves ovate, acuminate, sinuate-denticulate, petiolate.
Sonchus acuminatus. *Willd. & Fl. Cestr. ed.* 2. *p.* 446.

ACUMINATE MULGEDIUM.

Biennial. *Stem* 3 to 6 feet high, terete, smooth, paniculate at summit. *Leaves* 3 to 6 inches long, sometimes nearly deltoid, abruptly contracted at base to a winged tapering *petiole* 1 or 2 inches in length. *Heads* of flowers small, in a rather loose panicle, sometimes racemose on the branches.

Hab. Woods, and thickets: frequent. *Fl.* Aug. *Fr.* Sept.

†† Pappus *tawny;* florets *pale blue, or ochroleucous.*

2. M. leucophàeum, *DC.* Leaves irregularly pinnatifid,—radical ones on long petioles, cauline sessile or contracted to winged petioles.

Sonchus Floridanus. *Ait. & Fl. Cestr. ed.* 2. *p.* 445. not of *L.*

WHITISH-BROWN or GREY MULGEDIUM.

Biennial. Stem 4 to 8 or 10 feet high, smoothish, paniculate at summit. *Leaves* 3 to 9 or 12 inches long,—radical ones on *petioles* 2 to 5 or 6 inches in length; *stem-leaves* sessile, or the lower ones contracted to winged petioles. *Heads* of flowers rather small, in an oblong terminal panicle; *involucre* ovoid-oblong.

Hab. Fence-rows; thickets, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

233. SON'CHUS, *L.*

[An ancient *Greek* name, of obscure meaning.]

Heads many-flowered, tumid at base. *Involucral scales* more or less imbricated. *Akenes* compressed, ribbed, not beaked; *pappus* copious, of very white soft fine silky hairs. Smoothish and glaucous herbs; *florets* yellow.

1. *S. oleràceus,* L. Leaves runcinate-pinnatifid, dentate, sagittate and clasping; akenes transversely rugose.

POTHERB SONCHUS. Common Sow-thistle.

Annual. Stem 2 to 3 feet high, branched, fistular, tender, glandular-pilose above. *Leaves* 3 to 6 or 8 inches long,—the *lower* ones runcinate, on *petioles* 1 to 2 inches in length,—*upper* ones clasping. *Heads* of flowers in terminal and axillary cymose panicles; *peduncles* thickish, clothed when young with a loose flocculent white tomentum; *involucre* tumid and orbicular at base, abruptly contracted above to an acumination.

Hab. Gardens, and lots. Nat. of Europe. *Fl.* Aug. *Fr.* Sept.

2. *S. àsper,* Vill. Leaves lance-oblong, wavy, or slightly runcinate, spinulose-dentate, auriculate-clasping; akenes margined, 3-nerved on each side, smooth.

S. spinulosus. *Bigel. & Fl. Cestr. ed.* 2. *p.* 445.

SHARP SONCHUS.

Annual. Stem about 2 feet high, branched, slightly glandular-pilose above.—*Leaves* 2 to 6 or 8 inches long, with numerous and somewhat prickly teeth on the margin,—the *lower* ones sometimes pinnatifid, on *petioles* 1 to 2 inches in length,—*upper* ones with rounded auricles at base, clasping the stem. *Heads* of flowers in terminal subumbellate panicles.

Hab. Banks of the Schuylkill: rare. *Fl.* Aug. *Fr.* Sept.

Obs. This is supposed to be indigenous—at least in the South; but it is unquestionably, I think, a stranger in *Chester County.*

ORDER LII. LOBELIÀCEAE.

Herbs, often with milky juice; *leaves* alternate, without *stipules; flowers* scattered (i. e. not in *heads*); *calyx-tube* more or less adherent to the ovary; *corolla* tubular, irregularly 5-lobed, mostly slit longitudinally nearly or quite to the base; *stamens* 5, free from the corolla,—with the *anthers* completely, and the *filaments* more or less, united into a *tube; seeds* numerous, with fleshy *albumen.*

234. LOBE'LIA, *L.*

[Dedicated to *Matthias de Lobel*, a Flemish Botanist.]

Calyx 5-cleft,—the *sinuses* sometimes auriculate; *tube* short, tumid. *Corolla* sub-bilabiate; upper lip smaller, 2-lobed and erect; lower lip spreading, 3-lobed; tube slit on the upper side. *Style* 1; *stigma* mostly 2-lobed, fringed with a pilose ring. *Capsule* half superior, 2-celled, thin, opening at the top. *Seeds* minute, oblong, scabrous. *Leaves* (of the following) subsessile; *flowers* usually in terminal bracteate racemes.

† Flowers *bright crimson.*

1. L. cardinàlis, *L.* Leaves oblong-lanceolate, acute at each end, denticulate; raceme elongated, rather secund, leafy below.
CARDINAL OR CHIEF LOBELIA. Cardinal-flower.

Perennial. Stem 2 to 3 feet high, usually simple but growing in bunches, pubescent. *Leaves* 3 to 6 inches long. *Raceme* 6 to 12 or 15 inches long; *flowers* rather large, very brilliant, opening in succession, or few at a time; *anthers* greyish-blue; *pedicels* hirsute.
Hab. Along swampy rivulets: frequent. *Fl.* July. *Fr.* Sept.

Obs. This superb plant would be in the collection of every amateur gardener, if it had to be imported at a high price; whereas now—like most of our native floral beauties—it is generally neglected.

†† Flowers *mostly bright blue, and large.*

2. L. syphilítica, *L.* Hairy; leaves oblong or ovate-lanceolate, acute, sinuate-serrulate; calyx-lobes short, the auricles reflexed, shorter than the tube.
SYPHILITIC LOBELIA.

Perennial. Stem 1 to 3 or 4 feet high, angular, nearly simple. *Leaves* 2 to 4 inches long. *Raceme* 4 to 10 or 12 inches long; *calyx-segments* bristly-ciliate, with the margins of the sinuses folded back. *Corolla* nearly an inch long, sometimes tinged with purple, rarely milk-white.
Hab. Moist grounds; along rivulets: frequent. *Fl.* Aug. *Fr.* Octo.

Obs. This is also a showy plant, when in bloom,—next in rank, among our indigenous species, to the preceding. It was, formerly, a famous *Indian Nostrum*,—and had such repute, that the *secret* was purchased of the Aborigines: but, when once known, it soon shared the usual fate of purchased Nostrums; and possibly—like all exaggerated reputations—its character may have been, thereafter, unduly disparaged.

3. L. pubérula, *Mx.* Pubescent; stem simple; leaves ovate-oblong, mostly obtuse, glandular-denticulate; calyx-lobes long, the auricles scarcely reflexed, about as long as the densely hairy short tube.
PUBERULENT LOBELIA.

Perennial. Stem 1 to 2 feet high, striate, rather slender, strictly simple. *Leaves* 1 to 2 inches long, varying from obovate to lance-ovate, the upper ones smaller and acute. *Raceme* 2 to 6 or 8 inches long; *calyx-segments* about as long as the tube of the corolla; *corolla* ½ to ⅔ of an inch in length, often tinged with purple.
Hab. Moist meadows; Penn Township: not common. *Fl.* Aug. *Fr.* Sept.

Obs. This species appears to be confined to the South Western portion of the County. It is quite abundant in some of the moist meadows of Penn Township.

††† Flowers *pale blue, and small.*

4. L. inflàta, *L.* Hirsute; stem paniculately branched; leaves lance-ovate, crenate-dentate; calyx-lobes without auricles; capsule inflated.

INFLATED LOBELIA. Indian Tobacco.

Biennial? lactescent. *Stem* 9 to 18 inches high, sometimes wing-angled by the decurrence of the leaves; branches axillary. *Leaves* 1 to 2 or 3 inches long, rather acute. *Racemes* leafy; *flowers* rather inconspicuous; *capsules* ovoid, or oval, thin and membranaceous, smoothish.

Hab. Pastures; roadsides, &c.: frequent. *Fl.* July. *Fr.* Aug.

Obs. This harsh, acrid plant, is somewhat noted for the use made of it by a tribe of modern Empirics,—whose successful impostures, at this time of day, would almost excuse the impatient adage—*si vulgus vult decipi, decipiatur!*

5. L. spicàta, *Lam.* Pubescent, or sometimes smoothish; stem simple and slender; leaves oblong, the radical ones often spatulate; raceme somewhat spiked, virgate and naked.

L. Claytoniana. *Mx. & Fl. Cestr. ed.* 2. *p.* 154.

SPIKED LOBELIA.

Perennial. Stem 1 to 2 or 3 feet high, somewhat angular-sulcate, often 2 or 3 from the root. *Leaves* 1 to 2 or 3 inches long,—the *radical* ones nearly entire,—the *upper* ones smaller, acute and denticulate. *Raceme* 6 to 10 or 12 inches long: *bracts* lance-linear.

Hab. Fields, meadows, and open woods: frequent. *Fl.* June. *Fr.* Aug.

ORDER LIII. CAMPANULÀCEAE.

Herbs, with a milky juice; *leaves* alternate, without *stipules; flowers* scattered; *calyx-tube* adherent to the ovary; *corolla* more or less campanulate, regularly 5-lobed, valvate in the bud; *stamens* mostly 5, free from the corolla, and from each other; *seeds* numerous, with fleshy *albumen.*

235. CAMPANULA, *Tournef.*

[Latin, diminutive of *Campana,* a bell; from the shape of the corolla.]

Calyx 5-cleft. *Stamens* distinct; *filaments* dilated connivent and valve-like at base. *Stigmas* mostly 3; *capsule* with as many *cells,* each cell opening by a lateral parietal *valve,* which lifts upward.

1. C. aparinoides, *Pursh.* Stem slender, weak and straggling, acutely angular; angles retrorsely scabrous; leaves linear-lanceolate; pedicels terminal, filiform; flowers small.

APARINE-LIKE CAMPANULA.

Annual? *Stem* 12 to 18 inches long, somewhat 3-angled, branching, limber and straggling, supported by other plants. *Leaves* ½ an inch to 1½ inches in length, sessile. *Pedicels* ½ an inch to an inch long; *flowers* whitish, with purple veins, nodding; *style* about as long as the corolla.

Hab. Swamps, and wet thickets: frequent. *Fl.* July. *Fr.* Aug.

2. C. Americàna, *L.* Stem erect, virgate; leaves ovate-lanceolate, acuminate; flowers in a terminal leafy raceme; pedicels short, clavate.

AMERICAN CAMPANULA.

Perennial? *Stem* 2 to 4 feet high, sometimes branched. *Leaves* 2 to 5 inches long,—upper ones contracted and tapering at base to a kind of winged *petiole* near an inch long. *Flowers* rather distant, in a long terminal raceme, which is leafy below, and often with 2 or 3 flowers in the axil of a leaf; *corolla* pale purplish blue, spreading; *style* much exserted.

Hab. Woods, and moist shaded grounds: frequent. *Fl.* July. *Fr.* Aug.

236. SPECULA'RIA, *Heister.*

[From *Speculum Veneris;* the ancient name of an European species.]

Calyx 5- (rarely 3- or 4-) lobed. *Corolla* subrotate. *Stamens* 5, distinct; *filaments* dilated and connivent at base, hairy, shorter than the anthers. *Stigmas* 3. *Capsule* oblong, prismatic, 3-celled, each cell opening by a lateral valve. *Annuals: flowers* axillary, sessile.

1. S. perfoliàta, *Alph. DC.* Stem simple, angular; leaves roundish or reniform-cordate, crenate-dentate, clasping and concave.

Campanula amplexicaulis. *Mx. & Fl. Cestr. ed.* 2. *p.* 156.

PERFOLIATE SPECULARIA.

Stem 9 to 18 inches high, rarely branched; *angles* hispid with spreading or retrorse bristles. *Leaves* ½ an inch to ¾ in length, and nearly an inch wide. *Flowers* bluish-purple, 1 to 3 or 4 in the axil of each leaf. *Seeds* lenticular.

Hab. Pastures, and grain-fields: frequent. *Fl.* June. *Fr.* July.

ORDER LIV. ERICÀCEAE.

Chiefly *shrubs; leaves* mostly alternate, without *stipules; flowers* regular, or nearly so; *corolla* 4- or 5-lobed (rarely 4- or 5-*petaled*); *stamens* as many, or twice as many, as the lobes or petals; *anthers* often with *awn-like appendages,* and frequently opening by *pores* at summit; *style* 1; *ovary* 4- to 10-celled; *fruit* a *berry,* or *capsule; seeds* with fleshy *albumen.*

This is an interesting Order,—comprising some plants of a medicinal character, and a number that are exceedingly beautiful—especially the *Azaleas, Rhododendrons, Kalmias,* and many species of the multitudinous genus (*Erica*) which is the type of the Family. The *Rhododendrons* recently collected on the Himalaya mountains, by that enterprising and accomplished Botanist, Doctor J. D. HOOKER, are among the most magnificent of ornamental trees and shrubbery.

☞ The prevailing under-shrubs in our forests,—namely, the *Gaylussacias, Vacciniums,* and *Andromedas,*—seem to take the place, on this Continent—and may be regarded as the *Phytognostic Equivalents*—of the *Ericas* of the Eastern hemisphere.

SUBORDER I. VACCINIE'AE.

Calyx-tube adherent to the *ovary,* which becomes a *berry,* or berry-like fruit, crowned with the calyx-teeth.

237. GAYLUSSAC'IA, *H. B. K.*

[Dedicated to M. *Gay-Lussac;* a French Chemist, and Savant.]

Corolla ovoid, or campanulate, 5-cleft. *Stamens* 10; *anthers* awnless,—the *cells* tapering and tubular above, opening by a *pore,* or chink, at summit. *Ovary* 10-celled, with a single *ovule* in each cell. *Fruit* a drupe-like *berry,* containing 10 *nutlets. Leaves* mostly deciduous, entire, and, with the flowers, resinous-dotted; *flowers* racemose.

1. G. dumòsa, *Torr. & Gr.* Somewhat hairy and glandular; leaves obovate-oblong, mucronate, green on both sides, thickish and shining when old; racemes elongated; bracts oval, longer than the pedicels; pedicels with a pair of lanceolate bractlets above the middle; corolla campanulate; ovary glandular-hirsute.

Bushy Gaylussacia. Dwarf Huckleberry.

Stem often creeping at base, bushy-branched; branches 12 to 18 inches high.—*Leaves* ¾ of an inch to an inch and half long, roughish, the margin entire, slightly revolute, and pubescent-ciliate, rounded at apex, or often rather acute, somewhat cuneate at base, subsessile. *Flowers* white. *Berries* rather large, black and shining when mature.

Hab. Sandy woodlands; West Nottingham: rare. *Fl.* June. *Fr.* Aug.

Obs. My *Chester County* specimen—for which I am indebted to the kindness of an acute and sagacious observer (Mr. Nathan Milner)—was received while this edition was passing through the press. It appears to be the *var.* hirtella, of Gray (*Vaccinium hirtellum, Ait. & DC.*).

2. G. frondòsa, *Torr. & Gr.* Smooth; leaves obovate-oblong, obtuse, glaucous beneath; pedicels long, bracteolate near the middle; corolla ovoid-campanulate.

Vaccinium frondosum. *L. & Fl. Cestr. ed.* 2. *p.* 256.

Leafy Gaylussacia. Blue-tangles. Huckleberry. Dangle-berry.

Stem 3 to 5 feet high, branching; branches rather slender. *Leaves* 1 to 3 inches long, tapering at each end, but rather obtuse at apex, cuneate at base, on very short petioles. *Racemes* lateral, loose and few-flowered; *pedicels* half an inch to an inch long, with 2 minute subulate sub-opposite *bractlets* near the middle; *corolla* white, tinged with red. *Berries* rather large, globose, dark blue with a glaucous bloom, when mature.

Hab. Moist woods, and thickets: frequent. *Fl.* May. *Fr.* July.

Obs. The *berries* of this, and most of the other species, are esculent and palatable; but rather uncomfortable to eat, on account of the *nutlets*,—being what are commonly called "*seedy Huckle-berries.*"

3. G. resinòsa, *Torr. & Gr.* Pubescent while young; leaves oblong-oval, at first ciliate and viscid; pedicels short, bracteolate near the base; corolla ovoid-conical.

Vaccinium resinosum. *Ait. & Fl. Cestr. ed.* 2. *p.* 256.

Resinous Gaylussacia. Black Huckleberry.

Stem 18 inches to 3 feet high, much branched. *Leaves* 1 to 3 inches long, thickly sprinkled with atoms, and flat shining patches, of yellow resinous matter beneath; *petioles* short, but distinct. *Racemes* numerous, with the flowers crowded; *pedicels* 1 to 3 lines long, with very small lanceolate *bractlets* at or near the base; *corolla* mostly reddish, with tinges of pale yellowish-green. *Berries* depressed-globose, smaller than the preceding, black and shining when mature.

Hab. Dry woods; slaty hills: frequent. *Fl.* May. *Fr.* July.

238. VACCIN'IUM, *L.*

[An ancient Latin name, of obscure etymology.]

Corolla campanulate, or ovoid-oblong, 4- or 5-cleft, the lobes more or less revolute. *Stamens* 8 or 10; *anthers* sometimes 2-*awned* on the back,—the *cells* separate and tubular above, opening by a *pore* at summit. *Berry* 4- or 5-celled; *cells* several-seeded.

§ 1. Leaves *evergreen;* corolla *deeply 4-parted;* anthers *awnless;* berries *red, acid.* CRANBERRY.

1. V. macrocárpon, *Ait.* Stems slender, creeping, with ascending branches; leaves oblong, obtuse; peduncles lateral.
Oxycoccus macrocarpus. *Pers. & Fl. Cestr. ed.* 2. *p.* 241.
LARGE-FRUITED VACCINIUM. American Cranberry.

Stem 1 to 2 or 3 feet long, sending up short slender branches. *Leaves* about half an inch long, slightly revolute on the margin; *petioles* very short. *Peduncles* about an inch long, 1-flowered, *bi-bracteolate* near the nodding flower. *Corolla* pale purple; *lobes* linear-lanceolate, reflexed or revolute. *Berry* globose, half an inch in diameter.
Hab. Wet, or swampy meadows: rare. *Fl.* May. *Fr.* October.

Obs. Well known, and highly prized for its fine acid *fruit,*—which experience shows may be *cultivated* to advantage. I have followed Dr. GRAY, and others, in reducing this to a *section of Vaccinium,*—though I think there are many admitted *Genera,* based on more slender foundations.

§ 2. Leaves *deciduous:* † Corolla *campanulate, 5-lobed;* anthers *2-awned;* berries *greenish, mawkish.* DEER-BERRY. BILBERRY.

2. V. stamíneum, *L.* Bushy; leaves lance-oval, acute, glaucous beneath; anthers conspicuously exserted; racemes leafy; berries large.
STAMINEOUS VACCINIUM. Squaw Huckleberry.

Stem 2 to 3 feet high, diffusely branching. *Leaves* 1 to near 3 inches long; *petioles* very short. *Flowers* in lateral leafy pubescent racemes 2 to 3 inches in length; *pedicels* ¾ of an inch long, naked; *corolla* white, spreading; *lobes* ovate; *anthers* each with 2 subulate spreading *awns* at the back. *Berries* often near half an inch in diameter, bitterish and inedible.
Hab. Moist woodlands, and thickets: frequent. *Fl.* May. *Fr.* Aug.

†† Corolla *ovoid-oblong, 5-toothed;* anthers *awnless;* berries *bluish-black, with a glaucous bloom, sweet or subacid.* BLUE-BERRY.

3. V. Pennsylvánicum, *Lam.* Dwarfish; branches yellowish-green; leaves lance-oblong, mucronate-serrulate, smooth and shining; racemes subfasciculate.
PENNSYLVANIAN VACCINIUM. Sugar Huckleberry.

Stem 1 to 2 feet high, much branched; branches more or less angular, with a green verrucose bark. *Leaves* 1 to near 2 inches long, mostly acute at each end, nearly sessile. *Racemes* 4- to 8-flowered, terminal and lateral, numerous, from buds without leaves, and often on leafless branches; *pedicels* 1 to 3 or 4 lines long, with small lanceolate *bractlets* at or near the base; *corolla* pale red, or greenish-white tinged with red. *Berries* middle-sized, sweet.
Hab. Hilly woodlands, and thickets: frequent. *Fl.* May. *Fr.* July.

Obs. The *fruit* of this is very pleasant—comes early, and is much sought after, in its season.

4. V. corymbòsum, *L.* Tall; young branches pubescent; leaves oval or obovate, entire; racemes short, subcorymbose on naked branchlets.
CORYMBOSE VACCINIUM. Swamp, or Tall Huckleberry. Blue-berry.

Stem 5 to 8 or 10 feet high, often stout, with irregular straggling branches,—the

young leafing branches pubescent,—the flower-bearing ones short, naked, and of a greenish-bronze color. *Leaves* 1 to 2 inches long, generally oval, with a short obtuse callous point at apex; *petioles* very short. *Racemes* half an inch to an inch long, 6- to 10- or 12-flowered; *pedicels* ¼ to ½ of an inch long, with purplish *bractlets*, at base, which resemble bud scales; *corolla* white, mostly tinged with purple, nearly cylindrical. *Berries* rather large (often 1 third of an inch in diameter), sub-acid, and very agreeable to the taste.

Hab. Shaded swamps, and rivulets: not common. *Fl.* May. *Fr.* Aug.

Obs. This is the *Blue-berry* so much admired in the Philadelphia market,—and so abundantly supplied from the swamps of New Jersey. It is comparatively scarce in Chester County.

SUBORDER II. ERICIN'EAE.

Calyx free from the *ovary; corolla* sometimes nearly or quite *dialypetalous! seed-coat* mostly thin and close-fitting.

TRIBE 1. ANDROMEDE'AE.

Fruit a capsule, opening *loculicidally*.

† Calyx *becoming berry-like in fruit, inclosing the capsule.*

239. GAULTHE'RIA, *Kalm.*

[Dedicated to Dr. *Gaulthier*, or *Gautier;* a French Botanist, of Quebec.]

Calyx 5-cleft, bibracteolate at base. *Corolla* ovoid-oblong, 5-toothed. *Stamens* 10, included; *anther-cells* each 2-*awned* at summit, opening by a terminal *pore*. *Capsule* depressed-globose, 5-celled, many-seeded, inclosed in the red *berry-like calyx!* Suffruticose humble *evergreens; flowers* axillary, solitary.

1. G. procúmbens, *L.* Stem creeping, root-like; branches ascending, leafy at summit; leaves cuneate-obovate, obscurely serrate; flowers few, nodding.

PROCUMBENT GAULTHERIA. Tea-berry. Spicy Wintergreen.

Stem rhizoma-like, on or near the surface of the ground; *branches* simple, 3 to 5 inches high, naked below, or with a few lance-ovate scales. *Leaves* few (4 to 6), an inch to an inch and half in length, rather crowded; *petioles* very short. *Flowers* white, 1 to 3 or 4, in the axils of the upper leaves, on recurved *peduncles* ¼ to ½ an inch long; *fruit* persistent.

Hab. Woods; Brandywine hills: rare. *Fl.* July. *Fr.* October.

Obs. This spicy little plant—though rare here—is very abundant in New Jersey; and is much used in the preparation of medicated syrups, and popular diet-drinks.

†† Calyx *dry and unchanged in fruit.*

240. EPIGAE'A, *L.*

[Gr. *Epi*, upon, and *Ge*, the earth; alluding to its trailing habit.]

Calyx deeply 5-parted, 3-bracteolate at base. *Corolla* salver-form. *Stamens* 10; *anthers* oblong, awnless, opening lengthwise. *Capsule* depressed-globose, 5-angled, 5-celled, many-seeded. Suffruticose trailing *evergreens; flowers* in axillary clusters.

1. E. rèpens, *L.* Hirsute; leaves cordate-oblong, entire, on rather long petioles; corolla-tube cylindrical, villous within.

CREEPING EPIGAEA. Ground Laurel. Trailing Arbutus.

Stem prostrate, 6 to 12 or 15 inches long, branching. *Leaves* 1 to near 3 inches long, reticulately veined; *petioles* ½ an inch to an inch in length. *Flowers* in small fasciculate racemes, very fragrant; *pedicels* 1 or 2 lines long; *corolla* pale red or reddish-white, the *tube* ⅓ to half an inch in length.

Hab. Hilly woods, of northern exposure: frequent. *Fl.* April. *Fr.* July.

241. ANDROMʹEDA, *L.*

[So named, in allusion to the classic story of *Andromeda*.]

Calyx 5-parted, sometimes *bracteolate* at base. *Corolla* ovoid, or subcylindric, mostly 5-toothed. *Stamens* usually 10, included; *anthers* awnless, or awned, opening by terminal pores or slits. *Capsule* 5-celled, many-seeded. *Shrubs: leaves* (of the following species) deciduous; *flowers* racemose, or fasciculate.

§ 1. Calyx *without bractlets;* anthers *awnless.*

† Corolla *globular;* capsule *subglobose.*

1. A. ligustrìna, *Muhl.* Leaves obovate-oblong, acuminate; racemes paniculate, mostly naked; flowers small.

PRIVET-LIKE ANDROMEDA. Pepper-bush.

Stem 3 to 6 or 8 feet high, with numerous rather erect branches. *Leaves* 1 to near 3 inches long, obscurely serrulate; *petioles* 1 to 3 lines in length. *Racemes* ½ an inch to an inch and half long, often a little compound, arranged paniculately on the terminal branches of the preceding year; *pedicels* ¼ to ⅓ of an inch long, often in fascicles of 2 to 5; *corolla* white.

Hab. Moist woods, and thickets: frequent. *Fl.* June. *Fr.* Sept.

†† Corolla *ovoid-oblong;* capsule *pyramidal.*

2. A. Mariàna, *L.* Leaves oval, entire, thickish and subcoriaceous; racemes short, sessile; pedicels fasciculate; flowers rather large.

MARYLAND ANDROMEDA. Stagger-bush.

Stem 2 to 3 or 4 feet high, with erect branches, and a cinereous black-dotted bark. *Leaves* 2 to 3 inches long, shortly and bluntly mucronate; *petioles* about ¼ of an inch in length. *Flowers* fasciculate on the old branches, from terminal and lateral buds, unaccompanied with leaves; *pedicels* about half an inch long (of the fruit, near an inch), with ovate bracts, like bud-scales, at base; *corolla* white, or tinged with pale red.

Hab. Hilly woodlands: not common. *Fl.* June. *Fr.* Aug.

Obs. This shrub is somewhat rare, here; but is very common in New Jersey,—where the farmers think it is injurious to sheep, when eaten by them—producing a disease called the *staggers.*

§ 2. Calyx *bibracteolate;* anthers *tipt with* 4 *erect awns.*

3. A. racemòsa, *L.* Leaves oval-lanceolate, serrulate, thin; racemes longish, secund, mostly simple.

RACEMOSE ANDROMEDA.

Stem 3 to 5 feet high, with slender straggling branches, and a cinereous exfoliating bark. *Leaves* 1½ to 3 inches long, mucronate, rather obtuse at base; *petioles* about a line in length. *Racemes* numerous, 2 to 3 or 4 inches long, leafless, terminal on short spreading branchlets; *flowers* nodding, or ranged along the under side, on short thickish *pedicels; calyx* purple; *corolla* white (purple in the bud), nearly cylindric; *capsule* small, depressed-globose, umbilicate.

Hab. Moist thickets: not common. *Fl.* June. *Fr.*

242. CLE'THRA, *L.*

[*Klethra*, the Greek name for the Alder; which it resembles.]

Calyx 5-parted. *Corolla* of 5 obovate-oblong *distinct petals!* *Stamens* 10, often exserted; *anthers* inversely sagittate, reflexed in the bud, opening by terminal pores, or chinks. *Style* slender; *stigmas* 3. *Capsule* 3-celled, 3-valved, inclosed by the calyx. *Shrubs: leaves* deciduous; *flowers* racemose, white.

1. C. alnifòlia, *L.* Leaves cuneate-obovate, acute, coarsely serrate, green on both sides; racemes mostly simple, bracteate, hoary-tomentose.

ALDER-LEAVED CLETHRA. Sweet Pepper-bush. White Alder.

Stem 4 to 6 or 8 feet high, branched. *Leaves* 2 to 3 inches long; *petioles* ¼ to ⅓ of an inch in length. *Racemes* 3 to 6 inches long, sometimes with 2 or 3 branches from the base, bearing numerous fragrant flowers: *pedicels* short, each with a lance-linear *bract* at base longer than the pedicel.

Hab. Wet thickets; E. Marlborough: not common. *Fl.* July. *Fr.* Octo.

TRIBE 2. RHODO'REAE.

Fruit a capsule, opening *septicidally*.

243. AZA'LEA, *L.*

[Gr. *azaleos*, arid; from a mistaken idea that it belongs to a dry soil.]

Calyx 5-parted, minute and hairy. *Corolla* funnel-form, irregularly 5-lobed, the lobes spreading. *Stamens* 5, with long exserted *filaments*, which are declined, or curved, along with the similar *style; anthers* short, opening by terminal pores. *Capsule* oblong, 5-celled, 5-valved, many-seeded; *seeds* minute, scale-like. *Shrubs: leaves* deciduous; *flowers* in umbelled clusters, from large ovoid terminal buds.

1. A. viscòsa, *L.* Young branches bristly; leaves oblong-obovate; flowers glandular-hairy and very clammy, appearing after the leaves; stamens a little exserted

Rhododendron viscosum. *Torr. & Fl. Cestr. ed.* 2. *p.* 263.

CLAMMY AZALEA. Sweet Wild Honeysuckle.

Stem 4 to 6 feet high, with short spreading and often crooked branches above.—*Leaves* 1 to 2 inches long, the margins and midrib bristly; *petioles* 1 to 2 lines in length. *Corolla* white,—the *tube* much longer than the *lobes*.

Hab. Rocky woods; N. Valley-hill; New Red Lion: not common. *Fl.* June. *Fr.*

Obs. This species is readily known by its white, clammy, sweet-smelling flowers. The large terminal *buds*, which are formed in autumn, on the *Azaleas*, and some other members of this family, contain the *flowers of the ensuing year*, perfectly formed—though in miniature. Something like this seems to be the fact, in all trees in which the branches have a *definite* annual development of wood, leaves, and flowers; such as the Horse-Chestnut, &c. The buds of the *Firs*, also, contain the undeveloped *branches* of the succeeding year, with all their tiny *leaves* completely formed, and closely packed together. The phenomenon is happily noticed by the Poet, COWPER:—

> "The beauties of the wilderness are HIS,
> That make so gay the solitary place,
> Where no eye sees them. And the fairer forms,
> That cultivation glories in, are HIS.

He sets the bright procession on its way,
And marshals all the order of the year;
He marks the bounds which Winter may not pass,
And blunts his pointed fury; *in its case*
Russet and rude, folds up the tender germ,
Uninjured, with inimitable art;
And ere one flowery season fades and dies,
Designs the blooming wonders of the next."

2. A. nudiflòra, *L.* Young branches hairy; leaves lance-oblong; flowers somewhat hairy and slightly clammy, rather preceding the leaves; stamens much exserted.
Rhododendron nudiflorum. *Torr. & Fl. Cestr. ed.* 2. *p.* 262.
Naked-flowered Azalea. Wild Honeysuckle.

Stem 2 to 4 or 6 feet high, much branched toward the summit. *Leaves* 2 to 3 inches long, crowded at the extremities of the branches, margins hairy, pubescent beneath; *petioles* ¼ to ½ an inch in length. *Corolla* varying from pale flesh-color to pink, and bright purple,—the *tube* scarcely longer than the *lobes*.
Hab. Moist woods, and thickets: common. *Fl.* April. *Fr.* June.

Obs. This pretty shrub is a striking ornament of our forests, in spring. It was rather carelessly stated, in the preceding edition of this *Flora*, that "the *leaves*" of this shrub "are subject to large green *succulent excrescences*, produced by the puncture of *insects*."—In 1842, Mr. Benjamin V. Marsh, then of Haverford School, Del. County, satisfied me that I was incorrect, and that those "excrescences" are formed of *the flowers* of the plant, instead of "the leaves." A closer observation has also led me to doubt whether "insects" have any agency in their production. I find those succulent masses invariably to consist of what seem to be a sort of *dropsical enlargement* of *calyx*, *corolla*, *stamens* and *pistil*,—by which the floral organs are all consolidated, or blended together; and their original individuality, and character, entirely lost,—except some vestiges of *anthers* and *stigma*.

244. RHODODEN'DRON, *L.*

[Gr. *Rhodon*, a rose, and *Dendron*, a tree; the flowers being in rose-colored clusters.]
Calyx deeply 5-parted. *Corolla* subcampanulate, somewhat irregularly 5-lobed. *Stamens* mostly 10, declined, scarcely exserted; *anthers*, &c, as in *Azalea*. *Capsule* ovoid-oblong. Often stout *shrubs*, or *low trees*: *leaves* evergreen, entire; *flowers* in dense terminal corymbs,—or thyrsoid, or globose clusters.

1. R. máximum, *L.* Stout; leaves oblong, acute, thick, coriaceous and glabrous, with somewhat revolute margins.
Largest Rhododendron. Mountain Laurel. Rose-Bay.

Stem 6 to 10 or 12 feet high, with stout irregular branches. *Leaves* 3 to 6 inches long, with a short acumination, often cuneately tapering at base, green above, pale or ferruginous beneath; *petioles* thick, half an inch to an inch in length.—*Flowers* in dense thyrsoid or corymbose racemes; *pedicels* an inch to an inch and half long; *corolla* pale rose-color, with greenish tinges, and yellow or orange-colored spots.
Hab. Banks of Schuylkill: rare. *Fl.* June. *Fr.*

Obs. This is a noble shrub; but Linnaeus was unfortunate in calling it *maximum*,—inasmuch as Dr. J. D. Hooker has found a species, in the Himalaya mountains, 40 to 60 feet in height.

245. KALM'IA, *L.*

[Dedicated to *Peter Kalm*,—a Swedish Botanist.]

Calyx 5-parted. *Corolla* between rotate and campanulate, 5-lobed, furnished with 10 depressions, in which the 10 obliquely bifid *anthers* are severally held until they begin to shed their pollen. *Capsule* depressed-globose, 5-celled, 5-valved; *seeds* numerous, minute. Evergreen *shrubs: leaves* entire; *flowers* in umbel-like corymbs.

1. K. latifòlia, *L.* Leaves scattered and ternate, oval-lanceolate, green on both sides; corymbs terminal.

BROAD-LEAVED KALMIA. Common Laurel. Calico-bush.

Stem 3 or 4 to 8 or 10 feet high, with irregular crooked straggling branches.—*Leaves* 2 to 3 inches long, and about an inch wide; *petioles* ¼ to ¾ of an inch in length. *Flowers* rather large, pale red (sometimes white), in spreading corymbs; *pedicels* about an inch long, viscid-pubescent, with 3 *bracts* at base.

Hab. Shaded, rocky hills; along streams: frequent. *Fl.* May. *Fr.* Sept.

Obs. KALM says the Swedes called this "*Spoon tree*,"—because the Indians made spoons from its wood. With great deference to the decision of LINNAEUS, this genus of beautiful Evergreens is the one which, in my humble opinion, ought to have commemorated the merits of JOHN BARTRAM,—the Botanical Patriarch of our country.

2. K. angustifòlia, *L.* Leaves opposite and ternate, linear-elliptic, paler or slightly russet beneath; corymbs lateral.

NARROW-LEAVED KALMIA. Sheep Laurel. Dwarf Laurel.

Stems about 2 feet high, slender, somewhat branching. *Leaves* 1 to 2 inches long, and about half an inch wide; *petioles* ⅛ to ½ an inch in length. *Flowers* small, bright deep crimson, in lateral corymbs, in the axils of the ternate leaves, and thus appearing verticillate; *pedicels* filiform, ½ to ⅔ of an inch in length, with 3 unequal *bracts* at base.

Hab. Woods, and thickets; Great Valley: rare. *Fl.* June. *Fr.* Octo.

SUBORDER III. PYROLE'AE.

Calyx free from the *ovary*, 5-parted, persistent; *petals* 5, *distinct!* or nearly so, concave, deciduous; *capsule* 3- to 5-celled, loculicidally dehiscent; *seed-coat* loose, cellular and translucent. Suffruticose humble *Evergreens.*

246. PYR'OLA, *L.*

[Lat. diminutive of *Pyrus*, the pear-tree; from a fancied resemblance in the foliage.]

Petals more or less converging, obovate or oblong. *Stamens* 10; *filaments* subulate, naked; *anthers* partly 4-celled, inverted in the bud, opening by 2 pores at the scarcely 2-horned summit. *Style* long, mostly declined or curved; *stigmas* 5,—often with a distinct *ring* beneath,—or confluent with the ring, and peltate. *Capsule* depressed-globose, 5-celled, 5-valved from the base upward, many-seeded; *valves* woolly on the edges. *Leaves* mostly radical; *flowers* racemose, on a scaly-bracted *scape.*

† Style *curved;* stigmas *exserted beyond the ring.*

1. P. rotundifòlia, *L.* Leaves orbicular, thick, coriaceous and shining, usually shorter than the margined petiole.

ROUND-LEAVED PYROLA.

Leaves 1 to 2 inches in diameter, obscurely serrulate, reticulately veined. *Scape* 5 to 10 inches high, with clasping *bracts* at base, and 2 or 3 distant ovate-lanceolate ones above; *raceme* 2 to 3 inches in length; *pedicels* ⅓ of an inch long, with a lanceolate *bract* at base of the same length; *flowers* white, often with a reddish tinge, nodding, fragrant.

Hab. Rich woodlands: frequent. *Fl.* June, *Fr.* August.

2. P. elliptica, *Nutt.* Leaves oblong-oval, thinnish and not shining, usually longer than the winged petiole.

Elliptic Pyrola. Shin-leaf.

Leaves 1½ to near 3 inches long, plicately serrulate, decurrent on the petiole.—*Scape* 4 to 6 inches high, acutely angular, naked, or with a single slender *bract: raceme* 1 to 2 inches long; *pedicels* 2 or 3 lines in length, shorter than the subulate *bract* at base; *flowers* white, with a greenish tinge.

Hab. Woodlands: common. *Fl.* June. *Fr.* August.

Obs. The *leaves* are a popular application to sores,—as the common name would indicate.

†† Style *straight;* stigmas *confluent with the peltate ring.*

3. P. secúnda, *L.* Leaves ovate, thinnish, about twice as long as the narrow petiole; raceme secund.

One-sided Pyrola.

Root stoloniferous. *Stem* decumbent, 1 to 2 or 3 inches high, leafy above, with small lanceolate *scales* below. *Leaves* an inch to an inch and half long, mucronate, serrate. *Peduncle* terminal, scape-like, 3 to 6 inches in length, with 2 or 3 lanceolate *bracts* at base, and distant appressed ones above; *raceme* 1 to 2 inches long; *pedicels* 2 to 3 lines long, all turned to one side, each with a lanceolate *bract* at base scarcely as long as the pedicel; *flowers* greenish white; *petals* oblong.

Hab. Hilly woodlands: not common. *Fl.* July. *Fr.* Sept.

247. CHIMA'PHILA, *Pursh.*

[Gr. *Cheima*, winter, and *phileo*, to love; being bright green all winter.]

Petals spreading, broadly and roundish-obovate. *Stamens* 10; *filaments* dilated, hairy; *anthers* 2-celled, inverted in the bud, somewhat 2-horned at apex. *Style* very short, obconic, immersed in the depressed summit of the ovary; *stigma* peltate, broad, orbicular, with the margin 5-lobed. *Capsule* depressed, orbicular, 5-celled, 5-valved from the summit downward, many-seeded; *valves* not woolly on the edges. *Leaves* crowded at or near the summit of the stem, coriaceous and shining; *flowers* terminal, corymbose.

1. C. umbellàta, *Nutt.* Leaves cuneate-oblong, acute at base, sharply serrate, of a bright uniform green.

Pyrola umbellata. *L. & Fl. Cestr. ed. 2. p.* 266.

Umbellate Chimaphila. Pipsissawa. Winter-green.

Stem ascending, 3 to 6 inches long. *Leaves* 1 to 2 inches long, subverticillate (often in 2 or 3 verticils), tapering at base to a short *petiole. Peduncle* terminal, mostly solitary, 3 to 4 or 5 inches in length, bearing an imperfect or corymbose umbel of 4 to 6 flowers; *pedicels* about ½ an inch long; *petals* reddish white, with a tinge of violet.

Hab. Hilly woods, of northern exposure: frequent. *Fl.* June. *Fr.* Sept.

Obs. This half-shrubby little Evergreen is moderately bitter and astringent,—and has been long noted as an *Indian* medicine, under the aboriginal name of *Pipsissawa.*

2. C. maculàta, *Pursh.* Leaves ovate-lanceolate, obtuse at base, incised-dentate, whitish-maculate above, purplish beneath.
Pyrola maculata. *L. & Fl. Cestr. ed.* 2. *p.* 267.
SPOTTED CHIMAPHILA. Spotted Winter-green.

Stem 2 to 4 inches high. *Leaves* 1 to near 3 inches long, tapering to an acute point, dull green above, and marked with a whitish line along the midrib and nerves; *petioles* 1 to 2 or 3 lines in length. *Peduncle* terminal, mostly solitary, 3 to 4 or 5 inches long, bearing 2 or 3 flowers (sometimes but 1); *pedicels* ½ an inch to 1½ inches in length, often with a minute subulate *bract* near the middle; *petals* white, with a tinge of purple.
Hab. Woodlands: common. *Fl.* June. *Fr.* Sept.

SUBORDER IV. MONOTRO'PEAE.

Calyx free, 5-parted,—or of *distinct (!)* bract-like deciduous *sepals; corolla* mostly of *distinct* persistent *petals; capsule* 4- or 5-celled, 4-or 5-valved, loculicidally dehiscent, many-seeded; *seed-coat* loose, arillus-like. Fleshy *herbs*, parasitic on roots, never green; *stems* simple; *leaves* mere *scales; flowers* the color of the plant, in a terminal raceme, or solitary.

248. HYPO'PITYS, *Dillen.*

[Gr. *Hypo*, under, and *Pitys*, a Pine tree; often its place of growth.]
Calyx of 4 or 5 bract-like *sepals*. *Petals* 4 or 5, fleshy, erect, with a nectariferous pit at base. *Stamens* 8 or 10; *anthers* reniform, becoming 1-celled, opening by a continuous line into 2 very unequal valves. *Stigma* disk-like, with a bearded margin. *Capsule* roundish-ovoid, 4- or 5-celled.

1. H. lanuginòsa, *Nutt.* Plant tawny, softly pubescent; flowers racemose, secund, nodding, finally erect.
Monotropa lanuginosa. *Mx. & Fl. Cestr. ed.* 2. *p.* 267.
WOOLLY HYPOPITYS. Pine-sap. False Beech-drops.

Whole *plant* tan-color, and of a musky odor; *perennial?* *Stems* 4 to 6 (sometimes 12 or 15) inches high, growing in clusters, smoothish below: *scales* lance-ovate, crowded and imbricated at base, more distant above, becoming *bracts* to the pedicels, in the raceme at summit. *Racemes* 1 or 2 to 6 inches long, at first recurved or circinnate, erect in fruit; *pedicels* 1 line to an inch or more in length; *stamens* mostly 8.
Hab. Moist woodlands: frequent. *Fl.* July. *Fr.* Sept.

249. MONO'TROPA, *Gronov.*

[Gr. *monos*, one, and *trepo*, to turn; the flower being turned, or bent on one side.]
Calyx none, or of 2 to 4 scale-like *bracts* a little distant from the corolla. *Petals* 5, fleshy, erect, narrowed below, with a nectariferous pit at base. *Stamens* 10; *anthers* short, 2-celled, opening by transverse chinks. *Stigma* orbicular, not bearded. *Capsule* ovoid, 5-angled, 5-celled.

1. M. uniflòra, *L.* Plant white, smooth; flower solitary, terminal, nodding; fruit erect.
ONE-FLOWERED MONOTROPA. Indian Pipe.

Whole *plant* white, fleshy, and scentless; *perennial?* *Stem* 5 to 8 or 12 inches high, often growing in clusters; *scales* lance-ovate. *Flower* large; *petals* concave, spatulate-cuneate, truncate, gibbous at base. *Stigma* overtopping the stamens, concave.
Hab. Rich woodlands: frequent. *Fl.* June. *Fr.* Sept.

ORDER LV. AQUIFOLIÀCEAE.

Trees, or *shrubs; leaves* (in our genera) alternate; *stipules* none; *flowers* axillary, small, of 4 to 6 *parts*, often *polygamo-dioicous; calyx* minute, free from the *ovary; petals* nearly distinct; *stamens* as many as the petals, and attached to their base; *fruit* a berry-like *drupe*, with 4 or 6 *nutlets; albumen* fleshy.

250. ILEX, *L.*

[The ancient Latin name of the Holly Oak; applied here.]

Dioicously polygamous: Flowers tetramerous,—i. e. the parts in *fours*. *Petals* ovate-oblong, obtuse, slightly connected at base.—*Drupe* with 4 or 5 striate or grooved *nutlets*. *Leaves* mostly coriaceous, evergreen, and spiny-toothed.

1. I. opàca, *Ait.* Leaves oval, the margins wavy and sharply spinose-dentate; flowers scattered, or loosely fasciculate, along the base of the young branches.

OPAQUE ILEX. Holly. American Holly.

Stem 15 to 30 feet high; branches spreading. *Leaves* 2 to near 3 inches long; *petioles* ¼ of an inch in length. *Flowers* whitish ochroleucous, small; *pedicels* with minute *bracts* at base. *Berries* small, roundish-ovoid, red when mature, persistent.

Hab. Woods; Brandywine; slaty hills: rare. *Fl.* June. *Fr.* Sept.

Obs. This becomes a handsome little tree under cultivation; but is small, and scarce, in its wild state, here. The *European* Holly (*I. aquifolium, L.*) is a more showy species,—with the leaves and berries of which, says Sir W. J. HOOKER, "our houses and churches are adorned at Christmas, a relic probably of Druidism." Dr. DARWIN thus notices the formidable character of its foliage, in his Botanic Garden:—

> "*Four* of the giant brood with ILEX stand,
> Each grasps a thousand arrows in his hand;
> A thousand steely points on every scale
> Form the bright terrors of his bristly mail."

251. PRINOS, *L.*

[The ancient Greek name of the Holly.]

Dioicously polygamous: Flowers hexamerous, or the parts mostly in *sixes*. *Corolla* subrotate, deeply lobed. *Drupe* with 6 smooth *nutlets*. *Leaves* mostly deciduous, serrate.

1. P. verticillàtus, *L.* Leaves oval and obovate, acuminate; flowers on short peduncles,—the sterile subumbellate, the fertile in subsessile clusters; berries red.

VERTICILLATE PRINOS. Black Alder. Winter-berry.

Stem 6 to 8 feet high, much branched. *Leaves* 2 to 3 inches long; *petioles* about half an inch in length. *Flowers* greenish white,—the sterile umbels pedunculate, the fertile clusters smaller, and nearly sessile; *pedicels* about ¼ of an inch in length. *Berries* globose, in small axillary clusters (2 or 3, often 1, in an axil,) appearing somewhat verticillate, bright red when mature, persistent.

Hab. Low, swampy grounds, and thickets: frequent. *Fl.* June. *Fr.* October.

Obs. An evergreen species, with black fruit (*P. glaber, L.*), is common in New Jersey; but has not been found in Chester County. This *genus* is nearly allied to *Ilex*,—and Mr. ELLIOTT suggested the propriety of uniting them. ENDLICHER uses nearly the same words,

in describing the two,—and DE CANDOLLE asks, under *Prinos*, "an ab *Ilice* satis differt?"—The *bark* of the species here described, used in decoction, has long been a popular remedy for ill-conditioned sores,—administered both externally and internally.

ORDER LVI. EBENÀCEAE.

Trees, or *shrubs*; *leaves* mostly alternate and entire, without *stipules*; *flowers* regular, often *polygamo-dioicous*; *calyx* free from the *ovary*; *stamens* twice, to four times, as many as the corolla-lobes; *fruit* a several-celled *berry*; *seeds* 1 in each cell, large and flat, with hard *albumen*.

252. DIOS'PYROS, *L.*

[Gr. *Dis, dios*, Jupiter, and *Pyros*, fruit; a rather fanciful name for such fruit.]

Dioicously polygamous: Calyx 4- 6-parted. *Corolla* urceolate, 4- 6-lobed. *Stamens*, in the *sterile* flowers, usually 16,—in the *fertile*, 8 imperfect ones. *Berry* 4- to 8-celled, large, globular,—the persistent calyx mostly adhering to its base. *Flowers* axillary, subsessile,—fertile ones solitary, sterile ones mostly in threes.

1. D. Virginiàna, *L.* Leaves ovate-oblong, obtusely acuminate; parts of the flower chiefly in fours; corolla subcoriaceous.

VIRGINIAN DIOSPYROS. Persimmon. Date Plum.

Stem 20 to 50 or 60 feet high, irregularly branched. *Leaves* 2 or 3 to 5 inches long, subcoriaceous; *petioles* ½ an inch to near an inch in length. *Corolla* ochroleucous, obtusely 4-angled. *Berry* about an inch in diameter, reddish-orange when mature.

Hab. Low grounds; along streams: frequent. *Fl.* June. *Fr.* November.

Obs. The *fruit*, when ripe, is sweet and luscious, after being subjected to the action of frost,—but is remarkably harsh and astringent, in its green state. The *bark* of the tree is astringent and tonic. The well-known hard black wood, called *Ebony*, is furnished by *D. Ebenum*, and some other species of this genus.

ORDER LVII. PLANTAGINÀCEAE.

Chiefly *stemless herbs*; *leaves* mostly all radical and rosulate, strongly ribbed: *flowers* spiked, on naked *scapes*, regular,—the *parts* usually in *fours*; *calyx* free from the *ovary*; *corolla* membranaceous and dry; *stamens* inserted on the corolla-tube, alternate with its lobes; *capsule* membranaceous, circumscissed, 2-celled; *cells* 1- or several-seeded; *seeds* with fleshy *albumen*.

253. PLANTA'GO, *L.*

[The Latin name of the Plantain; meaning obscure.]

Sepals persistent, slightly connected at base, the margins scarious. *Corolla* tubular, with reflexed lobes, marcescent. *Stamens* 4, much exserted. *Flowers* whitish or ochroleucous, small, bracteate.

† Capsule 6- 8-*seeded*.

1. *P. màjor*, L. Leaves oval or ovate, on long channelled petioles; scape terete, smooth; spike long, cylindric.

GREATER PLANTAGO. Common, or Great Plantain.

Perennial. *Leaves* 3 to 6 or 8 inches long, 5- to 7-ribbed, with an elastic filament in each rib, generally smoothish (sometimes quite hairy); *petiole* about as long as the leaf. *Scapes* usually several, 6 to 18 inches high (including the *spike* of flow-

ers, which varies from 2 to 12 or 15 inches in length). *Bracts* lanceolate, keeled, appressed, shorter than the calyx. *Stamens* twice the length of the corolla.
Hab. Moist grounds; along foot-paths, &c. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. A naturalized foreigner,—remarkable for accompanying civilized man; growing along his footpaths, and flourishing around his settlements. The *leaves* are a convenient and popular dressing for blisters, and other sores; a fact which seems to have been known in the time of SHAKSPEARE,—as we may learn from his *Romeo and Juliet, Act* 1. *Sc.* 2.

"*Rom.* Your *Plantain leaf* is excellent for that.
Ben. For what, I pray thee?
Rom. For your *broken shin.*"

The Plantain leaf continued in vogue, for that purpose, from the Elizabethan age down to our own times,—when a *substitute* was furnished by the officious Empirics who undertook to reform and regulate our national *Currency!*

†† Capsule 2-*seeded.*

2. *P. lanceolàta*, L. Leaves lanceolate; scape sulcate-angled, long and slender; spike short, ovoid-cylindric, dense-flowered.
LANCEOLATE PLANTAGO. English Plantain. Buckhorn Plantain.

Perennial. Leaves 4 to 8 or 10 inches long, about 5-ribbed, hairy, narrowed gradually at base to a *petiole* 2 to 5 or 6 inches in length. *Scapes* several, 1 to 2 feet high; *spike* of flowers 1 to 2 inches long,—at first ovoid-oblong, finally nearly cylindric. *Bracts* ovate, acuminate,—the slender point finally reflexed. *Calyx* apparently of 3 sepals,—two being united into one. *Stamens* several times longer than the corolla; *anthers* greenish-white. *Seeds* oblong, convex on one side, concave on the other, shining, brown or amber-colored.
Hab. Pastures, &c. Nat. of Europe. *Fl.* May. *Fr.* July.

Obs. This species, also, is extensively naturalized,—and more abundant than welcome, in our upland meadows and pastures. Although eaten by Stock, generally, it is much disliked by the farmers: yet, I apprehend, it will be found a very difficult plant to get rid of, where once fully introduced.

3. P. Virginica, *L.* Hoary-pubescent; leaves obovate-oblong, on short margined petioles; spike cylindric; flowers rather distant.
VIRGINIAN PLANTAGO.

Annual? Leaves 2 to 3 inches long, 3- to 5-ribbed; *petioles* 1 to 2 inches in length. *Scapes* 4 to 6 or 8 inches high, very hairy; *spike* at first short, finally elongated to 2, 3, or 4 inches. *Bracts* lanceolate, about as long as the calyx. *Corolla* yellowish,—in fruit the lobes involute, converging into a sort of beak. *Stamens* rather longer than the corolla; *anthers* mostly large. *Capsule* ovoid.
Hab. Sterile, stony old fields: frequent. *Fl.* May. *Fr.* August.

ORDER LVIII. PRIMULÀCEAE.

Herbs; leaves simple, often verticillate, or opposite, without *stipules; flowers* regular, perfect; *calyx* mostly free from the *ovary; stamens* as many as the *lobes* of the corolla, and inserted opposite them on the tube; *capsule* 1-celled, opening by valves, or circumscissed; *seeds* several, with fleshy *albumen.*

TRIBE 1. PRIMULE'AE.

Capsule opening by *valves; stems* leafy: *corolla* rotate.

254. TRIENTAL'IS, *L.*

[Latin, *Trieus*, the third of a foot; referring to the height of the plant.]

Calyx mostly 7-parted; *segments* lance-linear. *Corolla* mostly 7-parted. *Filaments* united in a *ring* at base; *anthers* oblong, revolute after flowering. *Capsule* few-seeded. Low, smooth *perennials: stem* simple, very slender; *leaves* collected at summit; *peduncles* axillary, few and filiform.

1. T. Americàna, *Pursh.* Leaves lanceolate, tapering at each end, subverticillately aggregated; corolla-lobes acuminate.

American Trientalis. Chickweed Wintergreen.

Stem 4 to 8 inches high. *Leaves* 2 to 3 inches long, mostly acuminate (sometimes obtuse and emarginate at apex), subsessile, aggregated in a terminal whorl, with 2 or 3 small straggling ones on the stem. *Peduncles* an inch to an inch and half in length; *flowers* white.

Hab. Shaded rivulets, on slaty hills: rare. *Fl.* May. *Fr.* July.

255. LYSIMA'CHIA, *L.*

[Gr. *Lysis Mache*, literally *loose strife;* application obscure.]

Calyx 5-parted. *Corolla* 5-parted. *Filaments* often united in a *ring* at base. *Capsule* globose, mucronate, 5- to 10-valved, few- or many-seeded. *Perennials: leaves* entire; *flowers* racemose, or axillary, mostly yellow, often streaked with purple.

§ 1. Leaves *opposite, or verticillate, subsessile, dotted;* filaments *forming a ring at base, without interposed sterile ones.*

1. L. stricta, *Ait.* Smooth; leaves opposite, lanceolate, acute at each end; flowers in a loose terminal raceme.

Upright Lysimachia.

Stem 1 to 2 feet high, somewhat 4-angled, with a few axillary branches. *Leaves* about 3 inches long, marked with oblong blackish dots, often bearing *bulbs* in the axils. *Raceme* 4 to 6 or 8 inches long; *pedicels* nearly an inch in length, with each a lance-linear *bract* at base.

Hab. Low, swampy grounds: not common. *Fl.* June. *Fr.* Sept.

2. L. quadrifòlia, *L.* Somewhat hairy; leaves verticillate, ovate-lanceolate; peduncles long, axillary and solitary.

Four-leaved Lysimachia. Loose-strife.

Stem 1 to 2 feet high, simple. *Leaves* 2 to 3 inches long, marked with oblong dark purple dots, in verticils of 3 to 6, but usually in fours or fives. *Peduncles* long and slender, but shorter than the leaves.

Hab. Low grounds; fence-rows, thickets, &c.: common. *Fl.* June. *Fr.* Aug.

§ 2. Leaves *mostly opposite, on ciliate petioles, not dotted;* filaments *with interposed sterile rudiments.*

3. L. ciliàta, *L.* Leaves lance-ovate, acuminate, subcordate at base; peduncles axillary, mostly in pairs.

Ciliate Lysimachia.

Stem 2 to 3 feet high, square, grooved, with a few axillary branches. *Leaves* 3 to 6 inches long; *petioles* an inch to an inch and half in length, conspicuously ciliate. *Flowers* somewhat nodding; *filaments* short, with intermediate teeth on the ring; *anthers* linear, finally recurved.

Hab. Borders of woods; along rivulets, &c.: frequent. *Fl.* June. *Fr.* Aug.

4. L. lanceolàta, *Walt.* Leaves oblong-lanceolate, acute, narrowed at base to a short petiole; peduncles axillary, solitary.
L. hybrida. *Mx. & Fl. Cestr. ed.* 2. *p.* 125.
LANCEOLATE LYSIMACHIA.

Stem about 2 feet high, angular and grooved, branching from the axils. *Leaves* 2 to 3 inches long, mostly opposite, those near the ends of the branches sometimes in fours; *petioles* ¼ to ½ an inch in length, somewhat margined and ciliate. *Peduncles* 1 to 2 inches long.

Hab. Swamps, among the slaty hills: not common. *Fl.* July. *Fr.* Sept.

Obs. This plant seems very much like a *hybrid*, as MICHAUX (or rather RICHARD) supposed; and presents some striking *varieties*, with long sublinear leaves.

TRIBE 2. ANAGALLID'EAE.

Capsule circumscissed,—the top falling off like a *lid*.

256. ANAGAL'LIS, *Tournef.*

[Gr. *Anagelao*, to laugh; from its supposed exhilarating virtues.]

Calyx 5-parted. *Corolla* rotate, deeply 5-parted; *lobes* broad.—*Filaments* hirsute. *Capsule* globose, many-seeded. Mostly procumbent smooth *annuals: leaves* chiefly opposite; *peduncles* axillary, solitary.

1. *A. arvénsis*, L. Leaves ovate, sessile, blackish-dotted beneath, shorter than the peduncles; petals obovate, obtuse, crenulate and glandular-ciliate, longer than the stamens.

FIELD ANAGALLIS. Red Chickweed. Scarlet Pimpernel.

Stem 6 to 12 inches long, branching near the root, acutely 4-angled, or slightly winged. *Leaves* about ¾ of an inch long. *Flowers* orange-red, or brick-dust color, with a purplish centre; *filaments* purple,—the *hairs* (under a lens) jointed, or moniliform.

Hab. Fields; roadsides, &c. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This humble foreigner is gradually extending itself through our country. It has been remarked, in Europe, that if the flowers are expanded in the morning, the day will prove fine,—if shut, the contrary; and hence it has been named the "*Shepherd's Weather-glass.*" Popular credulity has given to this inert little herb some notoriety, as a *medicine*. It is one of the old *specifics for Hydrophobia;* and so late as the year 1802, grave Senators of Pennsylvania requested their Speaker to present the thanks of the Senate to an aged German, for communicating to that body sundry particulars about the plant, and its virtues, which had been published to the world, over and over again—in that Farrago of Trumpery, the *Materia Medica of the olden time*—long before any of those worthies were born!

TRIBE 3. SAMOLE'AE.

Calyx-tube adherent to the base of the *ovary; capsule* opening at summit by valves.

257. SAM'OLUS, *L.*

[From the island of *Samos;* where it is said to have been first found.]

Calyx 5-cleft. *Corolla* subcampanulate, 5-lobed, with a *sterile filament* at each cleft. *Stamens* included, inserted on the short tube of

the corolla. *Capsule* 5-valved at summit, many-seeded. Smooth *sub-aquatics: leaves* alternate, entire; *flowers* racemose, white.

1. S. floribúndus, *Kunth.* Leaves obovate-oblong, or spatulate; racemes long, loose, paniculate; pedicels bracteolate near the middle.

S. Valerandi. *L. & Fl. Cestr. ed.* 2. *p.* 595.

MANY-FLOWERED SAMOLUS. Water Pimpernel.

Perennial. Stem 8 to 12 or 15 inches high, with slender spreading branches.—*Leaves* half an inch to 2 inches long, varying from obovate to spatulate-oblong, and rhombic-lanceolate, slightly fleshy in texture,—those on the stem and branches sub-sessile, the radical or lower ones petiolate. *Flowers* small, in slender racemes (2 to 4 or 5 inches in length) terminating the branches; *pedicels* ½ an inch to ¾ in length, filiform, with a minute subulate *bractlet* above the middle.

Hab. Wet, low grounds; Great Valley: rare. *Fl.* July. *Fr.* Aug.

Obs. This is now considered sufficiently *distinct* from the *S. Valerandi,* of Europe.

ORDER LIX. LENTIBULA'CEAE.

Small *aquatics,* or *marsh herbs; leaves* mostly radical, often much dissected; *calyx* 2-lipped, free from the *ovary; corolla* personate, or 2-lipped, spurred at base; *stamens* 2; *anthers* 1-celled; *capsule* 1-celled, bursting irregularly; *seeds* numerous, without *albumen.*

258. UTRICULA'RIA, *L.*

[Latin, *Utriculus,* a little bottle; from the bladdery sacs on the leaves.]

Calyx-lips nearly equal, entire. *Corolla* personate,—the *palate* prominent; *upper lip* erect. *Leaves* submersed, or floating, often capillaceously dissected, and bearing little *air-vessels; scapes* emerging, ascending; *flowers* racemose.

1. U. vulgàris, *L.* Stem submersed; leaves decompound, segments capillaceous; bladders numerous; scape many-flowered.

U. macrorhiza. *Le Conte, & Fl. Cestr. ed.* 2. *p.* 7.

COMMON UTRICULARIA. Bladder-wort. Hooded Milfoil.

Perennial. Stem 1 to 2 or 3 feet long, leafy, immersed and slightly attached by radicles to the mud, at bottom. *Leaves* 1 to 2 inches long, pinnately decompound. *Scapes* 5 to 10 inches long; *flowers* yellow, with brown stripes on the palate, 4 to 8 or 10 in a raceme; *pedicels* about ¾ of an inch in length, bracteate at base.

Hab. Pools, and sluggish streams: not very common. *Fl.* June. *Fr.*

Obs. The views of Major LE CONTE—that the multifid appendages to the stem are genuine *roots,* and that our plant is specifically distinct from the *U. vulgaris* of Europe—do not appear to be adopted by later writers.

ORDER LX. OROBANCHA'CEAE.

Herbs, destitute of verdure (*root-parasites*); *leaves* and *bracts* mere scales; *flowers* didynamous; *calyx* free from the *ovary,* persistent; *corolla* ringent, withering-persistent; *capsule* 1-celled, 2-valved; *valves* each bearing 1 or 2 *placentae; seeds* numerous, with transparent *albumen.*

† Flowers *monoicously polygamous.*

259. EPIPHE'GUS, *Nutt.*

[Gr. *Epi*, upon, and *Phegos*, the beech; because it grows on the roots of that tree.]

Flowers racemose on the branches; *upper ones* abortive, with a compressed bilabiate corolla, long filaments and style; *lower ones* fertile, the *corolla* rarely opening, but pushed off by the growing ovary. *Calyx* 5-toothed. *Capsule* obovoid, obtuse, or truncate.

1. E. Virginiàna, *Bart.* Purplish brown; somewhat pubescent in lines; much branched; flowers rather distant, subsessile.
E. Americanus. *Nutt. & Fl. Cestr. ed.* 2. *p.* 376.

VIRGINIAN EPIPHEGUS. Beech-drops. Cancer-root.

Perennial? Root tuberous, fleshy, with numerous short coarse fibres intermingled with scales. *Stem* 6 to 12 or 15 inches high, angular, striate, with numerous slender branches. *Flowers* in the axils of lance-ovate scales; *corolla* of the *abortive* ones about half an inch long, whitish, with purple stripes,—of the *fertile* ones, short, not opening, apparently circumscissed below. *Stamens* of the *abortive* flowers free,—of the *fertile* ones short, the *anthers* cohering with the *stigma*, in the apex of the unexpanded corolla.

Hab. Wood-lands, under Beech trees: frequent. *Fl.* Sept. *Fr.* Octo.

Obs. This singular plant is remarkable for being found (like VIRGIL's Shepherd) "*sub tegmine Fagi*,"—and seems to be confined to the roots, or immediate vicinity, of *Beech trees*. MICHAUX says of its *habitat*—"*in radice* FAGI, *nec aliae plantae*"; nor have I ever seen it growing elsewhere. It is considerably astringent,—and was formerly in some repute, in the hands of *cancer Doctors*, and other dealers in *infallibles*.

†† Flowers *all perfect.*

260. CONOPHI'OLIS, *Wallroth.*

[Gr. *Konos*, a Fir-cone, and *Pholis*, a scale; from its imbricated scales.]

Flowers in a thick scaly-bracted *spike: Calyx* irregularly 5-cleft, with 2 *bractlets* at base. *Corolla* ventricose below, unequally 5-lobed, and ringent; upper lip arched. *Stamens* exserted. *Capsule* with 4 *placentae*, which are approximated in pairs on each valve.

1. C. Americàna, *Wallr.* Yellowish brown; smooth; stem simple, thick, covered with ovate-lanceolate imbricated scales.
Orobanche Americana. *L. & Fl. Cestr. ed.* 2. *p.* 376.

AMERICAN CONOPHOLIS. Squaw-root.

Perennial. Stem 1 to 3 or 4 inches in length, mostly in clusters, thick and fleshy, bearing a thick dense *spike* 2 to 5 inches long; *flowers* subsessile, in the axils of lance-ovate acuminate *bracts; corolla* dirty white, or pale brown.

Hab. Rich woodlands; along Brandywine: not common. *Fl.* June. *Fr.* July.

261. APHYL'LON, *Mitchell.*

[Gr. *a*, privative, and *Phyllon*, a leaf; from its naked stalks.]

Flowers solitary, on long scape-like peduncles: *Calyx* regularly 5-cleft, without *bractlets*. *Corolla* with a rather long curved tube, somewhat bilabiate,—the upper lip deeply bifid, the lobes similar to the 3 of the lower lip. *Stamens* included. *Capsule* with 4 equidistant *placentae*.

1. A. uniflòrum, *Torr. & Gr.* Pale tawny; pubescent; stem very short, rhizoma-like, scaly; scapes 1 to 3, slender, naked.
Orobanche uniflora. *L. & Fl. Cestr. ed.* 2. *p.* 377.
ONE-FLOWERED APHYLLON. Naked Broom-rape.

Perennial? *Stem* half an inch to an inch and half long, often branched, or several from the same root, covered with a few oblong scales. *Peduncles* scape-like, 2 to 4 or 5 inches high, mostly 2 or 3 on each short stem. *Corolla* yellowish white, veined, tinged with purple; *palate* with 2 yellow ridges, and corresponding grooves beneath.
Hab. Hilly woodlands: frequent. *Fl.* May. *Fr.* July.

ORDER LXI. BIGNONIA'CEAE.

Woody, or sometimes *herbaceous* plants; *leaves* mostly opposite; *stipules* none; *flowers* didynamous (sometimes *diandrous*, by abortion); *calyx* 2-lipped, or 5-cleft; *corolla* subcampanulate, unequally 5-lobed, deciduous; *ovary* free, 2-celled by the projection of the *placentae; capsule* coriaceous, or woody, 2-valved, many-seeded; *seeds* large, flat, often winged, destitute of *albumen*.

SUBORDER I. BIGNONIE'AE.

Capsule coriaceous, dehiscent; *seeds* winged. *Trees*, or *woody vines*.

262. CATAL'PA, *Scop.*

[A name said to have been derived from our Southern Indians.]

Calyx deeply 2-lipped. *Corolla* somewhat ventricose, sub-bilabiate. *Stamens* mostly 2 perfect, and 3 abortive. *Capsule* very long and slender, nearly cylindrical, 2-celled,—the partition contrary to the valves. *Seeds* in a single row in each cell, winged and fringed at each end. *Trees: flowers* in terminal panicles.

1. *C. bignonioìdes*, Walt. Leaves cordate, acuminate, entire, petiolate; panicles pyramidal.
C. cordifolia. *Duham. & Fl. Cestr. ed.* 2. *p.* 363.
BIGNONIA-LIKE CATALPA. Catawba. Bean tree.

Stem 15 to 25 feet high, with irregular spreading branches. *Leaves* 4 to 6 or 8 inches in length, and nearly as wide as long, opposite or ternate, pubescent beneath; *petioles* 2 to 6 inches long. *Panicles* trichotomously branched, rather large; *corolla* whitish, tinged with violet-purple, the throat spotted with purple and yellow. *Capsule* 6 to 12 inches in length, and about half an inch in diameter, pendulous and persistent.
Hab. Roadsides; about houses, &c.: not common. *Fl.* June. *Fr.* Octo.

Obs. This tree is showy and handsome, when in flower,—and has become naturalized in several localities; though I think it is clearly not indigenous, here,—but was probably introduced from the South, as an ornamental shade-tree.

SUBORDER II. SESAME'AE.

Capsule sometimes fleshy and finally *woody*, or of a drupaceous structure, imperfectly dehiscent, somewhat 4-celled; *seeds* not winged. *Herbs; upper leaves* often alternate.

263. MARTYN'IA, *L.*

[Dedicated to *John Martyn*, Prof. of Botany at Cambridge, England.]

Calyx 5-cleft, with 2 or 3 *bractlets* at base. *Corolla* irregular, campanulate, gibbous at base. *Stamens* mostly 4, didynamous. *Cap-*

sule woody, with a fleshy or coriaceous deciduous coat, ovoid-oblong, with a long *beak* which splits into 2 hooked claw-like horns; *seeds* covered with a spongy coat, finally tuberculate-rugose.

1. M. PROBOSCID'EA, Gloxin. Viscid-pubescent; leaves orbicular-cordate, entire, petiolate; beak longer than the capsule.

LONG-BEAKED MARTYNIA. Unicorn Plant.

Plant pale green, fetid, *annual*. *Stem* leaning or semiprocumbent, 1 to 2 feet long, branching, fistular. *Leaves* 2 to 5 inches long; *petioles* 2 to 6 inches in length. *Flowers* axillary, large; *peduncles* 1 to 3 inches long; *corolla* ochroleucous, with orange-colored and brownish spots within. *Capsule* 2 to 3 inches long, somewhat sulcate in front, with a bipartible *crest* along the suture in the broad shallow groove, tapering to a *beak* which is 2 to 4 inches long, finally split, and rigidly incurved.

Hab. Gardens, &c. Nat. of the S. Western States. *Fl.* July. *Fr.* Sept.

Obs. This plant is cultivated for its singular *fruit*,—which, in its young state—before it becomes hard and woody—is used for making *pickles*.

ORDER LXII. ACANTHA'CEAE.

Chiefly *herbs; leaves* opposite, simple, without *stipules; flowers* diandrous, or didynamous; *corolla* irregularly 5-lobed, more or less bilabiate, the *lobes* convolute in the bud; *stamens* inserted on the tube of the corolla; *capsule* 2-celled, loculicidal, few-seeded; *seeds* without *albumen*.

264. DIANTHE'RA, *Gronov.*

[Gr. *dis*, double, and *anthera*; the separated cells appearing like 2 anthers.]

Calyx 5-parted, with 2 or 3 *bractlets* at base. *Corolla* deeply bilabiate; *upper lip* erect, notched,—*lower lip* 3-parted, spreading.—*Stamens* 2; *anther-cells* separated, not opposite each other. *Capsule* compressed, tapering to a short *stipe* at base, 4-seeded. *Perennial subaquatics: flowers* in axillary pedunculate heads, or short spikes.

1. D. Americàna, *L.* Glabrous; leaves linear-lanceolate; spikes oblong, dense-flowered, on long peduncles.

Justicia pedunculosa. *Mx. & Fl. Cestr. ed.* 2. *p.* 591.

AMERICAN DIANTHERA.

Stem about 2 feet high, rather slender, simple, or sparingly branched from the axils. *Leaves* 3 to 6 inches long, narrowed at base to a short *petiole*. *Spikes* ⅓ to ¾ of an inch long, on slender *peduncles* 1 to 4 inches in length; *corolla* pale violet-purple. *Capsule* about half an inch long.

Hab. Margins of streams; Schuylkill: rare. *Fl.* June. *Fr.* Aug.

ORDER LXIII. SCROPHULARIA'CEAE.

Chiefly *herbs; leaves* alternate, opposite, or verticillate, without *stipules; flowers* pentandrous, didynamous, or diandrous; *corolla* irregularly 5-lobed, subrotate, personate, or bilabiate,—the *lobes* imbricated in the bud; *stamens* inserted on the tube of the corolla; *capsule* 2-celled, mostly 2-valved, usually many-seeded; *placentae* united in the axis; *embryo* small, in copious *albumen*.

This Order comprises nearly 150 genera,—affording many curious and rather handsome *flowers*—some troublesome *weeds*—and a few plants of considerable medicinal power, especially the purple *Foxglove* (*Digitalis purpurea, L.*). The *Paulownia imperialis*, of SIEBOLD and ZUCCARINI—recently introduced from Japan, as

an ornamental *shade-tree*—belongs here; though its general habit, or aspect, would lead one to look for it beside the *Catalpa*. It is scarcely, yet, entitled to a place in our *Flora*.

SUBORDER I. ANTIRRHINID'EAE.

Upper lip of the corolla outermost, covering the lobes of the lower, in the bud; *capsule* usually septicidal.

† Corolla *subrotate*; leaves *all alternate*.

265. VERBAS'CUM, *L.*

[Quasi *Barbascum:* Latin, *Barba*, beard; from its bearded, or woolly habit.]

Calyx 5-parted. *Corolla* nearly equally 5-lobed, concave-spreading. *Stamens* 5, declined; *filaments* unequal, all (or the 3 upper ones) hairy. *Capsule* ovoid, or globose; *seeds* rugose-pitted.—Chiefly *biennials: flowers* in dense spikes, or paniculate racemes.

1. *V. Thápsus*, L. Densely hoary-tomentose; stem stout, simple; leaves lance-oval, entire, the cauline ones decurrent; flowers in a thick dense terminal spike; 2 lower filaments smooth.

THAPSUS VERBASCUM. Common Mullein.

Plant pale greyish-green; *pubescence* much branched. *Stem* 3 to 6 feet high.—*Radical leaves* 6 to 12 inches long, entire, subsessile; *stem-leaves* smaller. *Spike* 6 to 12 or 15 inches long, cylindric, about an inch in diameter; *flowers* subsessile, bracteate, bright yellow.

Hab. Neglected fields; roadsides, &c. *Fl.* June. *Fr.* Aug.

Obs. This foreigner (common throughout Europe, though named as if originating in the isle of *Thapsos*,) is abundantly naturalized in all our older settlements; and its prevalence is one of the certain signs of a negligent slovenly farmer. The plant seems apt to *hybridize*,—or, at least, subject to some remarkable *varieties;* as I have occasionally found it with the spike less dense, the bracts larger, the stem-leaves ovate and acuminate, with one or more pedunculate flowers in the axil of nearly every leaf: possibly *a cross-breed* from *V. Lychnitis, L.* which is frequent around Philadelphia.

2. *V. Blattària*, L. Smoothish and green; stem rather slender, often branched; leaves oblong, serrate, not decurrent; flowers racemose; filaments all hairy.

MOTH VERBASCUM. Moth Mullein.

Biennial? *Stem* 2 to 4 feet high, angular. *Leaves* 2 to 4 or 5 inches long.—the *lower* ones petiolate, often sinuate-pinnatifid, the *upper* ones sessile and clasping. *Raceme* 6 to 18 inches long, leafy or bracteate, glandular-pubescent; *pedicels* ½ an inch to an inch in length; *flowers* greenish-white with a tinge of purple, or bright yellow.

Hab. Pastures; road sides, &c. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. The *variety* with *whitish, purple-tinged flowers*, has become a common weed in Chester County; the other is more rare. It appears, by the *Bartram Correspondence*, that about the year 1735, PETER COLLINSON sent the seeds of the "*Yellow Moth Mullein*" to JOHN BARTRAM, as a curiosity—among many others; and that is no doubt the way the *yellow variety* came to be so common around Philadelphia. This species was named under the notion (which requires confirmation,) that it possessed the virtue of expelling *Moths* from among clothing.

†† Corolla *personate, with a spur, or sac, at base;* capsule *opening by chinks, or valve-like teeth.*

266. LINA'RIA, *Tournef.*

[Latin, *Linum*, flax; from a resemblance, in some species.]

Calyx 5-parted. *Corolla* with a prominent *palate* closing the throat; *upper lip* bifid, the lobes folded back. *Stamens* 4, didynamous, with a minute rudiment of a fifth. *Capsule* ovoid, or globose, thin, opening by 1 or 2 chinks, and by several teeth at apex; *seeds* often margined. *Leaves* mostly alternate; *flowers* racemose.

1. *L. vulgàris*, Mill. Smooth and glaucous; stem erect, slender, often simple; leaves lance-linear, acute, numerous; raceme terminal, crowded; corolla spurred at base.

COMMON LINARIA. Toad-flax. Ranstead-weed. Butter-and-eggs.

Perennial. Root creeping, subligneous. *Stem* 1 to 2 or 3 feet high, terete, leafy, sometimes branched, especially near the summit, usually growing in bunches or small patches. *Leaves* 1 to 2 inches long. *Flowers* in a bracteate raceme terminating the stem, and branches; *corolla* pale greenish-yellow,—the *palate* bright orange-color; *throat* villous; *spur* subulate, about half an inch long. *Capsule* ovoid-oblong; *seeds* with a dilated orbicular margin.

Hab. Pastures; fence-rows, &c. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This showy, but worthless, and prevalent *weed*, is said to have been sent from Wales, as a garden flower, to a Mr. *Ranstead*, of Philadelphia. JOHN BARTRAM, writing of the *troublesome plants*, in *Pennsylvania*, near a century since, says—"The most mischievous of these, is the stinking yellow *Linaria*. It is the most hurtful plant to our pastures that can grow in our northern climate. Neither the spade, plough, nor hoe, can eradicate it, when it is spread in a pasture. Every little fibre that is left, will soon increase prodigiously; nay, some people have rolled great heaps of logs upon it, and burnt them to ashes, whereby the earth was burnt half a foot deep, yet it put up again, as fresh as ever, covering the ground so close as not to let any grass grow amongst it; and the cattle can't abide it." This is rather stronger testimony than I am prepared to bear against the plant; but it is certainly a monopolizing and most unwelcome intruder, on our farms,—and requires persevering efforts to get rid of it. Specimens of that remarkable form of the *flower*, known by the name of *Peloria*—with a regular 5-lobed corolla, 5 spurs, and 5 perfect stamens—are occasionally to be met with.—They are frequently, if not always, *late* flowers,—situated at the summit of the raceme of full-grown capsules, and apparently the latest floral developments of the plant. Sometimes these *Pelorias* are tetramerous; *i. e.* the corolla is 4-lobed, with 4 spurs, and 4 stamens. Altogether, the phenomenon is an interesting illustration of the curious *metamorphoses* to which the organs of plants are subject.

††† Corolla *more or less bilabiate, without spur or sac at base:* capsule 2- *to* 4-*valved.*

* Stamens 4 *perfect, mostly with a conspicuous rudiment of a fifth.*

267. SCROPHULA'RIA, *Tournef.*

[So named from its supposed virtue in curing *Scrophula*.]

Calyx 5-parted. *Corolla-tube* globular-ventricose; *border* irregu-

larly bilabiate,—the *upper lip* longer, 2-lobed,—*lower lip* 3-lobed, the middle lobe reflexed. *Stamens* didynamous, with a *scale-like rudiment* of a fifth at the base of the upper lip. *Capsule* ovoid, acute; *seeds* ovoid, rugose. *Leaves* mostly opposite; *flowers* cymose, in a contracted oblong terminal panicle.

1. S. nodòsa, *L.* Smoothish; stem square, tall, branched above; leaves lance-ovate, acute, incised-serrate, rounded at base.
S. Marilandica. *L. & Fl. Cestr. ed.* 2. *p.* 370.
NODOSE SCROPHULARIA. Fig-wort. Carpenter's Square.

Perennial. Stem 3 to 5 or 6 feet high, with a slight wing or ridge on the angles, by the decurrence of the petioles. *Leaves* 3 to 5 inches long, the upper ones lanceolate; *petioles* ½ an inch to 2 inches in length. *Panicle* 9 to 18 inches long (those terminating the branches shorter), sprinkled with glandular or capitate hairs; *corolla* dull purplish-brown tinged with green, contracted at throat; *stamens* conspicuous in the throat of the corolla,—the abortive one a green spatulate scale.
Hab. Woods; fence-rows, &c.: frequent. *Fl.* June. *Fr.* Aug.

Obs. This is now regarded as not sufficiently distinct from the *S. nodosa*, of Europe.

268. CHELO'NE, *Tournef.*

[Gr. *Chelone*, a Tortoise; the flower resembling the head of that animal.]

Calyx of 5 imbricated *sepals*. *Corolla* inflated-tubular,—the *upper lip* broad and arched, emarginate,—*lower lip* villous within, 3-lobed at apex. *Stamens* didynamous, with a fifth sterile filament shorter than the others; *filaments* woolly; *anthers* cordate, very woolly.—*Capsule* ovoid; *seeds* membranaceously margined. Smooth *perennials: leaves* opposite; *flowers* imbricated in crowded bracteate spikes.

1. C. glàbra, *L.* Leaves oblong-lanceolate, serrate, subcoriaceous, on very short petioles.
GLABROUS CHELONE. Shell-flower. Tortoise-head. Snake-head.

Stem 2 to 3 feet high, obtusely 4-angled, simple or sparingly branched. *Leaves* 2 to 4 or 5 inches long. *Spikes* 1 to 2 or 3 inches in length, thick and crowded; *bracts* ovate-oblong; *flowers* white; *sterile filament* smooth at summit.
Hab. Along swampy rivulets: frequent. *Fl.* Aug. *Fr.* Octo.

269. PENTSTE'MON, *Mitchell.*

[Gr. *Pente*, five, and *Stemon*, a stamen; from the fifth abortive stamen.]

Calyx of 5 nearly distinct *sepals*. *Corolla* inflated-tubular, contracted below; *upper lip* 2-lobed, *lower lip* 3-cleft. *Stamens* didynamous, smooth, declined at base, with a fifth sterile filament usually as long as the others, and the upper half often bearded on one side. *Capsule* ovoid, acute; *seeds* angular-ovoid, not margined. *Perennials: leaves* opposite; *flowers* in a terminal thyrsoid panicle.

1. P. pubéscens, *Soland.* More or less hairy; radical leaves ovate-oblong, petiolate; stem-leaves lanceolate, sessile or clasping.
PUBESCENT PENTSTEMON.

Stem 9 to 15 inches high, erect or decumbent, nearly simple, or branching from the base. *Leaves* 2 to 4 or 5 inches long, tapering to the apex, but rather obtuse, serrulate, or nearly entire. *Panicle* di- or tri-chotomous, viscid-pubescent; *corolla* about an inch long, palish violet-purple, pubescent,—the *tube* contracted below,

inflated above; *sterile filament* longer than the others, densely bearded on the upper side from the apex more than half way to the base.
Hab. Hills, along Schuylkill: not common. *Fl.* June. *Fr.* Aug.

Obs. The *P. laevigatus*, of SOLANDER, is now regarded as a *variety* of this; though, as I have been accustomed to see it, in gardens, it appears to be pretty distinct,—and every way a much finer plant.

** Stamens 4 *perfect, and no rudiment of a fifth.*

270. MIM'ULUS, *L.*

[Gr. *Mimo*, an Ape; in allusion to its grinning flowers.]

Calyx tubular, prismatic, 5-angled, 5-toothed. *Corolla* tubular, somewhat personate; *upper lip* 2-lobed, reflexed at the sides,—*lower lip* 3-lobed, with the *palate* prominent. *Stamens* didynamous, included. *Stigma* 2-lipped. *Capsule* lance-ovoid; *seeds* acute at each end. Mostly smooth *perennials: stem* square; *leaves* opposite; *flowers* on axillary solitary peduncles. A species from Oregon (*M. moschatus, Dougl.*) is remarkable for exhaling a strong odor of *musk.*

1. M. ringens, *L.* Leaves sessile, lanceolate; peduncle longer than the flower; calyx-teeth lance-ovate, acuminate.
GRINNING MIMULUS. Monkey-flower.

Stem 12 to 18 inches high, somewhat branched. *Leaves* 2 to 4 or 5 inches long, sharply serrate, somewhat clasping. *Peduncles* an inch to an inch and half in length. *Calyx-tube* about half an inch long. *Corolla* pale violet-purple,—the *tube* ¼ to ⅓ longer than the calyx.
Hab. Moist, low grounds: frequent. *Fl.* Aug. *Fr.* Septem.

2. M. alàtus, *Ait.* Leaves petiolate, oblong-ovate; peduncle shorter than the flower; calyx-teeth rounded, mucronate.
WINGED MIMULUS.

Stem 1 to 2 or 3 feet high, slightly winged on the angles, sparingly branched.—*Leaves* 2 or 3 to 5 or 6 inches long, somewhat obtusely sinuate-serrate, or dentate, thin, tapering at base to a *petiole* ½ an inch to an inch in length. *Peduncles* ¼ to half an inch long. *Corolla* pale violet-purple.
Hab. Low grounds; along rivulets: frequent. *Fl.* July. *Fr.* Sept.

*** Stamens *only* 2 *perfect, posterior, included; often with rudiments of others.*

271. GRATIOLA, *L.*

[Latin, *Gratia*, grace, or favor; from its supposed medicinal virtues.]

Calyx 5-parted; *segments* narrow, nearly equal; mostly 2 *bractlets* at the base of the calyx. *Corolla* tubular, sub-bilabiate. *Sterile filaments* anterior, simple, sometimes wholly wanting. *Capsule* 4-valved, many-seeded. *Leaves* opposite; *peduncles* axillary, 1-flowered.

1. G. Virginiàna, *L.* Stem terete; leaves lance-oblong, narrowed at base, sessile; sterile filaments wanting.
VIRGINIAN GRATIOLA. Hedge Hyssop.

Annual? *Stem* 4 to 8 or 10 inches long, decumbent or oblique, branching from the base. *Leaves* ¾ of an inch to 1½ inches long, varying from lance-oblong to

spatulate, often nearly entire, somewhat clasping. *Peduncles* ½ an inch to an inch long; *corolla* pale yellow, with tinges of red.
Hab. Miry places; along rivulets: frequent. *Fl.* June. *Fr.* July.

272. ILYSAN'THES, *Rafin.*

[Gr. *Ilys*, mire, and *anthos*, a flower; from its usual place of growth.]

Calyx nearly equally 5-parted, naked at base. *Corolla* tubular, bi-labiate; *upper lip* short, erect, 2-lobed. *Sterile filaments* anterior, forked,—one branch obtuse and glandular, the other acute, short and tooth-like. *Capsule* ovoid-oblong, 2-valved?—Smooth *annuals: leaves* opposite; *peduncles* axillary, 1-flowered.

1. I. gratioloides, *Benth.* Stem square; leaves ovate and obovate, narrowed at base, the upper ones partly clasping.
Lindernia attenuata. *Muhl. & Fl. Cestr. ed.* 2. *p.* 364.
GRATIOLA-LIKE ILYSANTHES. False Pimpernel.

Stem 4 to 6 or 8 inches high, erect, or decumbent and radicating at the lower nodes, often diffusely branching. *Leaves* ½ an inch to an inch long, the lower ones obovate, or spatulate, nearly entire, narrowed almost to a petiole at base.—*Peduncles* shorter (or the upper and later ones often longer) than the leaves, 4-angled; *corolla* pale bluish-purple, about twice as long as the calyx.
Hab. Low, swampy grounds: not very common. *Fl.* July. *Fr.* Aug.

SUBORDER II. RHINANTHID'EAE.

Lateral lobes of the corolla, or one of them (never the *upper lip*), outermost in the bud; *capsule* mostly loculicidal.

a. Corolla *with the lobes spreading and flat.*

273. VERON'ICA.

[Etymology obscure; perhaps the flower of *St. Veronica.*]

Calyx 5- or 4-parted. *Corolla* tubular with a spreading *border*, or sub-rotate, unequally 4-lobed,—the lateral lobes, or the lower one, usually narrower. *Stamens* 2, one on each side of the upper or posterior corolla-lobe, exserted; *anther-cells* confluent at apex. *Capsule* ovoid, or obcordate and compressed at apex, 2-celled, many- or few-seeded.

♃ 1. PERENNIAL. † Leaves *verticillate;* flowers *in dense terminal spikes;* corolla-tube *longer than the calyx;* capsule *ovoid.*

1. V. Virginica, *L.* Stem tall and straight; leaves on short petioles, lanceolate, serrate; spikes long, panicled or aggregated; stamens much exserted.
Leptandra Virginica. *Nutt. & Fl. Cestr. ed.* 2. *p.* 6.
VIRGINIAN VERONICA. Tall Speedwell.

Stem 2 to 5 or 6 feet high, simple, obtusely angled. *Leaves* 3 to 6 inches long, tapering to a sharp point, glaucous beneath, and hairy along the nerves,—usually in *verticils* of 4 or 5,—occasionally 6, and sometimes only 3. *Spikes* 3 to 6 inches long, on *peduncles* 2 to 3 inches in length; *flowers* white, subsessile; *bracts* small, acuminate.
Hab. Low grounds: borders of woods: frequent. *Fl.* July. *Fr.* Sept.

Obs. This plant is now referred back to *Veronica*, by the high authority of BENTHAM, DE CANDOLLE, and A. GRAY; though it seems to me, that many genera are permitted to stand on quite as slender a foundation as Mr. NUTTALL'S *Leptandra.*

†† Leaves *opposite;* corolla *rotate:* capsule *mostly obcordate.*

* Flowers *in opposite axillary racemes.*

2. V. Anagállis, *L.* Stem erect, rooting near the base; leaves lanceolate, acute, denticulate, sessile and clasping.
Water Speedwell.

Stem 12 to 18 inches high, simple, rather coarse and fleshy, somewhat roughish-pubescent, with verticils of slender *radicles* from the lower nodes. *Leaves* 2 to 3 inches long. *Racemes* 2 to 4 inches long, on stout succulent *peduncles* 1 to 2 inches in length; *bracts* linear-lanceolate, as long as the pedicels; *corolla* pale blue with purple stripes; *capsule* tumid.

Hab. Brooks, and ditches: not common. *Fl.* June. *Fr.* August.

3. V. Americàna, *Schweinitz.* Stem decumbent at base; leaves lance-ovate, or oblong, serrate, on short petioles.
V. Beccabunga. *L. & Fl. Cestr. ed. 2. p. 4.*
American Veronica. Brooklime.

Whole *plant* glabrous. *Stem* 9 to 15 inches long, simple, radicating from the lower nodes. *Leaves* 1 to 2 inches long, rather acute, often subcordate at base; *petioles* 1 line to ½ an inch in length. *Racemes* 2 to 4 inches long, on *peduncles* about an inch in length; *corolla* bright blue.

Hab. Muddy springs, and rivulets: frequent. *Fl.* June. *Fr.* Aug.

Obs. Allied to *V. Beccabunga*, of Europe; but probably sufficiently distinct.

** Flowers *in alternate axillary racemes.*

4. V. scutellàta, *L.* Stem ascending, slender; leaves lance-linear, acute, denticulate, subsessile; racemes slender, loosely few-flowered.
Shield-like Veronica. Scull-cap Speedwell.

Plant smooth. *Stem* 8 to 15 inches long, often branched. *Leaves* 2 to 3 inches long, narrow, sometimes nearly entire. *Racemes* 1 to 3 or 4 inches long, flaccid, on *peduncles* 1 to 2 inches in length; *pedicels* filiform; *corolla* purplish-blue, or flesh-colored.

Hab. Low, swampy grounds: not common. *Fl.* June. *Fr.* July.

5. *V. officinàlis,* L. Stem prostrate; leaves ovate and cuneate-obovate, serrate, on short petioles; racemes assurgent, densely many-flowered.
Officinal Veronica. Common, or Male Speedwell.

Plant hairy. *Stem* 6 to 12 inches long, diffuse, with ascending branches. *Leaves* ¾ of an inch to an inch and half long, pale green, or somewhat hoary. *Racemes* 2 to 4 inches in length, on *peduncles* about an inch long: *flowers* nearly sessile; *corolla* pale blue, with darker veins; *capsule* pubescent, yellowish.

Hab. Dry banks; open woodlands: frequent. *Fl.* June. *Fr.* Aug.

Obs. This species is supposed to be *indigenous* on the Southern Mountains; but I think our plant has been introduced from Europe.

*** Flowers *in a terminal raceme,—the lower* bracts *resembling the stem-leaves.*

6. *V. serpyllifòlia,* L. Smooth; stem prostrate at base; branches ascending; leaves roundish-ovate; racemes conspicuously bracteate.
Thyme-leaved Veronica. Paul's Betony.

Stem 3 to 6 or 8 inches long (including the raceme), radicating at the prostrate

diffusely branching base. *Leaves* ¼ to half an inch long, somewhat fleshy in texture,—the *lower* ones on short *petioles*. *Raceme* erect, rather loose; *flowers* solitary, in the axils of elliptic leaf-like *bracts*; *corolla* pale blue (sometimes nearly white), with deeper blue stripes; *capsule* broadly obcordate, ciliate.
Hab. Moist, grassy grounds. Nat. of Europe. *Fl.* May. *Fr.* June.

§ 2. ANNUALS: lower leaves *opposite*, upper *alternate*.
† Flowers *subsessile, in the axils of leaf-like bracts*.

7. *V. peregrìna*, L. Smooth; stem erect; leaves ovate, and oblong, rather obtuse, dentate-serrate; capsule orbicular, slightly notched.
FOREIGN VERONICA. Purslane-leaved Speedwell. Neckweed.

Stem 3 to 6 inches high, often branched at base. *Leaves* half an inch to near an inch long, fleshy,—upper ones sessile, lower ones petiolate. *Calyx-lobes* resembling the small upper leaves, or bracts. *Corolla* white, small and caducous,—the *lobes* nearly equal.
Hab. Gardens, and lots. *Fl.* May. *Fr.* June.

Obs. Mr. BENTHAM (in *DC. Prodr.*) seems to think this is an *American* plant, and has been carried hence to Europe. However that may be, it has every appearance of a stranger, in *Chester County*. It was, at one time, supposed to possess medicinal virtues, in *scrofulous* affections,—which acquired for it the name of "*Neckweed*."

8. *V. arvénsis*, L. Hairy; rather erect; lower leaves cordate-ovate, incised-crenate, petiolate,—upper ones lanceolate, entire, sessile; capsule broadly obcordate, much compressed, ciliate.
FIELD VERONICA. Corn Speedwell.

Stem 2 or 3 to 6 inches high, erect or assurgent, simple or often much branched at base. *Leaves* ⅓ to half an inch long. *Calyx-lobes* unequal. *Corolla* pale blue, shorter than the calyx.
Hab. Dry banks; roadsides, &c. Nat. of Europe. *Fl.* May. *Fr.* June.

†† Flowers *pedunculate, axillary and solitary*.

9. *V. hederæfolia*, L. Hairy; prostrate; leaves roundish-ovate, 3- or 5-lobed, petiolate; peduncles longer than the leaves.
IVY-LEAVED VERONICA.

Stem 5 to 10 inches long, flaccid, diffuse, pubescent in lines. *Leaves* half an inch in length, and as wide as long; *lowest pair* (primordial? or seminal?) roundish-oval, entire, on long petioles; lower stem-leaves mostly 5-lobed, upper ones 3-lobed. *Corolla* blue, shorter than the calyx. *Capsule* turgid, rugose.
Hab. Banks of Ridley creek. Nat. of Europe. *Fl.* April. *Fr.* May.

Obs. This pretty little species is yet quite rare, with us. Two other procumbent species are partially naturalized in the U. States, viz: *V. agrestis*, *L.* in the South,—and *V. Buxbaumii*, *Ten.* in and around the old *Bartram Garden*; but they have not yet reached Chester County.

274. BUCHNE'RA, *L.*

[Dedicated to *John Gottfried Buchner*; an early German Botanist.]

Calyx ovoid-tubular, 5-toothed. *Corolla* salver-form: *tube* slender, slightly curved; *border* nearly equally 5-lobed; *lobes* cuneate-obovate. *Stamens* didynamous, included; *anthers* 1-celled. *Style* cla-

vate, entire at summit. *Capsule* ovoid-oblong. Roughish-hairy *perennials*,—turning greyish-black in drying: *leaves* opposite, or the upper ones alternate; *flowers* opposite, in a terminal bracteate *spike*, with lateral *bractlets*.

1. B. Americàna, *L.* Stem simple; lower leaves obovate-oblong, the others oblong and lanceolate, denticulate, sessile; spike elongating, interrupted.

American Buchnera.

Stem 1 to 2 feet high, slender, terete, virgate at summit. *Leaves* 1 to 2 inches long, scabrous with hairs enlarged at base. *Spike* finally 2 to 4 inches in length; *bracts* ovate-lanceolate, ciliate; *corolla* deep purple, the *tube* twice as long as the calyx, hairy. *Capsule* somewhat oblique and gibbous at base, compressed at apex. *Hab.* Meadows, and moist sterile banks: not common. *Fl.* Aug. *Fr.* Octo.

275. GERARD'IA, *L.*

[Dedicated to *John Gerard;* an early English Botanist.]

Calyx campanulate, 5-toothed, or 5-cleft. *Corolla* sub-campanulate, or somewhat funnel-form, unequally 5-lobed. *Stamens* didynamous, hairy, included; *anthers* 2-celled; *cells* parallel, often pointed at base. *Capsule* ovoid, acute. *Leaves* mostly opposite, entire, or pinnatifid; *flowers* large, axillary, often racemose, or spiked, purple, or yellow.

§ 1. Annuals: flowers *purple;* anthers *pointless;* leaves *sessile.*

† Calyx-teeth *short;* leaves *narrow, entire.*

1. G. tenuifòlia, *Vahl.* Smoothish, slender and bushy; leaves linear; peduncles filiform, longer than the flowers.

Slender-leaved Gerardia.

Stem 9 to 12 or 15 inches high. *Leaves* ¾ of an inch to 1½ inches long, very narrow, somewhat scabrous on the upper surface. *Calyx* with minute teeth. *Corolla* palish purple.

Hab. Woodlands, and old fields: common. *Fl.* Aug. *Fr.* Octo.

2. G. purpùrea, *L.* Roughish; branches spreading, rigid; leaves lance-linear; peduncles subclavate, shorter than the flowers.

Purple Gerardia.

Stem 1 to 2 feet high, somewhat 4-angled. *Leaves* ¾ of an inch to 1½ inches long, very scabrous on the upper surface. *Calyx* with subulate teeth. *Corolla* deep purple; *lobes* villose-ciliate.

Hab. Swampy, low grounds: frequent. *Fl.* Aug. *Fr.* Octo.

†† Calyx 5-*cleft;* leaves *broadish, auriculate-lobed at base.*

3. G. auriculàta, *Mx.* Rough-hairy; stem nearly simple; leaves ovate-lanceolate, the upper ones with lance-oblong lobes at base.

Auriculate Gerardia.

Stem 9 to 18 inches high, terete, retrorsely hirsute. *Leaves* an inch to 1½ inches long, scabrous on both sides. *Flowers* axillary, forming an interrupted leafy spike. *Calyx-segments* ovate-lanceolate. *Corolla* purple (rarely milk-white); *lobes* ciliate. *Hab.* Fields, and low grounds; W. Chester: rare. *Fl.* Aug. *Fr.* Octo.

Obs. This species is remarkable for making a transient appearance, here, at long intervals. It was first discovered in 1816; next

in 1827, when it was rather abundant; but it has been rarely seen, since.

§ 2. PERENNIALS: flowers *yellow;* anthers *awn-pointed at base;* leaves *all, or the lower ones, pinnatifid, more or less petiolate.*

4. G. flàva, *L.* Finely pubescent; stem mostly simple, rather tall; leaves lance-oblong,—the lower ones sinuate-dentate, or pinnatifid.

YELLOW GERARDIA.

Stem 2 to 3 or 4 feet high, sub-terete, clothed with a short cinereous pubescence. *Leaves* 2 to 5 or 6 inches long, roughish-pubescent.—*upper ones* lanceolate, subsessile and nearly entire, the *lower ones* lance-oblong, often somewhat pinnatifid, narrowed at base to a distinct *petiole*. *Flowers* opposite, subsessile, approximated in a terminal leafy *spike* 4 to 6 or 8 inches in length.

Hab. Hilly woodlands: common. *Fl.* July. *Fr.* Septem.

5. G. quercifòlia, *Pursh.* Smooth and glaucous; stem usually tall and branching; leaves oblong-ovate,—the lower ones deeply pinnatifid.

G. glauca. *Eddy. & Fl. Cestr. ed.* 2. *p.* 366.

OAK-LEAVED GERARDIA.

Stem 3 to 4 or 5 feet high, obtusely 4-angled, often purplish, but bluish-glaucous withal. *Leaves* 2 to 6 or 7 inches long, conspicuously veined: *lower ones* sometimes bipinnatifid: *upper ones* lanceolate, toothed, or entire: all narrowed at base to a distinct slender *petiole*. *Flowers* on subclavate *peduncles* ¼ to near ½ an inch long.

Hab. Rich, rocky woodlands: not common. *Fl.* Aug. *Fr.* Octo.

6. G. pediculària, *L.* Pubescent; stem bushy-branched; leaves lance-oblong, all pinnatifid, or doubly incised-serrate.

PEDICULARIS-LIKE GERARDIA.

Stem 1 to 3 feet high, subterete, paniculately branching, glandular and viscid-pubescent at summit. *Leaves* 1 to 3 or 4 inches long, subsessile: *segments* crenately incised-serrate. *Peduncles* ¼ to ¾ of an inch long, subclavate, glandular-villous; *calyx-segments* foliaceous, crenately incised, longer than the *tube*.

Hab. Woodlands, on slaty hills: frequent. *Fl.* Aug. *Fr.* Octo.

Obs. This, and the preceding species, are handsome enough to claim a place in our flower-gardens, and borders.

b. Corolla *ringent,—the upper lip erect, arched, including the stamens.*

† Anther-cells *unequal, and separated.*

276. CASTILLE'JA, *Mutis.*

[Dedicated to a Spanish Botanist, at Cadiz, named *Castillejo.*]

Calyx ovoid-tubular,—the *border* compressed, bifid, or 4-cleft. *Corolla-tube* included in the calyx: *upper lip* long, linear, laterally compressed; *lower lip* short, 3-lobed. *Stamens* didynamous; *anther-cells* oblong-linear,—the *outer one* fixed by the middle, the *inner one* pendulous. *Capsule* compressed, elliptic-ovate, many-seeded. *Seeds* pyriform; *seed-coat* loosely reticulated. *Leaves* mostly alternate, deeply incised, or entire, the *floral ones* (bracts) often colored at summit; *flowers* in a terminal leafy *spike.*

1. C. coccinea, *Spreng.* Hairy; stem simple; leaves linear-oblong, sessile, pinnatifidly incised; bracts trifid, crimson at summit; calyx bifid.

Euchroma coccinea. *Nutt. & Fl. Cestr. ed.* 2. *p.* 375.

Crimson Castilleja. Painted cup. Red Robin.

Annual? *Stem* 9 to 18 inches high, erect, often several from the same root, frequently dark purple. *Leaves* 1 to 2 inches long,—the *radical ones* often spatulate-linear, entire on the margin, and incised at apex,—the *stem-leaves* linear, with 2 or 3 long linear diverging segments on each side. *Bracts* cuneate, villous and ciliate, crowded at the summit of the stem. *Calyx-segments* tipt with crimson.—*Corolla* dull greenish-yellow.

Hab. Low grounds; margins of swamps: frequent. *Fl.* April. *Fr.* June.

†† Anther-cells *equal.* * Capsule *several-seeded.*

277. PEDICULA'RIS, *Tournef.*

[Latin, *Pediculus*, a louse; from a supposed efficacy in destroying those insects.]

Calyx ovoid-tubular, or campanulate, 2- 3- or 5-cleft. *Corolla* with the *upper lip* arched, laterally compressed, often toothed at apex; *lower lip* erect at base, 2-crested above, 3-lobed, the middle lobe narrower. *Stamens* didynamous; *anthers* transverse; *cells* pointless. *Capsule* compressed, obliquely ovate, or lanceolate. *Perennials: leaves* chiefly alternate, often pinnatifid; *flowers* in terminal bracteate *spikes.*

1. P. Canadénsis, *L.* Hairy; stems clustered, oblique; leaves lance-oblong, pinnatifid; calyx obliquely truncate; upper lip of the corolla with 2 setaceous teeth at apex.

Canadian Pedicularis. Wood Betony. Common Louse-wort.

Stems 6 to 12 inches long, mostly decumbent, simple. *Leaves* 1 to 4 or 5 inches long, villous when young, finally smoothish; *petioles* half an inch to 2 inches in length (*radical* petioles 2 to 5 or 6 inches long). *Spikes* capitate, leafy at base, finally elongating; *bracts* oblong, crenate-dentate at apex. *Corolla* yellowish, often tinged with brownish purple. *Capsule* with a long ensiform acumination. *Hab.* Woods; knolls in swamps, &c.: frequent. *Fl.* May. *Fr.* June.

2. P. lanceolàta, *Mx.* Smoothish; stem erect; leaves subopposite, lanceolate, doubly and crenately incised; calyx-segments foliaceous, rounded; upper lip of the corolla with a short truncate beak.

P. pallida. *Pursh. & Fl. Cestr. ed.* 2. *p.* 374.

Lanceolate Pedicularis. Tall Louse-wort.

Stem 1 to 2 feet high, somewhat branched, terete below, obtusely 4-angled above. *Leaves* 2 to 4 inches long, subcoriaceous, rugose-veined; *petioles* ¼ to ⅓ of an inch in length. *Spikes* 1 to 2 inches in length; *bracts* lance-ovate, crenate-serrate, often incised below the middle, and fringed with membranaceous *cilia.* *Corolla* pale greenish-yellow. *Capsule* short, ovate.

Hab. Low grounds; thickets, &c.: frequent. *Fl.* Aug. *Fr.* Octo.

** Capsule *few-seeded.*

278. MELAMPY'RUM, *Tournef.*

[Gr. *Melas*, black, and *Pyros*, wheat; the seeds resembling grains of wheat.]

Calyx 4-cleft; *segments* slender, bristly-pointed. *Corolla-tube* enlarging above; *upper lip* laterally compressed, with the margins

folded back; *lower lip* grooved, nearly equally 3-lobed. *Stamens* didynamous; *anthers* nearly vertical; *cells* minutely pointed at base. *Capsule* membranaceous, compressed, oblique, 1- to 4-seeded; *seeds* cylindric-oblong. *Annuals: leaves* opposite; *flowers* axillary, in terminal leafy *racemes.*

1. M. praténse, *L. var.* Americànum, *Benth. (in DC).* Leaves lance-ovate, and lance-linear,—the floral ones setaceously sinuate-dentate at base.

M. Americanum. *Mx. & Fl. Cestr. ed.* 2. *p.* 373.

Meadow Melampyrum. Cow-wheat.

Stem 8 to 15 inches high, sub-terete, brachiately branching, pubescent in lines. *Leaves* 1 to 2 inches long, smoothish; *lower ones* sub-linear, obtuse, entire,—those *above,* ovate-lanceolate, mostly entire, acuminately tapering,—the *floral ones* ovate-lanceolate, whitish at base, with a few slender divaricate teeth on each side; *petioles* 1/8 to 1/4 of an inch in length. *Corolla* ochroleucous, with tinges of yellow and purple.

Hab. Dry woods; slaty hills: frequent. *Fl.* June. *Fr.* Aug.

ORDER LXIV. VERBENÀCEÆ.

Herbs (or *shrubs,* and even *trees,* within the tropics); *leaves* mostly opposite, without *stipules; corolla* irregular, often bilabiate; *stamens* mostly didynamous; *ovary* free, entire, with the *style* terminal; *fruit* dry (sometimes drupaceous), 1- to 4-celled, usually splitting into as many 1-seeded *nutlets; seeds* with little or no *albumen.*—An Order furnishing but few and unimportant plants, in this region,—though comprising many that are highly interesting to the florist; such as the showy *Verbenas,* the fragrant *Lantanas,* &c. The tree which supplies the "ever-during Teak," of India(*Tectona grandis, L. f.*)—so celebrated in ship-building—also belongs to this Order.

279. VERBE'NA, *L.*

[The Latin name for the leaves of any sacred herb; etymology obscure.]

Calyx tubular, 5-toothed,—one tooth often shorter. *Corolla* tubular, often curved, salver-form,—the *border* rather unequally 5-lobed. *Stamens* included,—the upper pair sometimes without anthers.—*Fruit* splitting into 4 *nutlets. Flowers* in terminal, often paniculate, bracteate *spikes.*

1. V. hastàta, *L.* Leaves oblong-lanceolate, acuminate, doubly incised-serrate,—the lower ones often hastate-lobed; spikes fascicled or corymbose-paniculate, dense-flowered.

Hastate Verbena. Blue Vervain. Simpler's Joy.

Perennial. Stem 3 to 5 feet high, roughish-pubescent, mostly purple, with rather short erect axillary branches above. *Leaves* 3 to 5 inches long; *petioles* half an inch to an inch in length. *Spikes* 1 or 2 to 5 inches long, erect, thickish, purple; *flowers* somewhat imbricated; *bracts* ovate-lanceolate, acuminate, shorter than the calyx; *corolla* bluish purple, pubescent.

Hab. Swampy meadows; along streams: frequent. *Fl.* July. *Fr.* Octo.

Obs. There is a *variety* of this,—with longer, more slender and spreading *spikes*—the *flowers* smaller and less crowded,—which occurs along the Brandywine.

2. V. urticaefòlia, *L.* Leaves lance-ovate, acute, coarsely

serrate; spikes loosely paniculate, very slender, elongating; flowers rather distant, small.

NETTLE-LEAVED VERBENA. Common Vervain.

Perennial. *Stem* 2 to 3 or 4 feet high, hirsutely pubescent, with slender axillary spreading branches above. *Leaves* 2 to 4 inches long, abruptly narrowed at base to a *petiole* ½ an inch to ¾ in length. *Spikes* 1 or 2 to 5 or 6 inches long, green, filiform and rather flaccid; *flowers* distinct, and finally a little distant; *bracts* lance-ovate, shorter than the calyx. *Corolla* white, very small, the throat filled with a delicate white villus.

Hab. Pastures, road sides, &c.: common. *Fl.* July. *Fr.* Sept.

Obs. Towards autumn, this plant generally becomes covered with a glaucous pulverulent matter, resembling *mould.* It is regarded as a *weed,* in our pastures; and Dr. GRAY suggests that it may have been *introduced.* It is true, I have never observed it, except in our old cultivated settlements, where foreign weeds are chiefly naturalized; but I cannot learn that it has been found in any other country.

3. V. angustifòlia, *Mx.* Leaves linear-lanceolate, tapering to the base, remotely toothed; spikes few or solitary, the flowers at first crowded, rather large.

NARROW-LEAVED VERBENA.

Perennial. Plant scabrous with short hairs. *Stem* 9 to 18 inches high, simple or sparingly branched. *Leaves* often somewhat crowded above, 1 to 2 or 3 inches long, narrow, tapering gradually almost to a *petiole* at base. *Spikes* 1 or 2 to 5 or 6 inches long; *bracts* subulate-lanceolate, as long as the calyx; *corolla* purplish blue.

Hab. Sandy grounds; E. Marlborough: rare. *Fl.* July. *Fr.* Sept.

Obs. Collected by Mr. BENJAMIN F. PARKER, in 1849.

280. PHRŸMA, *L.*

[A name of unknown derivation.]

Calyx bilabiate; *upper lip* of 3 subulate teeth; *lower lip* of 2, shorter. *Corolla* bilabiate; *upper lip* short, emarginate; *lower lip* much longer, 3-lobed. *Stamens* included. *Fruit* oblong, 1-celled, 1-seeded! *Perennial: flowers* opposite, in slender terminal *spikes; fruit* reflexed.

1. P. leptostàchya, *L.* Leaves ovate, acute, coarsely crenate-serrate, on rather long petioles.

SLENDER-SPIKED PHRYMA. Lop-seed.

Stem 2 to 3 feet high, obtusely 4-angled, pubescent, with a few opposite axillary virgate branches above. *Leaves* 3 to 6 inches long, thinnish, rounded at base, or abruptly contracted to a *petiole* half an inch to 2 inches in length. *Spikes* 3 to 6 or 8 inches in length; *flowers* with 3 small subulate ciliate persistent *bracts* at base; *corolla* pale rose-color, small; *fruit* inclosed in the closely reflexed calyx.

Hab. Borders of woods; copses, &c.: frequent. *Fl.* July. *Fr.* Aug.

281. LIP'PIA, *L.*

[Dedicated to *Augustin Lippi;* a French Naturalist, of Italian descent.]

Calyx 2- to 4-toothed, often compressed, and becoming bilabiate.—*Corolla* unequally 5-lobed, more or less bilabiate. *Stamens* inclu-

ded. *Style* slender; *stigma* obliquely capitate. *Fruit* 2-celled, 2-seeded. *Flowers* in axillary bracteolate pedunculate *heads*, or *spikes*.

1. L. nodiflòra, *Mx.* Procumbent and radicating; appressed-hairy; leaves cuneate-ovate, serrate above, subsessile; spikes capitate, solitary, on long slender peduncles.
Zapania nodiflora. *Lam. & Fl. Cestr. ed.* 2. *p.* 604.
KNOT-FLOWERING LIPPIA.

Perennial? (*annual, DC.*) *Stem* 6 to 10 or 12 inches long, branching, obtusely 4-angled and striate-sulcate. *Leaves* 1 to 2 inches long, varying from lanceolate to cuneate-obovate, coarsely serrate above the middle, tapering below to a very short *petiole*. *Flowers* closely imbricated with cuneate-ovate *bracts*, in conical or roundish *heads*, on *peduncles* 1 to 3 inches long. *Corolla* bluish or purplish white, the *tube* as long as the bracts.
Hab. Margin of Schuylkill: rare. *Fl.* July. *Fr.* Sept.

Obs. The *L. citriodora, Kunth.* (*Verbena triphylla, L'Herit.*),—a shrubby species, native of South America,—is often and deservedly cultivated, for the delicious fragrance of its leaves.

ORDER LXV. LABIÀTAE.

Chiefly *herbs; stems* square; *leaves* simple, opposite, or sometimes verticillate, generally aromatic; *stipules* none; *flowers* in axillary *cymules*, or aggregated in terminal *spikes; corolla* more or less bilabiate; *anther-cells* parallel, or often divaricate,—sometimes separated by a long filiform *connective; ovary* 4-lobed,—becoming, in *fruit*, 4 little seed-like *nutlets*, surrounding the base of the *style*, in the bottom of the persistent calyx; each lobe, or nutlet, containing a single *seed*, with little or no *albumen*.—An interesting and valuable Order,—remarkable for the aromatic fragrance, and stomachic properties, of many of the species.

TRIBE 1. OCIMOI'DEAE.

Corolla sub-bilabiate; lobes of the upper lip flat; *stamens* declined, didynamous,—the lower pair longer.

282. O'CIMUM, *L.*

[Supposed from the Gr. *ozo*, to smell; in reference to its fragrance.]

Calyx 5-cleft, the upper segment broad, orbicular-ovate. *Corolla* with the *upper lip* 4-lobed,—the *lower lip* scarcely longer, declined, flattish, entire. *Stamens* mostly exserted. *Nutlets* ovoid, often minutely punctate. *Flowers* in terminal interrupted *racemes*.

1. O. BASIL'ICUM, L. Leaves ovate-oblong, subdentate, smooth, with ciliate petioles; calyx reflexed after flowering.
ROYAL OCIMUM. Sweet Basil.

Annual. Stem 6 to 12 inches high, often much branched. *Leaves* half an inch to an inch long; *petioles* ⅓ to ⅔ of an inch in length. *Bracts* ovate, acuminate, petiolate. *Corolla* bluish white.
Hab. Gardens. Nat. of India. *Fl.* July. *Fr.* Sept.

Obs. Usually cultivated for culinary purposes.

283. LAVAN'DULA, *Tournef.*

[Latin, *lavare*, to wash; the distilled water being used for that purpose.]

Calyx ribbed, ovoid-tubular, with 5 short teeth,—the upper one sometimes dilated. *Corolla* with the *upper lip* 2-lobed,—*lower lip* 3-

lobed; *lobes* all nearly equal, and spreading. *Stamens* included.—*Nutlets* adnate to 4 fleshy scales on the margin of the disk. *Perennials:* often *suffruticose; flowers* in terminal *spikes.*

1. L. VÈRA, DC. Suffruticose; hoary; stem leafy below, naked above; leaves lance-linear, entire, with revolute margins; spikes interrupted.
L. Spica. *Fl. Cestr. ed.* 2. *p.* 112.
TRUE LAVANDULA. Garden Lavender.

Plant clothed with a short hoary tomentum. *Stem* branching from the base; branches erect, 12 to 18 inches high. *Leaves* 1 to 2 inches long, crowded near the base of the branches, often with fascicles of young leaves in the axils. *Spike* about an inch in length, with 1 or 2 distant cymules below. *Corolla* blue.
Hab. Gardens. Nat. of Southern Europe. *Fl.* July. *Fr.* Sept.

Obs. The compound *tincture* of this herb (or, as the good ladies term it, "*Lavender Compound*") is deservedly popular, for its cordial and stomachic properties. The *distilled water* is also highly esteemed for its pungent and grateful fragrance.

TRIBE 2. SATUREJE'AE.

Corolla 4- or 5-lobed; *lobes* mostly flat, and spreading; *stamens* 4, or 2, straight, diverging, or connivent under the upper lip.

§ 1. MENTHOIDEAE: corolla *with the lobes nearly equal;* stamens *diverging.*
a. Fertile stamens 4, *scarcely didynamous.*

284. MENTHA, *L.*

[From *Minthe;* a nymph, fabled to have been changed into the plant.]

Calyx campanulate, or tubular, nearly equally 5-toothed. *Corolla* with a short included tube; *border* campanulate, 4-cleft,—the *upper* lobe broader and usually emarginate (being probably 2 *united lobes*). *Stamens* nearly equal. *Perennials:* spreading by creeping *rhizomas; cymules* many-flowered, in terminal spikes, or axillary.

† Cymules *in terminal spikes.*

1. *M. viridis,* L. Leaves oblong-lanceolate, subsessile; spikes somewhat panicled, elongated, tapering upward to a point.
GREEN MENTHA. Spear-Mint. Common Mint.

Smoothish, and rather pale green. *Stem* 1 to 2 feet high, branching. *Leaves* 1 to 2 or 3 inches long, very acute, incised-serrate. *Spikes* of cymules 2 to 4 inches long, often numerous; *corolla* pale purple.
Hab. Moist grounds. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. This pleasant aromatic herb is extensively naturalized, about old settlements,—and is valuable as a domestic medicine, in relieving nausea, &c. It is the species employed in the preparation of that seductive beverage, known as the "*Mint Julep*" of old Virginia,—in which its *value* is more equivocal.

2. M. PIPERI'TA, L. Leaves ovate-lanceolate, petiolate; spikes solitary, rather short, cylindric and obtuse.
PEPPERY MENTHA. Pepper-mint.

Smoothish, and purplish. *Stem* 1 to 2 feet long, decumbent, branching. *Leaves* 1 to 2 inches long, rather acute, serrate; *petioles* ¼ to ½ an inch in length. *Spikes*

half an inch to an inch in length,—the *cymules* crowded, except the lower pair which are often a little distant; *corolla* purple.
Hab. Gardens, &c. Nat. of Europe. *Fl.* Aug. *Fr.* Sept.

Obs. This most grateful aromatic is generally allowed a place in gardens, or about houses,—and is apparently naturalized, in many localities. The essential oil, and distilled water, are well known for their stomachic properties, and deservedly held in high esteem.

†† Cymules *axillary*.

3. *M. arvénsis*, L. Stem mostly erect; leaves ovate-oblong, rounded or often cuneate at base; bracts subulate.
FIELD MENTHA. Corn Mint.

Plant hirsute. *Stem* 9 to 15 inches high, brachiately branching, retrorsely hairy. *Leaves* 1 to 2 inches long, serrate, punctate; petioles ⅛ to ½ an inch long. *Cymules* on common peduncles shorter than the pedicels; *flowers* often sterile; *corolla* pale bluish-purple.
Hab. Road side, near West-Chester: rare. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. This has been long naturalized, at an old settlement, near West Chester. It has a general resemblance to the following native species; but is remarkable for its peculiar *odor*,—which has been compared to decaying cheese.

4. M. Canadénsis, *L.* Stem ascending, or decumbent; leaves oval-lanceolate, tapering at each end; bracts lance-linear.
CANADIAN MENTHA. Wild Mint.

Plant greyish-green, pubescent. *Stem* 9 to 18 inches long, simple, or often with numerous long branches, retrorsely hairy on the obtuse angles. *Leaves* 1 to 3 inches long, serrate, resinous-dotted; *petioles* ¼ to ¾ of an inch in length, slightly margined. *Cymules* on common peduncles 1 to 3 lines long; *corolla* pale purple, or purplish white.
Hab. Moist grounds; Brandywine: frequent. *Fl.* Aug. *Fr.* Sept.

b. Fertile stamens 2.

285. LY'COPUS, *L.*

[Gr. *Lykos*, a wolf, & *Pous*, a foot; from a fancied resemblance in the leaves.]
Calyx tubular-campanulate, 4- or 5-toothed. *Corolla* tubular, scarcely longer than the calyx, nearly equally 4-lobed. *Stamens* with the upper pair either sterile rudiments, or wholly wanting.—*Nutlets* obliquely truncate, smooth, with thickened margins. *Perennials: cymules* axillary, dense; *flowers* small.

1. L. Virginicus, *L.* Stem obtusely 4-angled, producing slender runners at base; leaves broad-lanceolate, serrate-dentate; calyx-teeth 4, blunt.
VIRGINIAN LYCOPUS. Bugle-weed.

Stem 12 to 18 inches high, simple, or sparingly branched, roughish-pubescent. *Leaves* 2 to 4 inches long, coarsely serrate, with a long tapering entire base, smoothish, and, with the stem, often dark purple. *Corolla* white. *Nutlets*, when mature, projecting above the calyx.
Hab. Moist, shaded places: frequent. *Fl.* July. *Fr.* Sept.

2. L. sinuàtus, *Ell.* Stem sharply 4-angled; leaves oblong-lanceolate, sinuate-dentate, or pinnatifid; calyx-teeth 5, spinescent.
SINUATE LYCOPUS. Water Horehound.

Stem 1 to 2 feet high, branching, smoothish. *Leaves* ½ an inch to 3 inches long, tapering to a petiole at base, punctate. *Corolla* white, often tinged with purple. *Nutlets* triquetrous-cuneate, shorter than the calyx.
Hab. Moist, low grounds: frequent. *Fl.* July. *Fr.* Sept.

§ 2. THYMEAE: corolla *more or less bilabiate;* stamens *distant, or diverging.*

a. Fertile stamens 2.

286. CUNILA, *L.*

[A name borrowed from the ancient Roman Naturalists.]

Calyx ovoid-tubular, 10- to 13-nerved, equally 5-toothed, hairy in the *throat.* *Corolla* with the *upper lip* erect, flattish, emarginate; *lower lip* spreading, nearly equally 3-lobed. *Stamens* erect, exserted, distant; *sterile filaments* none. *Perennials: cymules* corymbose, axillary and terminal.

1. C. Mariàna, *L.* Stems tufted, corymbosely branched; leaves ovate, serrate, subsessile.
MARYLAND CUNILA. Dittany.

Stems 8 to 12 inches long, erect or ascending, mostly purple. *Leaves* about an inch long, rounded and often subcordate at base, pellucid-punctate. *Pedicels* trichotomous, with subulate *bracts* at base; *calyx* resinous-dotted; *corolla* pale purple, nearly twice as long as the calyx.
Hab. Dry, slaty, woodland hills: frequent. *Fl.* July. *Fr.* Sept.

Obs. The infusion of this herb is a popular and pleasant beverage, in fevers. In the beginning of winter, after a rain, very curious *ribbands of ice* may often be observed, attached to the base of the stems,—produced, I presume, by the moisture from the earth rising in the dead stems by capillary attraction, and then being gradually forced out horizontally, through a slit, by the process of freezing. The same phenomenon has been observed in other plants. *See obs. on Helianthemum, p.* 27.

b. Fertile stamens 4, *more or less didynamous.*

287. PYCNAN'THEMUM, *Mx.*

[Gr. *Pyknos,* dense, and *Anthemon,* a flower; from its dense cymose heads.]

Calyx ovoid-oblong, about 13-nerved, sub-bilabiate, or equally 5-toothed; *throat* naked. *Corolla* with the *upper lip* nearly flat and entire; *lower lip* 3-lobed. *Stamens* distant, the lower pair rather longer; *anther-cells* parallel. *Perennials: floral leaves* often whitened; *flowers* in terminal cymose *heads,* with many involucre-like *bracts.*

† Calyx *bilabiate, the* 3 *upper teeth somewhat united;* leaves *petiolate.*

1. P. incànum, *Mx.* Leaves ovate-oblong, hoary-pubescent,—the upper ones whitened on both sides; cymules compound, pedunculate, rather loose; bracts subulate-linear.
HOARY PYCNANTHEMUM. Mountain Mint.

Stem 2 to 4 feet high, mostly several from the same root, branching above, very pubescent, especially at summit. *Leaves* 2 to 3 inches long, sparingly serrate; *petioles* ¼ to ½ an inch in length. *Bracts* longer than the calyx, bearded at the points. *Calyx-teeth* acuminate. *Corolla* whitish, or pale red, with purple spots. *Stamens* exserted. *Nutlets* hispid at apex.
Hab. Woodlands; slaty hills: frequent. *Fl.* July. *Fr.* Sept.

†† Calyx *nearly equally 5-toothed;* leaves *subsessile.*

2. P. mùticum, *Pers.* Leaves ovate-lanceolate,—the upper ones hoary-pubescent; cymules rather dense; bracts lanceolate.
MUTIC, OR AWNLESS PYCNANTHEMUM.

Stem 2 to 3 feet high, paniculately branched at summit. *Leaves* 1 to 3 inches long, denticulate, or sometimes entire. *Flowers* in terminal heads, sometimes with a compact verticil in the first axil below. *Bracts* ciliate. *Calyx-teeth* short. *Corolla* reddish white, with purple dots. *Stamens* included. *Nutlets* smooth.
Hab. Hilly woodlands: frequent. *Fl.* July. *Fr.* Sept.

3. P. lanceolàtum, *Pursh.* Stem pubescent; leaves lanceolate, and lance-linear, penninerved; cymules compact, terminal and subterminal.
LANCEOLATE PYCNANTHEMUM.

Stem 2 to 3 feet high, corymbosely branched, often purplish. *Leaves* 1 to 2 or 3 inches long, sometimes quite narrow, mostly entire. *Flowers* in dense flattish heads. *Bracts* imbricated, linear-lanceolate, sharply acuminate, rigid, hirsute-ciliate. *Corolla* reddish white, with dark purple dots. *Stamens* scarcely as long as the corolla.
Hab. Borders of thickets; old fields, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

4. P. linifòlium, *Pursh.* Stem smoothish; leaves narrowly linear, crowded, 3- to 5-nerved; cymules compact, hemispherical, terminal.
FLAX-LEAVED PYCNANTHEMUM. Virginia Thyme.

Stem 1 to 2 feet high, often purple, with erect branches forming a compact corymb. *Leaves* ½ an inch to 2 inches long, often in small axillary fascicles. *Bracts* imbricated, ovate-lanceolate, acuminate, rigid, pubescent-ciliate. *Corolla* white, or slightly tinged with red, and dark purple dots within. *Stamens* a little exserted.
Hab. Thickets; exsiccated swamps: frequent. *Fl.* July. *Fr.* Sept.

288. ORIG'ANUM, *L.*

[Gr. *Oros*, a mountain, and *Ganos*, delight; alluding to its native locality.]

Calyx ovoid-campanulate, about 13 nerved, nearly equally 5-toothed, or bilabiate with the *upper lip* entire or 3-toothed, the *lower lip* 2-toothed, truncate, or wanting. *Corolla* sub-bilabiate; *upper lip* emarginate; *lower lip* longer, 3-lobed and spreading. *Stamens* exserted, somewhat didynamous; *anther-cells* diverging, or divaricate. Mostly *perennials: flowers* in dense corymbose *clusters*, or oblong *spikes*, imbricated with *colored bracts.*

1. *O. vulgàre,* L. Corymbosely branched at summit; leaves roundish-ovate; flowers in corymbose-paniculate clusters; bracts lance-ovate, longer than the calyx.
COMMON ORIGANUM. Wild Marjoram.

Stems 12 to 18 inches high, usually growing in bunches. *Leaves* ½ an inch to an inch long, entire, dark green above, paler beneath; *petioles* ¼ to near ½ an inch in length. *Calyx* pubescent, with 5 equal lance-ovate segments; *throat* hairy. *Corolla* pale purple.
Hab. Sandy banks. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. This foreigner is yet rare, in Chester County. It is plentiful on the road side, about 7 miles west of Philadelphia.

2. O. MAJORÀNA, L. Somewhat branched; leaves elliptic-obovate;

flowers in terminal oblong clustered spikes; bracts orbicular-ovate, about as long as the calyx.
Majorana hortensis. *Moench. & Fl. Cestr. ed. 2. p.* 347.
Sweet Marjoram.

Annual, in gardens (*perennial* in its native localities. *Benth.*). *Stem* 9 to 15 inches high, subterete. *Leaves* ⅓ of an inch to an inch long, entire, downy and canescent; *petioles* ¼ to ½ an inch long. *Spikes* ¼ to half an inch in length, obtusely 4-cornered, in sessile terminal clusters of threes, or on short axillary peduncle-like branches. *Bracts* quadrifariously and closely imbricated,—the margins, at base, involute. *Calyx* resinous-dotted; *upper lip* (or *sepal?*) dilated, obtuse, mostly denticulate at apex, narrowed below, with the margins inflexed; *lower lip* (or *sepal?*) very small, ovate. *Corolla* white.
Hab. Gardens. Nat. of Africa and Asia. *Fl.* July. *Fr.* Sept.

Obs. One of the fragrant culinary Herbs, commonly cultivated.

289. THYMUS, *L.*

[The ancient Greek name; from *thyo*, to burn perfumes.]

Calyx ovoid-tubular, 10- to 13-nerved, bilabiate; *upper lip* trifid; *lower lip* bifid; *throat* hairy. *Corolla* short, sub-bilabiate; *upper lip* straight, flattish, emarginate; *lower lip* spreading, 3-lobed,—the middle lobe larger. *Stamens* mostly exserted, sub-equal, or didynamous; *anther-cells* finally diverging. Suffruticose, humble, spreading *perennials: leaves* small, entire, veiny, punctate, the margins often revolute.

1. T. VULGÀRIS, L. Erect, or decumbent; leaves lance-ovate, with the margins slightly revolute; cymules in terminal interrupted leafy spikes.
COMMON THYMUS. Garden Thyme. Standing Thyme.

Stems 4 to 8 or 10 inches long, numerous, roughish-pubescent, branching and matted together at base. *Leaves* ¼ to ½ an inch long, tapering at base to a *petiole* which is scarcely a line in length, and somewhat ciliate with long hairs. *Calyx* hirsute, strongly ribbed, *corolla* pale purple.
Hab. Gardens. Nat. of Southern Europe. *Fl.* June. *Fr.* Aug.

Obs. This well-known, and highly fragrant plant, is to be seen in almost every well-ordered kitchen garden.

2. *T. Serpyl'lum*, L. Procumbent, with ascending flowering branches; leaves elliptic-ovate, obtuse, flat; cymules crowded in ovoid-oblong terminal heads.
Wild Thyme. Creeping Thyme.

Stem 4 to 6 or 8 inches long, slender, branching and entangled at base, retrorsely pubescent on the angles. *Leaves* ¼ to near half an inch long, on short *petioles*,—the base and petiole more or less ciliate. *Calyx* hairy. *Corolla* purple, with red and white spots.
Hab. Dry, sandy banks. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. Nearly allied to the preceding, in appearance and properties,—and naturalized in many places. There is a silly old *notion*, still entertained by some ignorant and unthinking people, that this plant springs up, *spontaneously*, in spots where human blood has been spilled by any casualty, or violence!

§ 3. MELISSEAE: Corolla bilabiate; stamens *ascending, diverging at summit, or connivent under the upper lip.*

a. Fertile stamens 4, *didynamous.*

290. SATURE'JA, *L.*

[A name supposed to be derived from the Arabic.]

Calyx tubular-campanulate, 10-nerved, nearly equally 5-toothed, or obscurely bilabiate; *throat* naked, or nearly so. *Corolla* with the *upper lip* erect, flat; *lower lip* spreading, nearly equally 3-lobed. *Stamens* diverging, scarcely exserted.

1. S. HORTÉNSIS, L. Stem erect, much branched; leaves oblong-linear, acute, entire; cymules axillary, pedunculate, few-flowered, sub-secund, remote, or the upper ones somewhat spiked.
GARDEN SATUREJA. Summer Savory.

Annual. Stem 6 to 12 inches high, branched so as to appear bushy, roughish-pubescent, mostly dark purple. *Leaves* half an inch to an inch long, narrow, tapering at base to a very short *petiole. Cymules* about 3-flowered. *Corolla* pale violet-purple.
Hab. Gardens. Nat. of Southern Europe. *Fl.* July. *Fr.* Sept.

Obs. Much cultivated as a culinary herb.

291. CALAMIN'THA, *Benth.*

[Gr. *Kalos*, beautiful, and *Minthe*, Mint; an ancient name.]

Calyx tubular, 13-nerved, bilabiate; *upper lip* 3-toothed; *lower lip* bifid. *Corolla* mostly inflated in the throat; *upper lip* erect, flattish; *lower lip* spreading, 3-parted,—the middle lobe usually broadest. *Anthers* approximated in pairs,—the *cells* diverging.

1. *C. Clinopòdium*, Benth. in DC. Hoary-villous; leaves oblong-ovate, obtuse, petiolate; cymules in dense flat-topped involucrate heads, terminal and subterminal.
Melissa Clinopodium. *Benth. Lab. & Fl. Cestr. ed.* 2. *p.* 351.
BED-POST CALAMINTHA. Wild Basil. Field Thyme.

Perennial. Stem 12 to 18 inches high, mostly several from the same root, simple, or sparingly branched. *Leaves* 1 to 2 inches long, denticulate, or nearly entire; *petioles* ¼ to ½ an inch in length. *Cymules* few, very hairy, mostly terminal, in compact orbicular flat heads about an inch in diameter; *bracts* subulate. *Corolla* pale purple, or rose-color,—the tube longer than the calyx.
Hab. Sandy banks. Nat. of Europe. *Fl.* July. *Fr.* Sept.

292. MELIS'SA, *Tournef.*

[Gr. *Melissa*, the honey-bee; the flowers being a favorite with that insect.]

Calyx tubular-campanulate, slightly gibbous at base, 13-nerved, bilabiate. *Corolla-tube* recurved-ascending, dilated above. *Stamens* connivent; *anther-cells* finally divaricate. *Cymules* axillary, loosely few-flowered, pedunculate.

1. M. OFFICINÀLIS, L. Stem erect, more or less pubescent; leaves ovate, coarsely crenate-serrate, petiolate; cymules secund.
OFFICINAL MELISSA. Common Balm.

Perennial. Stems 1 to 2 or 3 feet high, numerous from the root, branching. *Leaves* 2 to 3 or 4 inches long; *petioles* ½ an inch to 1½ inches in length. *Cymules*

3- to 6-flowered. *Calyx* dry, hairy. *Corolla* white, or ochroleucous,—sometimes tinged with purple.

Hab. Gardens, &c.: Nat. of Southern Europe. *Fl.* July. *Fr.* Sept.

Obs. This popular medicinal herb has strayed from the gardens, and become partially naturalized, in some localities. Dr. DARWIN, in his Botanic Garden, makes the following allusion to its *didynamous* character:—

"*Two* knights before thy fragrant altar bend,
Adored MELISSA! and *two* squires attend."

b. Fertile stamens 2, (*by abortion*).

293. HEDEO'MA, *Persoon.*

[Greek, *Hedeia Osme*, a pleasant odor; from its fragrance.]

Calyx ovoid-tubular, 13-nerved, gibbous on the lower side near the base, bilabiate; *throat* hairy. *Corolla* with the *upper lip* erect, flat, emarginate; *lower lip* spreading, nearly equally 3-lobed. *Stamens* 2, ascending,—the *upper pair* being mere *rudiments*, or wanting.

1. H. pulegioides, *Pers.* Leaves oblong-ovate, sub-serrate, narrowed at base, petiolate; cymules axillary, each about 3-flowered.

PULEGIUM-LIKE HEDEOMA. American Penny-royal.

Annual. Stem 6 to 12 inches high, hoary-pubescent, branched. *Leaves* ¼ an inch to an inch long; *petioles* ⅛ to ¼ an inch in length. *Cymules* somewhat approximated in terminal leafy racemes; *bracts* linear-lanceolate, scarcely as long as the pedicels; *corolla* pale blue, with purple spots. *Stamens* scarcely exserted,—the *sterile filaments* tipt with abortive anthers.

Hab. Slaty hills; old fields, &c.: frequent. *Fl.* July. *Fr.* Sept.

Obs. A warmly aromatic little herb,—in frequent use as a popular diaphoretic, carminative, &c. This is not the "*Penny-royal*," of Europe; but has been so called because of its resemblance to that plant,—which is a species of *Mint*—viz. *Mentha Pulegium, L.*

§ 4. ANOMALOUS GENERA. † Stamens *didynamous.*

294. HYSSO'PUS,

[Latinized from *Ezob*; an ancient Hebrew name.]

Calyx tubular, 15-nerved, equally 5-toothed; *throat* naked. *Corolla* bilabiate; *upper lip* erect, flat, emarginate; *lower lip* spreading, 3-lobed,—the middle lobe larger, bifid. *Stamens* exserted, divergent, the lower pair longer; *anther-cells* linear, divaricate.

1. H. OFFICINÀLIS, L. Leaves linear-lanceolate, sessile; cymule secund, racemose, or approximated in a terminal spike.

OFFICINAL HYSSOPUS. Garden Hyssop.

Perennial. Stem 18 inches to 2 or 3 feet high, shrubby and much branched at base; branches virgate. *Leaves* ¾ of an inch to 1½ inches long. *Cymules* subsessile, crowded above: *Corolla* bright blue, or sometimes purplish.

Hab. Gardens. Nat. of Southern Europe. *Fl.* July. *Fr.* Sept.

Obs. Often cultivated as a medicinal herb,—and used as a popular febrifuge.

†† Stamens *mostly* 2 (*by abortion*).

295. COLLINSO'NIA, *L.*

[In honor of *Peter Collinson*, of London; an eminent promoter of Natural Science.]

Calyx declined in fruit, ovoid-campanulate, about 10-nerved, bilabiate; *upper lip* flattish, truncate, 3-toothed; *lower lip* bifid; *throat* somewhat hairy. *Corolla* elongated, dilated at throat, sub-bilabiate; *upper lip* nearly equally 4-lobed; *lower lip* longer, declined, dentate, or lacerately fringed. *Stamens* usually 2, much exserted, diverging,—the *upper pair* being shorter and imperfect, or wholly abortive. *Nutlets* often solitary by abortion, and then globular and rather large. *Perennials: leaves* large; *flowers* solitary, in paniculate racemes.

1. C. Canadénsis, *L.* Leaves ovate, acuminate, coarsely serrate, petiolate, thin and smoothish; racemes elongated, many-flowered; flowers pedicellate, axillary and opposite.

CANADIAN COLLINSONIA. Knot-root. Horse-Balm.

Stem 2 to 3 feet high, somewhat branched, smoothish below, pubescent above. *Leaves* 4 or 5 to 8 or 10 inches long, and 3 to 5 inches wide, resinous-dotted beneath; *petioles* 1 to 3 or 4 inches long,—the leaves at the base of the panicle smaller, and sub-sessile. *Flowers* loosely racemose; *pedicels* ⅓ to ½ an inch long, with minute lance-ovate acuminate *bracts* at base; *corolla* greenish yellow,—the lower lip fringed.

Hab. Rich woodlands: frequent. *Fl.* July. *Fr.* Sept.

Obs. The *root* of this was formerly a popular febrifuge. The odor of the flowers has much resemblance to that of *Hops*,—a fact which was noticed by JOHN BARTRAM, in his Appendix to SHORT'S *Medicina Britannica*, a century since. This interesting plant,—which commemorates one of the most diligent correspondents of LINNÆUS, and the early, indefatigable, and devoted friend of JOHN BARTRAM,—is thus fancifully referred to, in Dr. DARWIN'S Poem, the Botanic Garden:—

> "*Two* brother swains, of COLLIN'S gentle name,
> The same their features, and their forms the same,
> With rival love for fair COLLINIA sigh,
> Knit the dark brow, and roll the unsteady eye.
> With sweet concern the pitying beauty mourns,
> And soothes with smiles the jealous pair by turns."

TRIBE 3. MONA'RDEAE.

Corolla mostly bilabiate; *stamens* 2 (the upper pair usually wanting, or mere rudiments;) *anther-cells* widely separated by a long *connective*,—or divaricate, with an inconspicuous one.

296. SAL'VIA, *L.*

[Latin, *salvare*, to save; on account of supposed medicinal properties.]

Calyx subcampanulate, bilabiate; *upper lip* mostly 3-toothed, the *lower* bifid; *throat* naked. *Corolla* ringent; *upper lip* erect, straight, or falcate. *Anther-cells* separated by a long linear thread-like *connective*, which is transversely articulated with the filament. *Cymules* in interrupted racemes.

1. S. OFFICINÀLIS, L. Suffruticose; hoary-tomentose; leaves lance-oblong, crenulate, rugose; upper lip of the corolla as long as the lower, and somewhat vaulted.

OFFICINAL SALVIA. Garden Sage.

Perennial. *Stems* 1 to 2 feet high, growing in bunches, branching from the base, leafy. *Leaves* 1 to 2 or 3 inches long, rather obtuse, sometimes lobed near the base, greyish green,—the upper or floral leaves sessile, the others on *petioles* about an inch in length. *Cymules* 3- to 6-flowered; *corolla* mostly violet-purple.
Hab. Gardens. Nat. of Southern Europe. *Fl.* May. *Fr.* July.

Obs. Generally cultivated, for culinary purposes. The *infusion* of the leaves is a popular and useful gargle, in cases of sore mouth.

2. S. lyràta, *L.* Herbaceous; somewhat hairy; leaves chiefly radical, lyrate, or sinuate-dentate; upper lip of the corolla short, and straight.
LYRATE SALVIA. Meadow Sage.

Perennial. *Stem* 1 to 2 feet high, nearly leafless, square, with concave sides and obtuse angles, retrorsely hairy, somewhat branched near the summit, and at the root. *Radical leaves* 2 to 4 inches long, on hirsute *petioles* 1 to 3 inches in length; *stem-leaves* mostly a single subsessile pair, near the base of the raceme. *Cymules* about 3-flowered, distant, in a terminal raceme 4 to 8 or 10 inches long; *corolla* bluish, or violet-purple, pubescent, the *tube* much exserted.
Hab. Meadows; woodlands, &c.: frequent. *Fl.* May. *Fr.* July.

Obs. This is often abundant on dry meadow banks,—where it is regarded as a worthless *weed.*

297. MONAR'DA, *L.*

[Dedicated to *Nicholas Monardes*; a Spanish Botanist.]

Calyx tubular, elongated, 15-nerved, nearly equally 5-toothed; *throat* usually villous. *Corolla* ringent; *upper lip* linear, entire, or emarginate, erect, embracing the filaments; *lower lip* broader, reflexed, 3-lobed; *tube* elongated, the throat slightly dilated. *Anther-cells* divaricate, confluent at their contiguous points. *Cymules* in flat-topped compact terminal *heads,* with involucre-like *bracts.*

1. M. fistulòsa, *L.* Leaves ovate-lanceolate, acute, dentate, petiolate; bracts somewhat colored; calyx slightly curved, very hairy in the throat.
FISTULOUS MONARDA. Horse Mint. Wild Burgamot.

Perennial. *Stem* 2 to 3 feet high, branched, mostly hairy, sometimes solid with pith. *Leaves* 2 to 3 or 4 inches long, hairy, punctate beneath; *petioles* half an inch to an inch in length. *Heads of flowers* 1 to near 2 inches in diameter, sometimes proliferous; *bracts* ovate-lanceolate to lance-linear, partially colored, purplish, or often greenish-white; *corolla* varying from violet-purple to flesh-color, and greenish white.
Hab. Borders of thickets; fence-rows, &c.: frequent. *Fl.* July. *Fr.* Sept.

Obs. This pleasantly odorous plant presents several rather striking *varieties,* here; but they are all referred, by Mr. BENTHAM, to the above-named species.

298. BLEPHIL'IA, *Rafin.*

[Gr. *Blepharis,* an eye-lash; in reference to the ciliate bracts.]

Calyx ovoid-tubular, 13-nerved, bilabiate; *upper lip* with 3 bristle-pointed teeth; *lower lip* shorter, bidendate; *throat* naked. *Corolla* inflated in the throat, ringent; *lips* nearly equal; *upper lip* erect, oblong, entire; *lower lip* spreading, 3-lobed,—the middle lobe narrower, oblong, emarginate. *Anther-cells* as in *Monarda. Peren-*

nials: cymules in axillary globose clusters, distinct, but somewhat approximated into a terminal leafy *spike; flowers* rather small, pale bluish purple.

1. B. ciliàta, *Rafin.* Leaves oblong-ovate, often narrowed at base, subsessile; outer bracts ovate, ciliate, colored, as long as the calyx.

CILIATE BLEPHILIA.

Stem 1 to near 2 feet high, simple, often several from the same root, hairy at the nodes, and retrorsely pubescent on the angles. *Leaves* 1 to 2 or 3 inches long, serrate-denticulate,—the upper ones subsessile, the lower ones on *petioles* near half an inch in length. *Cymules* opposite, approximated into a spike above,—the lower pair distant; *bracts* greenish white; *corolla* violet or bluish-purple.

Hab. Fields, and roadsides; near W. Chester: rare. *Fl.* June. *Fr.* Aug.

Obs. This plant looks like a stranger, here; and I incline to think it must have been introduced into *Chester County*, from the West.

TRIBE 4. NEPETE'AE.

Calyx 15-nerved, tubular,—the *orifice* obliquely (or sometimes equally) 5-toothed; *corolla* bilabiate,—the *upper lip* somewhat vaulted, *lower lip* spreading, *throat* mostly inflated; *stamens* ascending, or diverging, didynamous,—the *upper* pair longer!

299. LOPHAN'THUS, *Benth.*

[Gr. *Lophos*, a crest, and *Anthos*, a flower; in allusion to the flowers.]

Calyx tubular-campanulate; *upper teeth* rather longer. *Corolla* with the *upper lip* nearly erect, 2-lobed; *lower lip* 3-lobed,—the middle lobe broader and crenate. *Stamens* exserted,—the *upper* pair declined, the *lower* ascending; *anther-cells* nearly parallel, or finally somewhat diverging. Stout branching *perennials: cymules* crowded in terminal cylindric *spikes.*

1. L. scrophulariaefòlius, *Benth.* Stem pubescent, obtuse-angled; leaves cordate-ovate, crenate-serrate; petioles ciliate; spikes purplish.

SCROPHULARIA-LEAVED LOPHANTHUS. Giant Hyssop.

Stem 3 to 5 or 6 feet high, often half an inch in diameter, mostly dark purple. *Leaves* 3 to 6 inches long; *petioles* 1 to 2 inches in length. *Spikes* 2 to 6 inches long, interrupted at base; *bracts* ovate, acuminate. *Corolla* pale purple.

Hab. Thickets; fence-rows, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

2. L. nepetoides, *Benth.* Stem smooth, acute-angled; leaves lance-ovate, acutely serrate; petioles smooth; spikes yellowish-green.

NEPETA-LIKE LOPHANTHUS.

Stem 4 to 6 feet high, pale green. *Leaves* 2 to 4 or 5 inches long; *petioles* 1 to 2 inches in length. *Spikes* 2 to 5 inches long, somewhat interrupted at base; *bracts* lance-ovate, conspicuously acuminate. *Corolla* pale greenish-yellow.

Hab. Borders of woods; fence-rows, &c.: frequent. *Fl.* July. *Fr.* Sept.

300. NE'PETA, *L.*

[Supposed to be named from *Nepete*,—a town in Italy.]

Calyx tubular, sometimes ovoid, often incurved, obliquely 5-toothed. *Corolla* with the *upper lip* erect, somewhat concave, bifid; *lower*

lip spreading, 3-lobed,—the middle lobe largest. *Stamens* ascending under the upper lip; *anthers* approximated in pairs,—the *cells* diverging, finally divaricate, sometimes presenting the figure of *a cross*. *Perennial* herbs.

§ 1. CATARIA: Cymules *densely many-flowered, in interrupted terminal racemes.*

1. *N. Catària*, L. Erect; hoary-villous; leaves oblong-cordate, coarsely crenate-serrate; racemes paniculate; calyx ovoid-tubular. CAT NEPETA. Cat-mint. Cat-nep.

Stem 2 to 3 feet high, somewhat branched, mostly several from the same root. *Leaves* 2 to 4 inches long; *petioles* ½ an inch to 1½ inches in length. *Bracts* small, subulate. *Corolla* ochroleucous, with a reddish tinge and purple dots. *Hab.* Fields, fence-rows, &c. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. Becoming a rather too common *weed*, on our farms. The dried *Herb*, in infusion, is a highly popular medicine, with the good ladies who deal in *simples*. DE THEIS, in his *Glossaire de Botanique*, has the following:—"Le gout des Chats pour cette plante est très-remarquable; ils la mordent, l'arrachent, et se roulent dessus avec transport. Il est cependant singulier qu'ils ne s'attaquent qu'à celle que l'on plante, et nullement à celle qui n'a point été deplacée. De là le proverbe anglois—

"If you set it. the Cats will eat it;
If you sow it, the Cats wont know it."

I doubt, however, whether our American Cats have yet learnt to make the distinction,—or even acquired "*le gout pour cette plante.*"

§ 2. GLECHOMA: Cymules *loosely few-flowered, axillary and distant.*

2. *N. Glechòma*, Benth. Procumbent; retrorsely hairy; leaves cordate-reniform, rounded, crenate; calyx cylindric. Ground Ivy. Ale-hoof. Gill.

Stem 6 to 18 inches long, slender, radicating; *flowering branches* ascending, 4 to 8 or 10 inches high, flaccid. *Leaves* ¾ of an inch to 1½ inches in length, and rather wider than long; *petioles* 1 to 3 inches long. *Floral leaves* similar in form to the cauline. *Corolla* purplish-blue (rarely white). *Anther-cells* presenting the figure of *a cross*.

Hab. Waste places. Nat. of Europe. *Fl.* May. *Fr.* July.

Obs. Naturalized about many old settlements. The *Herb* was employed, in England, to clarify and give a flavor to *Ale* (whence one of its common names), until the reign of *Henry VIII*,—at which period *Hops* were substituted.

TRIBE 5. STACHYDE'AE.

Calyx usually campanulate, 5- to 10-nerved,—the *orifice* regular, or oblique, 3- to 10-toothed, or sometimes bilabiate; *corolla* bilabiate,—the *upper lip* arched, or flat, entire, or emarginate,—*lower lip* variously 3-lobed; *stamens* ascending, didynamous,—the upper pair shorter; *nutlets* erect, free at base.

§ 1. SCUTELLARIEAE: Calyx *bilabiate, not inflated;* lips *closed in fruit.*

301. BRUNEL'LA, *Benth, in DC.* [Prunella, *L.*]

[German, *Brunelle*, from *Die Braeune*, the quinsy; said to be relieved by it.]

Calyx tubular-campanulate; *upper lip* flat, broad, truncate, 3-toothed; *lower lip* bifid. *Corolla* with the *upper lip* erect, arched,

entire; *lower lip* depending, 3-lobed,—the middle lobe rounded, concave, crenulate; *tube* a little contracted at throat. *Filaments* bidentate at apex,—the lower tooth bearing the *anther*. *Perennials: cymules* few-flowered, crowded into imbricated oblong terminal heads, or *spikes*.

1. *B. vulgàris*, L. Stem erect, or ascending; leaves petiolate, ovate-oblong, entire, or dentate, sometimes pinnatifid.
Prunella vulgaris. *L. & Fl. Cestr. ed.* 2. *p.* 352.
COMMON BRUNELLA. Heal-all. Self-heal.

Stem 8 to 12 inches long, somewhat branching, especially at base, usually purplish brown. *Leaves* 1 to 3 inches long; *petioles* ½ an inch to 2 inches (those of the radical or lower leaves often 3 or 4 inches) in length. *Spikes* 1 to 3 inches long; *bracts* orbicular-cordate, or sub-reniform, with a short abrupt acumination, hairy and ciliate; *corolla* violet-purple—rarely pale purple, or whitish.
Hab. Roadsides; &c. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. The virtues, indicated by the *common names*, are not recognized at the present day. It may seem rather late to be rectifying the orthography of the *generic name*; but perhaps the high authority of Mr. BENTHAM can accomplish it.

302. SCUTELLARIA, *L.*

[Latin, *Scutella*, a little dish; from the form of the appendage to the calyx.]

Calyx campanulate, gibbous, finally dividing to the base; *lips* entire,—the *upper* one with a concave galeate process on the back, deciduous. *Corolla* with an elongated *tube*, dilated at throat; *upper lip* arched, nearly entire; *lower lip* dilated, convex,—the lateral lobes often connected with the upper lip. *Stamens* ascending under the upper lip; *anthers* approximated in pairs, ciliate,—those of the lower pair halved. Chiefly *perennials:* bitter instead of aromatic; *flowers* racemose, or solitary, terminal, or axillary. This remarkably *natural genus* is easily recognized, by the concave disk-like, or *galeate, appendage* of the calyx.

† Flowers *in terminal racemes.*

1. S. pilosa, *Mx.* Hairy; leaves rhombic-ovate, crenate-serrate; raceme mostly simple, rather short; bracts elliptic-ovate.
HAIRY SCUTELLARIA. Scull-cap.

Stem 12 to 18 inches high, nearly simple, more or less hairy, often purplish. *Leaves* 3 to 5 distant pairs, 1 to 2½ inches long, cuneately tapering to a *petiole* at base. *Raceme* few-flowered; *pedicels* hirsute; *corolla* purplish-blue, the *tube* nearly white.
Hab. Open woodlands; clearings, &c.: common. *Fl.* June. *Fr.* Aug.

2. S. integrifolia, *L.* Minutely hoary pubescent; leaves lance-oblong, or sublinear, mostly entire; racemes often branched; bracts lanceolate; flowers large.
ENTIRE-LEAVED SCUTELLARIA. Large-flowered Scull-cup.

Stem 1 to 2 feet high, nearly simple,—the lower axils often with short abortive branches bearing a tuft of small leaves. *Leaves* 1 to 2 inches long, tapering at base to a short *petiole*. *Racemes* loose, terminal and subterminal; branches and *pedicels* densely hoary-pubescent; *corolla* about an inch long, bright blue at summit, pale below.
Hab. Meadows, and moist thickets: frequent. *Fl.* June. *Fr.* Aug.

Obs. This rather showy species is intensely bitter,—and, no doubt, might be usefully employed as a tonic.

†† Flowers *axillary, and mostly solitary.*

3. S. galericulàta, *L.* Leaves lance-ovate, crenate-serrate, rounded or subcordate at base, subsessile; flowers rather large, and turned to one side.

CAPPED, OR HELMETED SCUTELLARIA.

Stem 12 to 18 inches high, with slender spreading branches above, slightly pubescent. *Leaves* 1 to 2 inches long, on very short *petioles,* resinous-dotted beneath. *Flowers* mostly solitary, opposite, but turned to the same side; *pedicels* rather longer than the petioles; *corolla* about half an inch long, much dilated above, blue at summit, paler below.

Hab. Marshy grounds; Wynn's meadows: rare. *Fl.* July. *Fr.* Sept.

4. S. nervòsa, *Pursh.* Lower leaves roundish-cordate, petiolate; middle ones broad-ovate, crenate-dentate, sessile; upper ones lance-ovate, entire.

NERVED SCUTELLARIA.

Stem 9 to 15 inches high, square, with angles acute and almost winged, often decumbent, sparingly branched, slender and smoothish. *Leaves* ½ an inch to 1½ inches long, prominently nerved,—the lower ones purplish beneath. *Pedicels* solitary, pubescent, longer than the calyx; galeate appendage of the calyx finally much enlarged; *corolla* pale blue, ⅓ to ½ an inch long; *nutlets* rugose-tuberculate, elevated on a common pedicel.

Hab. Banks of Schuylkill: rare. *Fl.* May. *Fr.* July.

5. S. párvula, *Mx.* Stem slender, decumbent and spreading; leaves ovate, or lance-ovate, prominently nerved, mostly entire, subsessile; flowers small.

DIMINUTIVE SCUTELLARIA.

Rhizoma creeping, moniliform, with verticils of radicles. *Stem* 4 to 8 or 10 inches long, generally branched from the base, purplish, finally rather rigid, angles minutely scabrous. *Leaves* ⅓ to ⅔ of an inch long, margin mostly entire and revolute, under surface often dark purple; *lower* leaves roundish-cordate, on short *petioles,—upper* ones oblong-ovate, sessile. *Pedicels* as long as the calyx; *galeate appendage* prominent; *corolla* violet-purple, about ⅓ of an inch long.

Hab. Serpentine ridge, West Chester: rare. *Fl.* May. *Fr.* July.

††† Flowers *in axillary leafy racemes.*

6. S. lateriflòra, *L.* Stem rather erect, much branched; leaves ovate-lanceolate, acuminate, coarsely serrate, petiolate.

LATERAL-FLOWERED SCUTELLARIA. Mad-dog Scull-cap.

Stem 1 to 2 feet high, smooth, angles slightly scabrous, sides concave. *Leaves* 1 to 3 inches long, diminishing as they ascend, thin and smooth, on *petioles* ½ an inch to an inch in length. *Flowers* small, in leafy racemes which terminate the slender axillary branches; *pedicels* solitary, opposite, in the axils of the small leaves, each with a minute filiform pubescent *bract* at base; *corolla* ¼ to ⅓ of an inch long, pale violet-purple (rarely milk white); *nutlets* tuberculate.

Hab. Swamps; ditch banks, &c.: frequent. *Fl.* July. *Fr.* Sept.

Obs. Some years since, this plant had much notoriety, in consequence of the assertions of *Empirics,* and some of their partizan newspaper-editors, that it was a sovereign remedy for *Hydrophobia*; and those contemporaries who ventured to doubt, were unsparingly

denounced for their want of faith. Like its numerous predecessors, of similar pretensions, the vaunted *Specific* had its day of importance among the credulous,—and then sank into the oblivion which necessarily awaits all such preposterous claims upon the public confidence.

§ 2. MELITTEAE: Calyx *inflated after flowering.*

303. PHYSOSTE'GIA, *Benth.*

[Gr. *Physa*, a bladder, and *Stege*, a covering; alluding to the inflated flowers.]

Calyx nearly equally 5-toothed,—at first tubular, finally inflated-campanulate. *Corolla-tube* much exserted,—the *throat* inflated; *upper lip* nearly erect, entire; *lower lip* spreading, 3-lobed,—the middle lobe larger and emarginate. *Stamens* ascending under the upper lip; *anthers* approximated in pairs, naked,—the *cells* parallel. Smooth *perennials: stem* virgate; *leaves* sessile; *flowers* large, in terminal, mostly crowded, leafless *spikes.*

1. P. Virginiàna, *Benth.* Leaves linear-lanceolate, and obovate-lanceolate, serrate above the middle; bracts lance-ovate, acuminate, shorter than the calyx.

VIRGINIAN PHYSOSTEGIA. False Dragon-head.

Stem 1 to 3 feet high, simple, or sparingly branched. *Leaves* 1 to 3 or 4 inches long, tapering and entire at base, often pellucid-punctate. *Flowers* in dense four-rowed *spikes* (or sometimes rather distant, and *racemose*), of 2 to 6 or 8 inches in length; *corolla* ½ an inch to an inch long, pale purple, or flesh-colored, sometimes variegated; *nutlets* smooth.

Hab. Banks of Schuylkill: rare. *Fl.* July. *Fr.* Sept.

§ 3. MARRUBIEAE: Stamens *included in the tube of the corolla.*

304. MARRU'BIUM, *L.*

[Said to be derived from the Hebrew, *Marrob;* meaning a bitter juice.]

Calyx tubular, 5- to 10-nerved, nearly equally 5- or 10-toothed,—the *teeth* subspinose, finally spreading. *Corolla-tube* included; *upper lip* erect, flattish, often bifid; *lower lip* longer and spreading, 3-lobed. *Anther-cells* divergent. Hoary-tomentose *perennials: leaves* rugose; *cymules* axillary, mostly dense and many-flowered.

1. *M. vulgàre,* L. Stems ascending; leaves roundish-ovate, crenate-dentate, petiolate; calyx with 10 subulate recurved teeth.

COMMON MARRUBIUM. Common Hoar-hound.

Stem 9 to 18 inches high, cespitose, or branching from the base. *Leaves* about 2 inches long; *petioles* ½ an inch to an inch in length. *Cymules* distant, sessile; *bracts* linear, as long as the calyx, with a smooth subulate recurved point.—*Corolla* white, small.

Hab. Stony banks. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. This has been introduced as a medicinal Herb,—and is partially naturalized, about many old settlements. It is a valuable tonic; and is much employed in the preparation of medicated syrups and candies.

§ 4. LAMIEAE: Stamens *exserted from the tube of the corolla.*

† Nutlets *obtuse, not truncate at apex.*

305. STA'CHYS, *L.*

[Gr. *Stachys*, a spike; in reference to its mode of flowering.]

Calyx tubular-campanulate, 5- or 10-nerved, 5-toothed, or the 3 upper teeth united into a lip. *Corolla* not dilated at throat; *upper lip* erect, often arched; *lower lip* longer and spreading, 3-lobed.—*Stamens* ascending under the upper lip, often reflexed over the sides of the throat after flowering. *Cymules* few- or many-flowered, in the axils of the upper leaves,—often forming terminal leafy *racemes*, or *spikes*.

1. S. áspera, *Mx.* Stem retrorsely hispid on the angles; leaves oblong-lanceolate, serrate, on short petioles; cymules about 3-flowered.

Also? S. sylvatica. *Fl. Cestr. ed.* 2. *p.* 360.

Rough Stachys. Hedge-Nettle.

Perennial. Stem 1 to 2 or 3 feet high, more or less branched. *Leaves* 2 to 4 or 5 inches long, often rounded or subcordate at base, more or less hairy; *petioles* ¼ to ¾ of an inch in length. *Bracts* subulate, ciliate. *Calyx* more or less hirsute on the nerves,—the teeth often ciliate, finally spinescent. *Corolla* purple, or pale violet, often spotted, pubescent externally, and with a hairy ring within the tube. *Hab.* Moist thickets; along streams: frequent. *Fl.* July. *Fr.* Sept.

Obs. There seems to be some *varieties* of this, which are calculated to puzzle a young Botanist; but I am not satisfied that we have more than one *species*, here.

†† Nutlets *truncate at apex.*

306. LEONU'RUS, *L.*

[Gr. *Leon*, a lion, and *Oura*, a tail; from a fancied resemblance.]

Calyx turbinate, 5-nerved,—the *border* truncate, 5-toothed; *teeth* subulate, finally spinose and spreading. *Corolla* with the *upper lip* oblong, entire, somewhat arched; *lower lip* 3-lobed,—the lateral lobes oblong, the middle one entire, or sometimes obcordate.—*Anthers* approximated in pairs, incumbent; *cells* mostly parallel, opening transversely by little valves; *valvelets* naked on the margin. *Nutlets* triquetrous, with the angles acute. Mostly *perennials: leaves* incisely lobed; *cymules* dense and closely axillary.

1. *L. Cardíaca,* L. Lower stem-leaves palmate-lobed, upper ones ovate- and cuneate-oblong, mostly trifid; corolla longer than the calyx-teeth,—the tube with a villous ring within at base; upper lip flattish, densely villous above; lower lip spreading, with the middle lobe entire.

Cardiac Leonurus. Mother-wort.

Stem 2 to 4 feet high, branched at base, and above, retrorsely pubescent, with a hairy ring at the nodes, often purple at base. *Leaves* 2 to 4 inches long, rugose,—the *lower* or radical ones nearly orbicular in the outline; *petioles* 1 to 2 inches in length. *Cymules* 3- to 6- or 8-flowered, sessile, forming a terminal interrupted leafy *spike* 6 to 12 or 15 inches long; *bracts* subulate; *corolla* pale purple.

Hab. Waste places. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This worthless *weed* is completely naturalized; and is apt to occupy the farm-yards, waste places, and fence-rows, of all slovenly farmers.

2. *L. Marrubiástrum*, L. Stem-leaves oblong-ovate, coarsely serrate; corolla shorter than the calyx-teeth,—the tube naked within; upper lip somewhat arched, the lower rather erect.
MARRUBIUM-LIKE LEONURUS.

Stem 2 to 4 feet high, with long ascending branches, clothed with a short retrorse cinereous pubescence. *Leaves* 2 to 3 inches long, gradually smaller above; *radical leaves* ovate, crenate, on long *petioles*; *lower stem-leaves* deeply and coarsely serrate, on *petioles* 1 to 2 inches in length; *upper* or *floral leaves* lanceolate, sparingly incised-dentate. *Cymules* many-flowered, subsessile, forming interrupted leafy spikes 6 to 18 inches long; *bracts* terete, needle-like; *corolla* whitish, tinged with red.

Hab. Roadsides. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. This foreigner has probably escaped from the Garden of the late HUMPHRY MARSHALL; and seems likely to become one of those unprofitable additions which Botanic Gardens do sometimes make to the vegetation of a country. In truth, some caution is required, in introducing worthless plants into Agricultural districts,—otherwise much mischief may be done.

307. LA'MIUM, *L.*

[Gr. *Laimos*, the throat; in allusion to its gaping corolla.]

Calyx tubular-campanulate, about 5-nerved, with 5 subulate teeth. *Corolla* dilated at throat, ringent; *upper lip* oblong, arched; *lower lip* with the middle lobe broad, obcordate, sub-stipitate,—the lateral lobes small, at the margin of the throat. *Stamens* ascending under the upper lip; *anther-cells* divergent. *Cymules* axillary, compact.

1. *L. amplexicaùle*, L. Leaves rounded, crenately incised,—the lower ones petiolate, upper ones sessile and clasping.
STEM-CLASPING LAMIUM. Dead Nettle. Hen-bit.

Annual. Stems several, or much branched from the base, decumbent, or ascending, 6 to 12 inches long, smoothish and generally purplish. *Leaves* half an inch to 3 quarters in length, and mostly wider than long,—the *lower* ones on *petioles* ½ an inch to an inch long. *Cymules* many-flowered,—*lower* ones distant, *upper* ones rather approximated. *Corolla* bright purple; *tube* naked within; upper lip nearly entire, clothed with a purple villus. *Anthers* hirsute.

Hab. Gardens, &c. Nat. of Europe. *Fl.* April. *Fr.* June.

Obs. This little *weed* is abundantly naturalized in gardens and cultivated lots,—often flowering in midwinter, when the weather is mild. The *corolla* in the lower cymules is often minute, or wanting.

2. *L. purpùreum*, L. Leaves roundish, or oblong-cordate, crenate-serrate, all petiolate, upper ones crowded.
PURPLE LAMIUM.

Annual. Stem 4 to 6 or 8 inches high, branched at base; branches ascending, retrorsely scabrous, dark green, or purplish. *Leaves* half an inch to an inch long, rugose, hairy; *lower* ones orbicular-cordate, on *petioles* 1 or 1½ inches long; *upper* ones oblong-cordate, on shorter *petioles*. *Cymules* approximated in a sort of leafy head,—sometimes the lower pair a little distant. *Corolla* violet-purple, the lower lip spotted; *tube* with a hairy ring at base within; lateral lobes toothed. *Anthers* hirsute.

Hab. Gardens, &c. Nat. of Europe. *Fl.* April. *Fr.* June.

Obs. This foreigner is yet rare; but is naturalized in a few localities.

TRIBE 6. AJUGE'AE.

Corolla with the *upper lip* sometimes very short,—sometimes deeply cleft, with the lobes depending,—rarely erect and arched; *lower lip* elongated; *stamens* mostly didynamous, and much exserted; *nutlets* reticulately rugose, obliquely affixed, and subconnate at base.

308. TRICHOSTE'MA, *L.*

[Gr. *Thrix, trichos*, hair, and *Stema*, stamen; from its long hair-like stamens.]

Calyx depressed-campanulate, oblique, resupinate, unequally 5-cleft; the 3 *upper teeth* (becoming the *lower* ones, by the twisting of the peduncle) elongated, and partly united; the *lower* (finally *upper*) *teeth* very short. *Corolla* 5-lobed; *lobes* oblong, declined. *Stamens* much exserted, declined and then curved upward; *anther-cells* divergent, finally confluent. *Annuals: leaves* entire; *flowers* axillary,—the inflorescence finally elongated into brachiate *leafy racemes*.

1. T. dichótomum, *L.* Stem bushy; leaves lance-oblong, or rhombic-lanceolate, rather obtuse, petiolate; flowers solitary, in the axils of leaf-like bracts.

DICHOTOMOUS TRICHOSTEMA. Bastard Pennyroyal. Blue Curls.

Stem 6 to 12 inches high, brachiately branched, clothed with a short cinereous roughish pubescence. *Leaves* 1 to near 2 inches long, tapering at base to a *petiole* ¼ to ½ an inch in length. *Flowers* on *peduncles* ¼ to ½ an inch long,—the terminal ones di- or tri-chotomous; *bracts* lanceolate, shorter than the peduncles; *corolla* bright blue, rarely purplish.

Hab. Sandy old fields: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. This herb has a resinous odor, much resembling that of the ripe kernels of the *Juglans nigra*, or black Walnut.

309. TEU'CRIUM, *L.*

[From *Teucer*, King of Troy; who, it is said, first used one of the genus.]

Calyx tubular, slightly ventricose, nearly equally 5-toothed, or the upper ones a little broader. *Corolla* with the 4 *upper lobes* nearly equal, oblong and declined,—the *lower lobe* largest, mostly concave. *Stamens* exserted from the fissure on the upper side of the corolla; *anther-cells* confluent. *Cymules* few-flowered, in a terminal rather crowded greyish-green *spike*.

1. T. Canadénse, *L.* Greyish-pubescent; leaves ovate-lanceolate, acute, serrate, on short petioles.

CANADIAN TEUCRIUM. Wood Sage. American Germander.

Perennial. Stem 1 to 2 feet high, simple, or sparingly branched, square with the sides concave and the angles obtuse, retrorsely pubescent. *Leaves* 3 to 5 inches long; *petioles* ¼ to ¾ of an inch in length. *Cymules* 2- or 3-flowered, in a simple *spicate raceme* 2 to 6 inches in length (often an opposite pair of such racemes from the axils of the first leaves beneath); *bracts* about as long as the calyx; *corolla* pale purple.

Hab. Moist, shaded grounds: frequent. *Fl.* July. *Fr.* Aug.

Obs. An intelligent practical farmer, a few years since, brought to me specimens of this plant,—as one which he had found to be a very pernicious *weed*, and difficult to get rid of. Whether others

have had a similar experience of it, I am not informed. So far as I have observed, the plant is generally confined to fence-rows, and the low shaded grounds along streams.

ORDER LXVI. BORAGINÀCEAE.

Chiefly *hirsute herbs; stems* round; *leaves* alternate, entire, not aromatic; *stipules* none; *flowers* usually regular, and nearly symmetrical, mostly in one-sided racemes, or spikes, which are revolute (*circinnate*, or *scorpioid*) before development; *calyx* 5-parted; *corolla* 5-lobed, with 5 *stamens* inserted on the *tube; ovary* deeply 4-parted, becoming in fruit 4 seed-like *nutlets*, surrounding the base of the *style; seeds* single, pendulous, with little or no *albumen*.

An order, for the most part, of rough homely plants,—some of them very obnoxious *weeds*. Several species have showy flowers; and some of the *Heliotropes* are admired for their fragrance.

§ 1. Nutlets *fixed to the receptacle* (*free from the base of the style.*)
† Corolla *irregular*.

310. E'CHIUM, *Tournef.*

[Gr. *Echis*, a viper; the nutlets somewhat resembling a viper's head.]

Corolla subcampanulate, unequally and obliquely lobed; *throat* expanded, naked. *Stamens* mostly exserted, unequal. *Nutlets* rugose or tuberculate, with a small flat scar at base. *Flowers* in panicled *spikes*, at first purplish, finally bright violet-blue.

1. *E. vulgàre*, L. Stem tuberculate-hispid; leaves linear-lanceolate; flowers in short lateral spikes.
COMMON ECHIUM. Blue-Weed. Viper's Bugloss.

Biennial. Stem 2 to 3 feet high, branched above. *Radical leaves* 5 to 8 inches long, petiolate; *stem-leaves* smaller, acute, sessile. *Spikes* axillary, numerous.—*Nutlets* subovoid, angular on the inner side, keeled on the back, acuminate and a little incurved, rough with greyish-brown tubercles.
Hab. Fields, &c. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This showy, but pernicious *weed*, is gradually making its way into various sections of our County. It was detected in the vicinity of *West Chester*, during the past summer (1851), by Miss HARRIET HARLAN, a Teacher of Botany in PRICE'S Female Seminary. The *Farmers*—as well as the Lady Botanists—will do well to keep a vigilant eye upon it.

†† Corolla *regular*. * Nutlets *excavated at base.*

311. SYM'PHYTUM, *Tournef.*

[Gr. *Symphyo*, to join; from its supposed healing virtues.]

Corolla tubular, with short revolute lobes; *throat* ventricose, closed by 5 lanceolate *scales*. *Stamens* included; *anthers* elongated.—Coarse *perennials: flowers* in nodding hispid *racemes*, yellowish-white.

1. S. OFFICINÀLE, L. Stem winged above by the decurrence of the sessile leaves; lower leaves ovate-lanceolate, tapering to a petiole.
OFFICINAL SYMPHYTUM. Garden Comfrey.

Stem 2 to 3 feet high, branched, grooved or angular, and hispidly pilose. *Leaves* 8 to 12 inches long, rugose and scabrous; *petioles* of the lower ones 3 to 5 inches in

length. *Racemes* without *bracts*,—the flowers rather crowded; *Corolla* ochroleucous, rarely purplish; *scales* of the throat glandular-dentate.
Hab. Gardens. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This was formerly found in many of our gardens,—and is yet, occasionally, to be seen,—for the sake of its mucilaginous *root*,—which was reputed medicinal, for wounds, and internal complaints. It is, doubtless, about as *sovereign* as "*Parmaceti*, for an inward bruise."

** Nutlets *with a small flat scar at base.*

312. ONOSMO'DIUM, *Mx.*

[So named, from its resemblance to *Onosma*,—a kindred genus.]

Corolla tubular, with erect, or connivent, acute lobes; *throat* naked. *Anthers* sagittate, subsessile, included. *Style* much exserted.—*Nutlets* ovoid, glabrous. Hirsute *perennials: flowers* ochroleucous, in terminal one-sided leafy *racemes*.

1. O. Virginiànum, *Alph. DC.* Plant clothed with appressed bristles; leaves lance-oblong, nerved, sessile,—the lower ones narrowed at base; corolla-lobes subulate-lanceolate.
O. hispidum. *Mx. & Fl. Cestr. ed.* 2. *p.* 119.
VIRGINIAN ONOSMODIUM.

Stem about 2 feet high, branched. *Leaves* 2 to 3 inches long. *Racemes* at first recurved and nodding, finally erect; *corolla* rather longer than the calyx; *nutlets* with numerous depressions on the surface, grey, shining.
Hab. Great Valley: not common. *Fl.* June. *Fr.* Aug.

313. LITHOSPERM'UM, *Tournef.*

[Gr. *Lithos*, a stone, and *Sperma*, seed; from the stony hardness of the nutlets.]

Corolla funnel-form, or salver-form, with rounded lobes; *throat* naked, but mostly with 5 small gibbous projections. *Anthers* oblong, subsessile, included. *Style* not exserted. *Nutlets* ovoid, rugose, or smooth. *Flowers* axillary, crowded at summit in leafy racemes, or clusters.

a. Corolla *funnel-form, white:* nutlets *rugose.*

1. *L. arvénse*, L. Hairy; branched from the base; leaves lance-linear, rather acute, nerveless; flowers small,—the lower ones rather distant.
FIELD LITHOSPERMUM. Stone-weed. Gromwell.

Annual. Plant greyish-green, with short appressed hairs. *Stems* 12 to 18 inches high, often branched near the summit. *Leaves* 1 to 2 inches long, with a midrib but no lateral nerves, sessile. *Flowers* solitary, subsessile; *nutlets* brown when mature.
Hab. Fields. Nat. of Europe. *Fl.* May. *Fr.* June.

Obs. A worthless little *weed*,—extensively naturalized.

b. Corolla *salver-form, orange-yellow:* nutlets *smooth.*

2. L. canéscens, *Lehm.* Villous; stem nearly simple; leaves lance-oblong, rather obtuse; flowers rather large, clustered at summit.
Batschia canescens. *Mx. & Fl. Cestr. ed.* 2. *p.* 118.
HOARY LITHOSPERMUM. Puccoon. Alkanet.

Perennial. *Root* large, red. *Stem* about a foot high, several from the same root, sometimes trichotomously branched above, hoary with spreading hairs. *Leaves* about an inch and half long, clothed with appressed hairs. *Corolla* with a slight pubescent ring on the inside, at bottom.
Hab. Great Valley: rare. *Fl.* May. *Fr.* June.

Obs. This pretty little plant is quite rare, here. The *root* was used, by the Aborigines, for staining red.

314. MYOSO'TIS, *L*

[Gr. *Mys, myos,* a mouse, and *ous, otos,* an ear; from the form of the leaves.]
Corolla salver-form; *lobes* rounded, convolute in the bud! *tube* about as long as the calyx; *throat* with 5 short arching *appendages* opposite the lobes. *Stamens* included. *Nutlets* smooth, somewhat compressed. *Flowers* small, in terminal *racemes,* mostly without *bracts.*

1. M. láxa, *Lehm.* Biennial; stems ascending, rooting near the base, terete, branching; leaves lance-oblong, rather obtuse; pedicels about twice as long as the calyx.
M. palustris. *Fl. Cestr. ed.* 2. *p.* 120. not of *Withering.*
Loose Myosotis. Scorpion-grass. Forget-me-not.

Stem 1 to 2 feet long, slender, smoothish. *Leaves* 1 to 3 inches long,—*upper* ones sessile, *lower* ones often *petiolate. Racemes* terminating the branches, sometimes in pairs, elongating, secund, at first recurved. *Corolla* bright blue, the throat closed with yellow connivent scales; *border* nearly flat.
Hab. Swampy rivulets, and springs: frequent. *Fl.* May. *Fr.* July.

Obs. This seems to have been generally mistaken for the *M. palustris, With.* or *true* "*Vergiss mein nicht,*" of the Germans,—to which, indeed, it bears a close resemblance.

2. M. stricta, *Link.* Annual; stem erect, nearly simple; leaves oblong, or oval-lanceolate, rather acute; pedicels about as long as the calyx.
M. arvensis. *Fl. Cestr. ed.* 2. *p.* 120.
Upright Myosotis.

Plant greyish-pubescent. *Stem* at first nearly simple, at length branching, 3 to 6 (and finally sometimes 12) inches high. *Leaves* half an inch to an inch long, sessile, scabrous,—the *lower* ones often lance-obovate, obtuse, and *petiolate.*—*Racemes* terminal, at first short, and the flowers crowded, finally much elongated, bifarious (not secund). *Corolla* very small, white, or sometimes pale blue; *border* somewhat erect.
Hab. Dry hills, and serpentine rocks: not common. *Fl.* May. *Fr.* July.

Obs. This species is usually very diminutive, when the flowers begin to appear; but the racemes finally stretch up—sometimes to the height of 12 or 15 inches.

315. MERTENS'IA, *Roth.*

[Dedicated to Prof. *F. C. Mertens,* of Bremen.]
Corolla trumpet-shaped, much longer than the calyx, the *border* obscurely lobed; *throat* naked, or with 5 small *folds* therein.—*Stamens* and *style* rather shorter than the corolla. *Nutlets* ovoid, smoothish, fixed obliquely by the internal angle. *Smooth perennials: flowers* purplish-blue, large, in terminal (at first corymbose) *racemes.*

1. M. Virginica, *DC.* Stem nearly erect; upper leaves lance-oblong, lower ones finally roundish-obovate; racemes elongated in fruit; corolla naked in the throat.
Pulmonaria Virginica. *L. & Fl. Cestr. ed.* 2. *p.* 117.
VIRGINIAN MERTENSIA. Virginia Cowslip. Smooth Lung-wort.

Stem 1 to 2 feet high, angular, succulent, a little branched at summit. *Lower leaves* 3 to 6 inches long, on *petioles* 2 to 5 inches long; *upper leaves* gradually smaller, and becoming subsessile. *Corolla* near an inch long, with an annular tuft of hairs on the inside, near the base. *Disk* bearing 2 glands as long as the ovaries. *Hab.* Low grounds; along streams: frequent. *Fl.* April. *Fr.* June.

Obs. This plant—*glabrous* among the *asperifoliae!*—is rather showy, and pretty,—often finding a place in flower-gardens.

§ 2. Nutlets *affixed laterally to the base of the style.*

316. CYNOGLOS'SUM, *Tournef.*

[Gr. *Kyon*, a dog, and *Glossa*, a tongue; from the form of the leaves.]

Corolla funnel-form; *lobes* rounded; *tube* about as long as the calyx; *throat* closed by 5 obtuse *scales*. *Stamens* included. *Nutlets* depressed, or convex, more or less covered with short barbed or hooked prickles. *Flowers* mostly in paniculate, or corymbose, naked *racemes*.

† Racemes *not bracteate.*

1. *C. officinale*, L. Softly pubescent; stem paniculate above, leafy; upper leaves lanceolate, sessile; nutlets depressed.
OFFICINAL CYNOGLOSSUM. Hound's-tongue.

Biennial. Stem about 2 feet high. *Radical leaves* 9 to 12 inches in length, lance-oblong, petiolate; *stem-leaves* 3 to 6 inches long. *Racemes* 2 to 5 inches long, mostly erect, secund; *pedicels* ¼ to ½ an inch in length; *corolla* reddish or purplish-brown (sometimes milk white).
Hab. Waste places. Nat. of Europe. *Fl.* May. *Fr.* Aug.

Obs. Naturalized about old settlements. The disagreeable odor of this species has been compared to that of nests of *young mice.*

2. C. Virginicum, *L.* Hirsute; stem simple, few-leaved; stem-leaves oblong, clasping, and sub-auriculate at base; racemes corymbed, on a long naked peduncle.
VIRGINIAN CYNOGLOSSUM. Wild Comfrey.

Perennial. Stem about 2 feet high, rather slender, mostly leafless for 6 or 8 inches below the corymb. *Radical leaves* about 6 inches long, oval or lance-obovate, narrowed at base to a *petiole* about 3 inches in length; *stem-leaves* 1 or 2 to 6 inches long, diminishing as they ascend. *Flowers* few, in a terminal corymbose panicle, of 2 or 3 principal pedunculate *racemes* 1 to 2 or 3 inches in length; *pedicels* ¼ to ¾ of an inch long; *corolla* pale blue, or rather bluish-white.
Hab. Rich woodlands: common. *Fl.* May. *Fr.* Aug.

Obs. The *root* of this is a popular medicine,—similar to that of the *Garden Comfrey*,—and *about as efficacious.*

†† Racemes *bracteate, but the pedicels extra-axillary.*

3. C. Morisòni, *DC.* Stem hairy, leafy, divaricately branched above; leaves ovate-lanceolate; racemes slender, paniculate, forked.
Echinospermum Virginicum. *Lehm. & Fl. Cestr. ed.* 2. *p.* 121.
MORISON'S CYNOGLOSSUM. Beggar's Lice.

Annual. *Stem* 2 to 4 feet high. *Leaves* 3 or 4 inches long, acute at each end, scabrous,—the lower ones petiolate, upper ones subsessile. *Racemes* pedunculate, 1 to 2 or 3 inches long, terminating the slender divaricate branches, mostly dichotomous; *pedicels* about as long as the fruit; *corolla* bluish-white; *nutlets* convex, densely covered with barbed prickles.

Hab. Borders of thickets; fence-rows, &c.: frequent. *Fl.* July. *Fr.* Octo.

Obs. This troublesome *weed* is well known to the farmers,—by reason of its adhesive *bur-like fruit* entangling and matting the manes of their horses, and the fleeces of their sheep.

ORDER LXVII. HYDROPHYLLÀCEAE.

Herbs; leaves mostly alternate, and lobed, without *stipules; flowers* regular, pentamerous and pentandrous; *corolla-lobes* convolute in the bud; *stigma* bifid; *ovary* entire, ovoid, mostly hairy, 1-celled, with 2 parietal *placentae; capsule* globose, 2-valved, few-seeded; *seeds* reticulated or pitted; *embryo* minute, in cartilaginous *albumen.*

317. HYDROPHYL'LUM, *L.*

[Gr. *Hydor*, water, and *Phyllon*, a leaf; the application not obvious.]

Calyx 5-parted, rarely with a small appendage in each sinus.—*Corolla* campanulate, 5-cleft,—the *tube* with 5 linear grooved appendages inside, opposite the lobes. *Stamens* exserted; *filaments* more or less hairy. *Ovary* with the *placentae* expanded so as to *line the cell*, like an interior pod. *Capsule* spherical, 1- to 4-seeded. *Perennials: flowers* in cymose clusters.

1. H. Virginicum, *L.* Leaves pinnately dissected; lobes oval-lanceolate, deeply serrate, the lowest ones distinct.

VIRGINIAN HYDROPHYLLUM. Water-leaf.

Stem 12 to 18 inches high, often dichotomously branched near the base, nearly naked, with one or two leaves at summit. *Leaves* irregularly dissected, about 5-lobed, the 2 lower lobes distinct, and somewhat distant; *petioles* of the radical and lower leaves 4 to 6 or 8 inches long,—those at summit shorter. *Flowers* in clustered corymbs; *common peduncles* 2 to 5 inches long, axillary, or opposite to the petioles of the upper leaves; *calyx-segments* hispid-ciliate,—the sinuses without appendages; *corolla* white, with purplish veins.

Hab. Moist, shaded grounds: frequent. *Fl.* May. *Fr.* June.

ORDER LXVIII. POLEMONIÀCEAE.

Herbs; leaves alternate, or opposite, without *stipules; flowers* regular, pentamerous and pentandrous; *corolla-lobes* convolute in the bud; *style* 3-lobed; *capsule* 3-celled, 3-valved, loculicidal,—the *valves* usually breaking away from the central column; *seeds* few, or many, with copious *albumen.*

A small Order; but comprising some plants which are admired by Florists,—such as the *Cobaea scandens, Cav.* and several species of *Phlox, and Gilia.*

318. POLEMO'NIUM, *Tournef.*

[Gr. *Polemos*, war; an ancient name, of obscure meaning.]

Calyx loosely campanulate. *Corolla* sub-rotate-campanulate.—*Stamens* declined; *filaments* with the base dilated, ciliate, connivent and valve-like. *Capsule* roundish-ovoid, several-seeded. *Leaves* odd-pinnately dissected; *flowers* in terminal corymbose clusters.

1. P. réptans, *L.* Smooth, and succulent; branched and leaning; leaflets 5 to 11, lance-ovate, acute; corymbs few-flowered, nodding.

CRAWLING POLEMONIUM. Jacob's Ladder. Greek Valerian.

Perennial. Stem 12 to 18 inches long. *Leaflets* usually 7 or 9, about an inch long, mostly opposite,—the terminal one lance-obovate; *common petiole* half an inch to 2 inches in length below the leaflets, slightly winged, pubescent-ciliate.—*Corolla* blue, about 3 times as long as the calyx,—the *lobes* short, obovate, rounded. *Capsule* on a short stipe, in the enlarged, persistent, veined, green, and somewhat membranous calyx.

Hab. Moist, low grounds: frequent. *Fl.* May. *Fr.* June.

Obs. Our plant so much resembles the European species (*P. cæruleum, L.*), that it has received the same *common names.*

319. PHLOX, *L.*

[Gr. *Phlox*, a flame of fire; from the color of the numerous flowers.]

Calyx 5-ribbed, somewhat prismatic. *Corolla* salver-form; *tube* slender, more or less curved; *lobes* cuneate-obovate. *Stamens* included, unequally inserted on the corolla-tube. *Capsule* ovoid; *cells* 1-seeded. Mostly *perennials: leaves* generally opposite, sessile, entire; *flowers* usually purple, or pink, more or less corymbose-paniculate.

† Flowers *in a thyrsoid or oblong corymbose panicle.*

1. P. maculàta, *L.* Stem roughish, spotted with dark purple; upper leaves ovate-lanceolate, acuminate; lower ones linear-lanceolate.

SPOTTED PHLOX. Wild Sweet-William.

Stem about 2 feet high, mostly simple. *Leaves* 1 to 4 or 5 inches long, usually opposite, rarely ternate. *Bracts* subulate-linear, near an inch long. *Corolla* bright purple, rarely white; the *tube* near an inch long.

Hab. Low grounds; margins of rivulets: frequent. *Fl.* June. *Fr.* Aug.

†† Flowers *in terminal corymbs.* * Corolla-lobes *entire.*

2. P. pilòsa, *L.* Slender, villous, and slightly viscid; leaves lance-linear, acute; calyx-teeth slender, subulate, with awn-like points.

P. aristata. *Fl. Cestr. ed.* 2. *p.* 123. not of *Mx.*

HAIRY PHLOX.

Stem 12 to 18 inches high, sometimes branched. *Leaves* 1 to 2 inches long,—the upper ones occasionally somewhat ovate-lanceolate. *Bracts* subulate, or lanceolate, about half an inch in length. *Corolla* pale red,—the *tube* ¾ of an inch long, nearly straight.

Hab. Borders of woods, and thickets: frequent. *Fl.* May. *Fr.* July.

3. P. réptans, *Mx.* Stem erect, with procumbent runners at base bearing roundish-obovate and rather fleshy subsessile leaves; upper stem-leaves ovate-lanceolate; corymb few-flowered.

CRAWLING PHLOX.

Stem 4 to 6 or 8 inches high; *runners* branching off in all directions from the base, 2 to 4 or 5 inches in length. *Leaves* about an inch long, more or less pilose and ciliate,—the *lower* ones spatulate-obovate, tapering to short margined *petioles.*

Corolla deep purplish-red,—the *tube* about an inch long, a little curved.
Hab. Woodlands; near *Paoli:* very rare. *Fl.* May. *Fr.* July.

Obs. This pretty species is occasionally seen in the gardens of persons of taste. I have not met with it, myself, growing wild.

** Corolla-lobes *emarginate.*

4. P. divaricàta, *L.* Stems ascending, loosely branched from the base; leaves lance-oval or oblong, acute, thinnish; corymb loosely paniculate.
DIVARICATE PHLOX.

Stems 9 to 15 inches long, numerous, straggling,—some of them nearly procumbent and *runner-like*, with erect branches. *Leaves* 1 to 1½ inches long, the upper pairs distant, subcordate and clasping at base,—those on the runner-like branches nearly acute at base, becoming thick and coriaceous. *Corymb* di- or tri-chotomously and somewhat divaricately branching; *corolla* pale lilac, or bluish-purple,—the *tube* ¾ of an inch long, slightly curved.
Hab. Damp thickets; along Schuylkill: rare. *Fl.* May. *Fr.* June.

5. P. subulàta, *L.* Stems prostrate, with numerous short assurgent branches; leaves subulate-linear, rigid.
SUBULATE PHLOX. Mountain Pink. Ground Pink.

Stems 8 to 12 or 18 inches long,—the assurgent *branches* 2 to 4 inches high.—*Leaves* about half an inch long, cuspidate, crowded, with axillary clusters of smaller ones. *Corymbs* 3- to 6-flowered; *corolla* pink-purple, with a dark purple centre,—the *tube* about ½ an inch long, a little curved; sometimes the flowers are white.
Hab. Rocky hills; Serpentine ridges: abundant. *Fl.* April. *Fr.* July.

Obs. This species is chiefly confined to the Serpentine rock, with us; and when it is in full bloom, the hills, at a distance, appear as if covered with a sheet of flame.

ORDER LXIX. CONVOLVULA\CEAE.

Mostly *trailing or twining herbs*, often with a milky juice; *leaves* alternate (rarely none!), entire or lobed, without *stipules; flowers* regular, often large; *calyx* of 5 imbricated persistent *sepals; corolla* 5-plaited, or 4- or 5-lobed, twisted or convolute in the bud; *stamens* mostly 5; *capsule* 1- or 2- to 4-celled, often septifragal, few-seeded; *seeds* with a little mucilaginous *albumen; cotyledons* sometimes (i. e. in the *leafless* plants) wanting!

An interesting and rather anomalous Family of plants; comprising some valuable,—some nuisances,—a number beautiful,—and several which are singularly curious in their structure and habit.

SUBORDER I. CONVOLVULE\AE.

Green and leafy plants; cotyledons large and foliaceous, crumpled or corrugated; *corolla* large, plicate, obscurely lobed.

320. CALYSTE\GIA, *R. Br.*

[Gr. *Kalos*, beautiful, and *Stege*, a covering; in allusion to the bracts.

Calyx covered by 2 large opposite subcordate *bracts. Corolla* campanulate. *Stamens* included. *Stigmas* 2, oblong. *Ovary* imperfectly 2-celled. *Capsule* 1-celled, 4-seeded. *Perennials: leaves* entire, sagittate-cordate at base; *flowers* solitary, on long axillary peduncles.

1. C. sèpium, *R. Br.* Stem long, trailing or twining, smoothish; leaves sagittate, with the lobes obliquely truncate.
Convolvulus sepium. *L. & Fl. Cestr. ed.* 2. *p.* 130.
HEDGE CALYSTEGIA. Hedge Bind-weed.

Stem 3 to 5 or 6 feet long, nearly smooth. *Leaves* 2 to 4 inches long, oblong, or often somewhat triangular; *petioles* 1 to 3 inches long. *Peduncles* 4 to 6 or 8 inches long; *bracts* oblong-cordate, nearly ⅓ the length of the corolla, and almost twice as long as the calyx; *corolla* about 3 inches long, white, tinged with rose-color.
Hab. Meadows, along the Brandywine: not common. *Fl.* June. *Fr.* Aug.

Obs. This is generally regarded as an *indigenous* plant; but its localities seem to be quite restricted, and it looks like a stranger, in *Chester County*.

2. C. spithamàea, *Pursh.* Stem short, erect, or oblique, pubescent; leaves oblong, auriculate-cordate at base.
Convolvulus spithamaeus. *L. & Fl. Cestr. ed.* 2. *p.* 130.
SPAN-LONG CALYSTEGIA.

Perennial? *Stem* 8 to 12 inches long, erect and simple, or sometimes nearly procumbent, with assurgent branches. *Leaves* 2 to 3 inches long, often rounded at apex, sometimes acute or acuminate; *petioles* ¼ to ¾ of an inch in length.—*Peduncles* 2 to 4 inches long; *bracts* cordate-ovate, about ⅓ longer than the calyx; *corolla* about an inch and half in length, white.
Hab. Dry, hilly woodlands: frequent. *Fl.* June. *Fr.* Aug.

Obs. This species (of the *perennial* character of which, I am not quite satisfied) presents two pretty striking *varieties*, in habit and features; but they are probably nothing more than varieties.

321. CONVOL'VULUS, *L.*

[Latin, *convolvo*, to entwine, or wind about; descriptive of the plant.]

Calyx naked (the *bracts* being remote from the flower, and small). *Corolla* campanulate, or funnel-form. *Stamens* mostly included.—*Stigmas* 2, rarely 3, linear, globular, or capitate. Chiefly *trailing* or *twining* plants,—often with milky juice: *leaves* more or less cordate; *peduncles* axillary, 1- or few-flowered; *flowers* usually large.

§ 1. CONVOLVULUS PROPER: Stigmas 2, *linear*.

1. *C. arvénsis,* L. Stem procumbent, or sometimes twining, rather short; leaves ovate-oblong, obtuse, hastate-sagittate at base.
FIELD CONVOLVULUS. Field Bind-weed.

Perennial. *Stem* about 2 feet long, slender, branching, angular and striate, somewhat hairy. *Leaves* 1 to 1½ inches long,—the smaller ones rather acute—the larger ones obtuse, and often emarginate,—all with a minute cusp at the end of the midrib; *petioles* half an inch to an inch in length. *Peduncles* 1 to 2 or 3 inches long, with 2 small *bracts* situated ½ an inch to an inch below the flower; *corolla* about ¾ of an inch long, pale red, or reddish-white.
Hab. Cultivated lots. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This foreigner is gradually extending itself among us,—and will probably give our farmers much trouble, if they do not carefully guard against it. *Incessant vigilance* is said to be the condition, on which alone the rights of Freemen can be maintained; and I

believe the Farmer will find a similar condition annexed to the preservation of his premises from the inroads of pernicious *weeds*. This plant has proved to be a most obstinate nuisance, in the cultivated grounds of *England;* and I may add, that I have not yet seen it thoroughly extirpated from any locality, *here*,—where it had once got possession of the soil.

§ 2. IPOMAEA: Stigmas 2, *globular, or united in one.*

2. C. panduràtus, *L.* Stem trailing, long; leaves cordate, acuminate,—or often fiddle-shaped; flowers white, with pink tube.

FIDDLE-FORM CONVOLVULUS. Wild Potato-vine.

Perennial. Stem 4 to 6 or 8 feet long, smoothish. *Leaves* about 3 inches long, varying from roundish-cordate, to broadly sinuate and sub-lobed, on the sides, approaching a fiddle-shape; *petioles* 1 to 2 inches in length. *Peduncles* 2 to 4 or 5 inches long, often branched at summit, generally bearing 2 or 3 to 5 flowers, in fascicles; *bracts* at the base of the peduncles, small, resembling stipules; *corolla* about 2 inches long.

Hab. Old fields, and borders of woods: frequent. *Fl.* July. *Fr.* Sept.

3. C. BATÀTAS, L. Rhizomas thick, oblong, terete, tapering at each end; stems creeping; leaves subhastate-cordate, often somewhat 3-lobed.

POTATO CONVOLVULUS. Sweet Potato.

Perennial. Rhizomas 4 to 8 inches long, and 1 to 2 or 3 inches in diameter, purple, or yellowish-white, externally,—yellowish within. *Stems* several, 4 to 8 feet long, slender, pilose, prostrate and often radicating,—sometimes remarkably dilated, forming a kind of monstrosity. *Leaves* 2 to 4 inches long; *petioles* about 2 inches in length. *Corolla* purple (*fide* CHOISY, *in DC.*).

Hab. Gardens, and lots. Nat. of the Indies. *Fl.*

Obs. This plant is cultivated to some extent, in Chester County, for its sweet tuberous *rhizomas;* but the sandy soil of New Jersey seems best adapted to their perfection. I believe it has never *flowered*, in this region,—but is always propagated by cuttings, or *buds*, of the tuberous rhizomas. It is said to be *the Potato*, spoken of by writers of the Elizabethan age; the *Solanum tuberosum, L.* or "Irish Potato," so called (and now so common), being then scarcely known in the old world. KALM states,—"that species of *Convolvulus* which is commonly called *Batatas*, has here [viz. *Pennsylvania, in* 1748,] the name of *Bermudian Potatoes.*" That name is certainly, now (1852), quite obsolete. CHARLES BRYANT, in his *Flora Diaetetica*, published in 1783, says—"The *Batatas* is a native of both Indies, but has been a long time cultivated in Spain and Portugal, whence the roots are annually imported." And he adds, "these are certainly the same species of roots as those which COLUMBUS's Sailors were treated with by the inhabitants of Cuba, and which they said were very sweet, and when boiled tasted like Chestnuts."

§ 3. PHARBITIS: Stigmas *mostly* 3, *united and subcapitate.*

4. *C. purpùreus,* L. Stem twining; leaves roundish-cordate, acuminate; peduncles 2- or 3-flowered; pedicels clavate.

PURPLE CONVOLVULUS. Morning Glory.

Annual. *Stem* 6 to 12 or 15 feet long, hairy. *Leaves* 2 to 6 inches in length, and as wide as long; *petioles* 2 to 5 inches long. *Peduncles* 1 to 3 inches long (sometimes very short and 1-flowered), with 2 or 3 subulate *bracts* at the base of the pedicels; *calyx* conspicuously hairy; *corolla* about 2 inches long, purple, blue, variegated, or entirely white; *capsule* globose, mucronate, 3-celled.
Hab. Gardens, &c. Nat. of S. America. *Fl.* July. *Fr.* Aug.

Obs. This rather ornamental plant is naturalized in almost every garden; and is quite a favorite for training about humble doorways, and arbors.

SUBORDER II. CUSCUTINEAE.

Plants parasitic, smooth, orange-colored; *stems* twining (against the sun), filiform; *leaves* none, or represented by minute *scales*; *flowers* clustered; *corolla* 4- or 5-lobed; *embryo* filiform; *cotyledons* none!

322. CUS'CUTA, *Tournef.*

[A name of uncertain derivation; supposed to be Arabic.]

Calyx 4- or 5-cleft. *Corolla* globose-urceolate. *Stamens* 4 or 5, attached to the *tube*, and alternate with the *lobes*, of the corolla,—each with a *scale-like fringed appendage* at base. *Capsule* 2-celled, 4-seeded, circumscissed, or indehiscent, rarely bursting irregularly. Chiefly *annuals*: *flowers* small, whitish, cymose-clustered.

1. *C. epilinum*, Weihe. Stem very slender; flowers sessile, in small dense clusters; stigmas acute.
C. Europaea. *Fl. Cestr. ed.* 2. *p.* 167.

FLAX CUSCUTA. Flax-Vine. Dodder.

Stem 2 to 3 or 4 feet long, twining, branching, and much entangled. *Flowers* in small capitate clusters. *Scales* at the base of the stamens small. *Stigmas* elongated. *Capsule* circumscissed near the base.
Hab. Among Flax. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. This was formerly a great pest among the *Flax crops*,—entangling and spoiling large quantities; but since that culture has declined, here, it has become quite rare.

2. C. Gronòvii, *Willd.* Stem thickish-filiform; flowers pedunculate, in cymose clusters; stigmas capitate.
C. Americana. *Fl. Cestr. ed.* 2. *p.* 166.

GRONOVIUS'S CUSCUTA. Love-vine.

Stem 2 to 5 or 6 feet long, branching, fleshy, reddish-orange color,—twining round other plants, and attaching itself by radicating processes or tubercles, when it dies at the root, and loses its direct connection with the earth. *Flowers* in numerous subumbellate or cymose clusters. *Scales* oblong, conspicuously fringed. *Capsule* indehiscent, with the remains of the corolla persistent at the base.
Hab. Moist, low grounds; along streams: frequent. *Fl.* Aug. *Fr.* Octo.

Obs. This remarkable parasite—somewhat resembling *copper wire*, in appearance,—seizes upon any herb within its reach; but is most usually found clinging to such neighbors as *Impatiens*, *Lycopus*, *Boehmeria*, and *Mentha viridis*. The *Genus* comprises a number of species,—and has been ably investigated by that acute and learned Botanist, Dr. GEORGE ENGELMANN, of St. Louis, Missouri.

ORDER LXX. SOLANA'CEAE.

Mostly *herbs;* with a *watery juice; leaves* alternate, without *stipules; flowers* regular, chiefly pentamerous and pentandrous, on *bractless* pedicels; *corolla* plicate, or infolded-valvate in the bud; *stamens* inserted into the corolla, as many as its lobes, and alternate with them; fruit a many-seed *berry*, or *capsule*; *seeds* with fleshy *albumen*.

An Order affording many powerful narcotics, and stimulants,—as well as some valuable esculents; several of which are here enumerated.

† Corolla *tubular, or funnel-form;* stamens *separate.*
* Fruit *a berry.*

323. LY'CIUM, *L.*

[Named from *Lycia*, in Asia Minor; the native place of one species.]

Calyx irregularly 2- or 3- to 5-cleft, persistent. *Corolla* tubular-funnel-form; *border* mostly 5-lobed, spreading. *Stamens* usually exserted; *filaments* bearded. *Berry* 2-celled. *Seeds* reniform.—*Shrubby vines: leaves* entire; *peduncles* extra-axillary, solitary, or in pairs.

1. *L. Bárbarum*, L. Somewhat spinose; branches elongated, flaccid and dependent; leaves oblong-lanceolate, often clustered; calyx mostly 3-cleft.

Barbarian Lycium. Bastard Jasmine. Matrimony-Vine.

Perennial. Stem 10 to 15 or 20 feet long, slender, much branched, with indurated points, or spinose rudiments, at the axils or base of the leaves. *Leaves* 1 to 3 inches long, tapering at base to *a petiole* about half an inch in length. *Peduncles* about an inch long, slender, often 2 or 4 together; *corolla* greenish-purple; *berry* oval, orange-red when mature.

Hab. About houses. Nat. of Northern Asia. *Fl.* June. *Fr.* July.

Obs. This straggling half-vine kind of shrub is partially naturalized in many places; and being rather difficult to get rid of, when once established, is often something of a nuisance.

* * Fruit *a capsule.*

324. NICOTIA'NA, *L.*

[Named after *John Nicot;* who is said to have introduced it into France.]

Calyx ventricose-tubular, persistent. *Corolla* tubular, with the *border* spreading, plicately 5-lobed. *Stamens* included. *Stigma* capitate. *Capsule* covered by the calyx, septicidally 2-valved at apex,—often finally loculicidal. *Seeds* minute, very numerous.—Mostly clammy-pubescent *annuals: leaves* entire, often large; *flowers* paniculate.

1. N. Tabàcum, L. Leaves lance-ovate, acute or acuminate, sessile and decurrent; corolla-lobes acuminate,—the throat inflated.

Tobago Nicotiana. Tobacco. Common Tobacco.

Stem 4 to 6 feet high, stout, finally almost woody at base, paniculately branched at summit. *Leaves* 1 to 2 feet long, smaller as they ascend. *Calyx* about ⅓ the length of the corolla,—the *segments* lanceolate, erect. *Corolla* about 2 inches long,—the *border* rose-colored, *tube* pale greenish-yellow. *Capsule* ovoid, sulcate on each side; *seeds* reniform, rugose.

Hab. Gardens, and lots. Nat. of Southern America. *Fl.* July. *Fr.* Sept.

Obs. This plant—which became known to Europeans about the year 1560—though sparingly cultivated in *Chester County*, is a staple article among the Planters of several Southern and Western States. The commercial importance which this nauseous and powerful narcotic has acquired,—together with the modes, and extent, in which it is employed to gratify the senses,—certainly constitutes one of the most remarkable traits in the history of civilized man.—Were we not so practically familiar with the business, we should, doubtless, be disposed to regard the whole story of the *Tobacco trade*—and of the *uses* made of the disgusting herb—as an absurd and extravagant fable. In view of the facts and circumstances, it does seem like sheer affectation, on our part, to pretend to be astonished at the indulgence of the Chinese, and other Asiatics, in the use of *Opium*. The habitual use of *Tobacco* is always more or less injurious to the system—especially the nervous system; and in many instances it is highly deleterious. I speak from long observation, and personal experience,—having *smoked* and *chewed* the herb, until its pernicious effects compelled me to *es-chew* it altogether.

325. DATURA, *L.*

[Supposed to be from *Tatorah*,—the Arabic name of the plant.]

Calyx tubular, prismatic, separating transversely above the base, in fruit. *Corolla* funnel-form,—the *border* plicately 5-toothed.—*Stamens* included. *Stigma* 2-lipped. *Capsule* oval, or subglobose, mostly prickly, 4-valved, 4-celled at base, 2-celled at summit.—*Seeds* subreniform, roughish-dotted. Coarse *annuals*, fetid when bruised: *leaves* somewhat in opposite pairs; *flowers* large, solitary, axillary or dichotomal, on short peduncles.

1. *D. Stramònium*, L. Smooth; stem dichotomously branching; leaves ovate, angulate, or sinuate-dentate, petiolate; capsule muricate, erect.

Jamestown (corruptly *Jimson*) Weed. Thorn-apple.

Stem 2 to 5 feet high, rather stout, terete, pale yellowish-green (brownish-purple in *var. Tatula*). *Leaves* 4 to 6 or 8 inches long; *petioles* 1 to 3 or 4 inches in length. *Calyx* prominently 5-angled, nearly half as long as the corolla, deciduous, leaving the persistent base orbicular. *Corolla* about 3 inches long, ochroleucous (pale violet-purple in *var. Tatula*). *Capsule* about an inch in diameter.
Hab. Waste places: introduced. *Fl.* July. *Fr.* Sept.

Obs. The *variety*, *Tatula*—with dark purple stems, and purplish flowers,—is the one which prevails in *Chester County;* though the other is common in and around Philadelphia,—and is gradually extending in this direction. It is generally put down as a native of America; but I strongly suspect it is of Asiatic origin,—and am very confident it is a stranger in this region. The *herb*, and *seeds*, are powerfully narcotic poisons,—and therefore, no doubt, potent medicines, when properly administered; but the plant is regarded, and treated, as an obnoxious *weed*, by all neat farmers.

†† Corolla *campanulate, or rotate;* stamens *connivent;* fruit a *berry*.

* Anthers *opening longitudinally*.

326. NICAN'DRA, *Adans.*

[Dedicated to *Nicander;* a sort of Natural-History Poet, of Colophon, in Ionia.]

Calyx 5-parted, acutely 5-angled; *segments* sagittate-ovate, enlarged in fruit, and inclosing the 3- to 5-celled globular *dry berry*. *Corolla* spreading-campanulate, with the plicate *border* nearly entire.—*Annual:* smooth; *leaves* like those of *Datura; flowers* solitary, on extra-axillary and terminal peduncles.

1. *N. physaloïdes*, Gaertn. Stem branching; leaves oblong-ovate, sinuate-angled,—the upper ones often opposite.

PHYSALIS-LIKE NICANDRA. Apple of Peru.

Stem 2 to 4 feet high; *branches* angular, spreading. *Leaves* 3 to 5 or 6 inches long, decurrent on the *petioles*, which are 1 to 2 inches in length. *Peduncles* 1 to 2 inches long; *calyx-segments* cuspidate-acuminate, membranous, reticulately veined; *corolla* pale blue, whitish at bottom and marked with 5 radiating blue spots.
Hab. Gardens. Nat. of Peru. *Fl.* July. *Fr.* Sept.

Obs. This plant seems to be naturalized in many of our gardens.

327. PHY'SALIS, *L.*

[Gr. *Physa*, a bladder, or bag; in allusion to the inflated calyx.]

Calyx 5-cleft, enlarging after flowering, becoming much inflated, and including the 2-celled globular *fleshy berry*. *Corolla* spreading-campanulate,—the plicate *border* somewhat 5-lobed. *Leaves* somewhat in pairs; *peduncles* extra-axillary, 1-flowered.

1. P. viscòsa, *L.* Divergently branching; leaves sub-cordate-ovate, repand-dentate; flowers nodding.

CLAMMY PHYSALIS. Ground-Cherry.

Plant viscid-pubescent; *perennial?* *Stem* 12 to 18 inches high, branched somewhat dichotomously. *Leaves* 2 to 4 inches long, varying from lance-ovate and acute, to roundish-ovate or subcordate and obtuse; *petioles* 1 to 2 inches long.—*Corolla* greenish-yellow, with fuscous or purplish-brown spots at base, about twice as long as the calyx. *Berry* greenish-yellow, or sometimes orange color, when mature, clammy. *Peduncles* of the fruit about an inch long.
Hab. Roadsides, fields, and fence-rows: frequent. *Fl.* July. *Fr.* Sept.

Obs. The *P. lanceolata*, of the preceding edition, being somewhat uncertain,—and having never found it, myself,—I prefer leaving it for some future investigator to determine whether it really belongs to our *Chester County Flora*.

328. CAP'SICUM. *Tournef.*

[Gr. *Kapto*, to bite; in allusion to its hot or biting quality.]

Calyx angular, 5- or 6-cleft, persistent. *Corolla* sub-rotate; *border* plicate, 5- or 6-lobed. *Stamens* 5 or 6, exserted. *Berry* inflated, with a fleshy rind, or nearly dry, polymorphous, incompletely 2- or 3-celled; *seeds* compressed, reniform.

1. C. ÁNNUUM, L. Herbaceous; leaves ovate, acuminate, entire, glabrous; peduncles solitary, axillary.

ANNUAL CAPSICUM. Red Pepper. Cayenne Pepper.

Stem 1 to 2 feet high, angular, branching above. *Leaves* 2 to 4 inches long; *petioles* 1 to 3 inches in length, semi-terete, slightly channelled above. *Peduncles*

about an inch long; *calyx-segments* short; *corolla* white, with ovate-oblong spreading lobes. *Berry* hollow, terete and slender, ovoid-oblong, or depressed-globose, angular or torose, usually red when mature.
Hab. Gardens. Nat. of S. America. *Fl.* July. *Fr.* Octo.

Obs. Cultivated for its *fruit*,—which is powerfully stimulant, and much used as a condiment.

329. LYCOPER'SICUM, *Tournef.*

[Gr. *Lykos*, a wolf, and *Persikon*, a peach; having reference to the fruit.]

Calyx 5- to 10-parted, spreading, persistent. *Corolla* rotate; *border* plicate, 5- to 10-lobed. *Stamens* 5 or 6, exserted; *anthers* oblong-conical, cohering by an elongated membrane at summit, opening on the inner side. *Berry* 2- or 3-celled; *seeds* reniform, pulpy-villous. *Leaves* odd-pinnately dissected; *flowers* in lateral racemose clusters.

1. L. ESCULÉNTUM, Miller. Leaves interruptedly pseudo-pinnate,—the leaflets lance-ovate, incised-serrate, petiolulate; fruit mostly depressed, orbicular and torose.
Solanum Lycopersicum. *L. & Fl. Cestr. ed.* 2. *p.* 137.

ESCULENT LYCOPERSICUM. Tomato. Love-apple.

Annual; greyish-green, viscid-pubescent, and rather fetid. *Stem* 2 to 4 feet long, branching, straggling and procumbent unless supported. *Flowers* yellow.—*Berries* 1 to 3 or 4 inches in diameter (sometimes globular and smaller), usually red, or reddish-orange, when mature.
Hab. Gardens. Nat. of Spanish America. *Fl.* June. *Fr.* Aug.

Obs. Well known, and extensively cultivated for its *fruit*,—which is used as a vegetable sauce.

** Anthers *opening by terminal pores.*

330. SOLA'NUM, *L.*

[A name of uncertain derivation, and obscure meaning.]

Calyx mostly 5-parted, spreading, persistent. *Corolla* rotate; *border* plicate, usually 5-lobed. *Stamens* exserted, often slightly cohering. *Berry* mostly 2-celled. *Leaves* various; *flowers* mostly in pedunculate cymose clusters.

‡ 1. Stem *and* leaves *unarmed.*

1. S. TUBERO'SUM, L. Rhizomas tuberous, oblong, or roundish; leaves interruptedly pseudo-pinnate,—the leaflets ovate, entire; fruit globular, rather small, greenish-yellow.

TUBEROUS SOLANUM. Common Potato. Irish Potato.

Stem herbaceous and *annual*, 2 to 3 feet high, simple, angular, thickish, finally decumbent,—the base and roots producing numerous fleshy *rhizomas*. *Flowers* in terminal nodding cymes, on a *common peduncle* 3 to 5 inches in length; *pedicels* articulated; *corolla* bluish-white; *berries* about half an inch in diameter.
Hab. Gardens, and fields. Nat. of S. America. *Fl.* June. *Fr.* Sept.

Obs. This most important plant is known, and cultivated for its esculent *tuberous rhizomas*, by every occupant of land. It has become one of the indispensable crops, for a family. Long culture has, of course, produced tubers of various color and quality.—CHARLES BRYANT (in his *Flora Diaetetica*, 1783,) says, "the com-

mon *Potato* is a native of Peru, in South America. It has been introduced into England about a century and a half, but was amongst us a long time before much attention was paid to it, nor did it come into use in the families of the higher class of people, till within a few years past."

2. *S. nìgrum*, L. Leaves ovate, obscurely repand-dentate; flowers in lateral umbel-like cymes; fruit globose, small, black.

BLACK SOLANUM. Common Night-shade.

Annual. Stem 1 to 2 feet high, much branched, angular, or slightly winged.—*Leaves* 2 to 3 inches long; *petioles* about an inch in length. Umbel-like *cymes* few-flowered, extra-axillary, nodding. *Corolla* white, small. *Berries* about ¼ of an inch in diameter.

Hab. Waste places. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. The books enumerate a *var. Virginicum*,—as though it were indigenous; but I am pretty well satisfied that our plant is a naturalized foreigner. It is a worthless, disagreeable *weed*—reputed poisonous, withal,—and ought to be expelled from the vicinity of all dwellings.

3. *S. Dulcamàra*, L. Somewhat shrubby and climbing; leaves cordate-ovate,—the upper ones often hastate, or auriculate-lobed at base; flowers in lateral cymes; fruit oval, small, red.

BITTER-SWEET SOLANUM. Bitter-sweet. Woody Nightshade.

Perennial. Stem 4 to 6 or 8 feet long, flexuose, smoothish. *Leaves* 2 to 4 inches long; *petioles* ½ an inch to an inch in length. *Cymes* opposite the leaves, nodding; *pedicels* half an inch long, clavate; *common peduncle* about 2 inches in length; *corolla* violet-purple,—the lobes spreading or reflexed, each with 2 green dots, or tubercles, at base. *Berry* near ½ an inch long.

Hab. About houses, &c. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. This has become naturalized in many places. The *berries* are poisonous; and as their bright red appearance, when ripe, may tempt children to eat them, the plant is not a desirable one, about houses, or gardens.

§ 2. Stem *and* leaves *more or less prickly.*

4. S. MELONGÈNA, L. Tomentose; leaves ovate, sinuate-lobed, unequal at base; flowers 5- to 7- or 10-parted, pendulous, on lateral thickened solitary peduncles; fruit ovoid, or oval, white, or dark purple, mostly very large.

S. insanum. *L. & Fl. Cestr. ed.* 2. *p.* 137.

Egg-plant. Mad Apple. Jews' Apple,

Annual. Plant clothed with a whitish stellate tomentum. *Stem* about 2 feet high, becoming somewhat woody at base. *Leaves* 4 to 8 or 9 inches long; *petioles* 1 to 3 inches in length. *Peduncles* sometimes dichotomous, bearing 2 flowers.—*Corolla* violet-purple, pubescent. *Berries* 3 to 6 or 8 inches in diameter.

Hab. Gardens. Nat. of India. *Fl.* July. *Fr.* Sept.

Obs. Cultivated for the *fruit*. Long culture, as usual, has produced several striking *varieties*. The *var. ovigerum*, or true Egg-plant, is nearly destitute of prickles, and bears a smaller white berry, which exceedingly resembles an Egg: while the *var. esculen-*

tum (which is most generally cultivated) is quite prickly, and bears a dark purple berry, which sometimes attains to an enormous size, and is roundish, or obovoid.

5. *S. Carolinense*, L. Stem suffruticose, branching; leaves ovate-oblong, acute, sinuate-angled and often subhastate, prickly on both sides; flowers in loose simple lateral racemes; fruit globose, small, orange-yellow.

CAROLINIAN SOLANUM. Horse-Nettle.

Perennial. Stem 1 to near 2 feet high, annual, but firm and almost shrubby, armed with sharp spreading prickles. *Leaves* 4 to 6 inches long, stellately hirsute; *petioles* half an inch to 1½ inches long. *Racemes* opposite to and often longer than the leaves; *pedicels* about half an inch in length; *corolla* purplish or bluish-white. *Berries* ¼ to ⅓ of an inch in diameter.

Hab. Pastures, &c. Nat. of the Southern States. *Fl.* July. *Fr.* Octo.

Obs. This is an exceedingly pernicious *weed*,—and the roots so tenacious of life that, when once fully introduced, it is almost impracticable to get rid of it. It was probably introduced from the South, by the late HUMPHRY MARSHALL, into his Botanic Garden at Marshallton,—whence it has gradually extended itself round the neighborhood; and strongly illustrates the necessity of caution, in admitting mere Botanical curiosities into good agricultural districts.

ORDER LXXI. GENTIANÀCEAE.

Smooth *herbs*, with a *colorless bitter juice*; *leaves* mostly opposite, entire and sessile; *stipules* none; *flowers* regular; *stamens* as many as the lobes of the corolla, and alternate with them; *anthers* opening on one side; *ovary* formed of 2 united carpels, 1-celled, or half 2-celled, with *parietal placentae*; *capsule* 2-valved, septicidal, many-seeded; *seeds* with fleshy *albumen*.

An Order containing many beautiful species,—and some of them valuable for their medicinal properties.

SUBORDER I. GENTIA'NEAE.

Corolla-lobes, in the bud, twisted against the sun (i. e. to the *left*, if you look into the centre of the flower); *seed-coat* membranaceous, cellular.

† Style *distinct, slender, deciduous*; anthers *curved, or spiral.*

331. SABBAT'IA, *Adans.*

[Dedicated to *Liberatus Sabbati*; an Italian Botanist.]

Calyx 5- to 12-parted. *Corolla* sub-rotate, 5- to 12-lobed. *Anthers* at first erect, finally recurved. *Style* 2-parted,—the *branches* stigmatiferous, at length spirally twisted. Slender *biennials? flowers* in a terminal corymbose panicle.

1. S. angulàris, *Pursh.* Stem acutely 4-angled; leaves oblong-ovate, clasping; calyx 5- or 6-parted,—the segments lance-linear.

ANGULAR SABBATIA. American Centaury.

Stem 12 to 18 inches high, often much branched and bushy above; *branches* opposite and erect. *Leaves* about an inch long, rather acute. *Corolla* twice the length of the calyx, pale red. *Capsule* oblong-ovoid, mucronate, with a keeled suture on each side.

Hab. Sterile old fields; serpentine-rocks: frequent. *Fl.* July. *Fr.* Sept.

Obs. This pretty plant is intensely bitter, and deservedly popular as a tonic. The books speak of this, and all the other species, as *biennials*,—and they may be so; but I confess that our plant always appeared to me like an *annual*.

332. ERYTHRAE'A, *Persoon.*

[Gr. *Erythros*, red; in allusion to the color of the flowers.]

Calyx 2- or 5-parted; *segments* slender, appressed. *Corolla* funnel-form, slender; *border* 4- or 5-lobed, withering and twisting on the capsule. *Anthers* exserted, erect, becoming spirally twisted.—*Stigma* 2-lipped, or sometimes capitate. *Capsule* sub-linear. *Annuals: flowers* in a dichotomous bushy panicle.

1. *E. ramosissima*, Pers. var. *pulchélla*, Griseb. Dichotomously branched; leaves ovate-oblong; flowers all pedunculate.
E. pulchella. *Hook. & Fl. Cestr. ed.* 2. *p.* 126.
MOST-BRANCHED ERYTHRAEA.

Stem 2 to 6 inches high, 4-angled and slightly winged, sometimes brachiately branched, rarely simple. *Leaves* about half an inch long, rather acute. *Flowers* axillary, solitary, or terminating the branches in pairs,—generally one in the forks of the stem or branches, on angular *peduncles* ⅛ to near half an inch in length; *calyx* 5-angled, 5-parted; *segments* subulate, at first nearly as long as the corolla-tube, finally little more than half as long; *corolla* with the *border* bright red, the *lobes* mostly erect, the *tube* yellowish-green, near half an inch long.
Hab. Great Valley. Nat. of Europe. *Fl.* July. *Fr.* Aug.

Obs. This delicate little plant is naturalized, in a few localities, in *Chester*, and the adjoining county of *Lancaster*.

†† Style (*if any*) *and* stigmas *persistent;* anthers *straight.*

333. BARTO'NIA, *Muhl.*

[Dedicated to Prof. *B. S. Barton*, of the University of Pennsylvania.]

Calyx deeply 4-parted, appressed. *Corolla* subcampanulate, 4-parted, destitute of *folds, fringes*, or *glands*. *Stamens* short. *Ovary* tapering into a very short *style; stigma* 2-lobed,—the *lobes* decurrent on the style. Small smooth *annuals: stems* filiform; *leaves* scale-like, or subulate; *flowers* terminal, subpaniculate.

1. B. tenélla, *Muhl.* Stem paniculate above; leaves subulate, appressed; peduncles opposite.
B. paniculata. *Fl. Cestr. ed.* 2. *p.* 111.
DELICATE BARTONIA.

Plant yellowish-green. *Stem* 3 or 4 to 10 or 12 inches high, angular by the decurrence of the leaves, often twisted. *Leaves* scarcely ¼ of an inch in length.—*Flowers* often terminating the branches in threes; *peduncles* about ¼ of an inch long, *bracteate* at base; *corolla* pale greenish-yellow, longer than the calyx.—*Capsule* oblong, compressed, 1-celled, 2-valved, with sutural *placentae; seeds* numerous, minute, reddish.
Hab. Moist, low grounds; clearings, &c.: frequent. *Fl.* Aug. *Fr.* Octo.

334. GENTIA'NA, *L.*

[Named from *Gentius*, king of Illyria; who, it is alleged, first used it.]

Calyx 4- or 5-cleft. *Corolla* 4- or 5-lobed,—usually with intermediate *plaited folds*, which bear *appendages* at the sinuses. *Stamens*

included. *Style* none, or a mere point of the ovary; *stigmas* 2.— *Capsule* oblong. *Flowers* solitary, or cymose, large.

§ 1. CROSSOPETALUM: Corolla *subcampanulate, 4-lobed, without* plaited folds; lobes *fringed;* anthers *incumbent;* seeds *oblong, scaly-hispid.* Annuals, *or* biennials.

1. G. crinita, *Froelich.* Leaves ovate-lanceolate; flowers solitary, on long terminal naked peduncles; calyx acutely 4-angled.

HAIRED GENTIANA. Fringed Gentian.

Annual? smooth. *Stem* 1 to 2 feet high, terete, branched; *branches* opposite, axillary, erect, 4-angled and slightly winged. *Leaves* 1 to 2 or 3 inches long, closely sessile. *Corolla* about 2 inches long, bright blue, and beautifully fringed. *Seeds* curiously echinate, or hispid.

Hab. Hilly open woodlands; old fields, &c.: frequent. *Fl.* Octo. *Fr.* Novem.

Obs. I have long suspected this autumnal beauty to be an *annual;* but was not aware, until recently, that PETER COLLINSON had entertained the same suspicion, nearly a century before me. Authors generally regard it as a *biennial:* which is it?

§ 2. PNEUMONANTHE: Corolla *subcampanulate, or clavate, 5-lobed, with intermediate* plaited folds; anthers *erect, sometimes cohering;* seeds *usually flat, and margined.* Perennials.

2. G. Saponària, *L. var.* pubérula, *Torr. & Gray.* Roughish-puberulent; leaves narrow, sub-linear; corolla open, subcampanulate.

SOAP-WORT GENTIANA (puberulent narrow-leaved *variety*).

Stem 12 to 18 inches high, rather slender, but rigid. *Leaves* 1 to 2½ inches long, varying from oblong-lanceolate to narrowly linear, often broader at base.— *Flowers* clustered at summit, and more or less so in the axils; *corolla* blue, about an inch, or inch and half long; *anthers* at first cohering, finally free; *seeds* narrowly margined.

Hab. Sandy grounds; near New London: rare. *Fl.* Sept. *Fr.* Octo.

Obs. There has been much confusion respecting two or three of our Gentians. The *true* G. *Saponaria,* of *Linn.* it appears, is a Southern plant,—and is the G. *Catesbaei,* of *Walter.* Of this, there are *two varieties;* of which the *pubérula,* of *Mx.* is now regarded as one. It was collected in the locality above named, in 1848, by Mr. VINCENT BARNARD, an active and intelligent young Naturalist of this County. The G. *Saponaria,* of *Fl. Cestrica, ed.* 2. is now G. *Andrewsii,* of GRISEBACH—which see.

3. G. álba, *Muhl.* Smooth; leaves elliptic-lanceolate, and obovate, closely clasping and slightly decurrent; corolla ventricose-campanulate, finally open,—the lobes short and broadly ovate.

G. ochroleuca. *Fl. Cestr. ed.* 2. *p.* 165. not of FROELICH, nor GRAY.

WHITE GENTIANA.

Stem 9 to 15 inches high. *Leaves* 1 or 2 to 4 inches long, indistinctly 3-nerved, subcoriaceous. *Flowers* mostly in a terminal bracteate cluster; *calyx-tube* about ½ an inch long,—the *segments* linear-lanceolate, ¾ of an inch in length; *corolla* about an inch and half long, yellowish-white,—with tinges of pale green, or sometimes of purplish-blue; *outer lobes* entire, *inner ones* serrate-dentate; *anthers* finally free; *seeds* rather broadly margined.

Hab. Fields, and woodlands: not common. *Fl.* Sept. *Fr.* Nov.

Obs. This has long been confounded with, or mistaken for, G. *ochroleuca;* but Dr. GRAY has finally determined its character.

4. G. Andréwsii, *Griseb.* Smooth; leaves ovate-lanceolate, acute; corolla ventricose-clavate,—the lobes and appendages connivent, closing the mouth.
G. Saponaria. *Fl. Cestr. ed.* 2. *p.* 165. not of *L.*
ANDREWS'S GENTIANA. Closed Gentian.

Stem 1 to 2 feet high. *Leaves* about 3 inches long, subconnate by a sheathing membrane, 3-nerved, roughish on the margin. *Flowers* chiefly in a dense terminal sessile fascicle, with bract-like leaves at base,—often with few-flowered pedunculate fascicles in the axils below; *calyx-tube* half an inch long,—the *segments* lance-ovate, minutely ciliate, about half the length of the tube; *corolla* 2 inches long, contracted and nearly closed at summit, bright blue, paler in the folds; *outer lobes* very short, or obsolete,—the *inner ones* lacerate-serrate; *anthers* cohering; *seeds* broadly margined.
Hab. Low grounds; margins of Swamps: frequent. *Fl.* Sept. *Fr.* Nov.

Obs. This pretty species has long passed for G. *Saponaria,* among the Botanists of the northern and middle States; and, in fact, it more nearly resembles *Saponaria officinalis,* in habit, than the one named for it, by LINNAEUS.

SUBORDER II. OBOLARIE'AE.

Calyx 2-leaved; *corolla-lobes* imbricated in the bud; *ovules* covering the whole inner surface of the ovary!

335. OBOLA'RIA, *L.*

[Gr. *Obolos,* a small Athenian coin; from the form of the leaves.]

Calyx of 2 distinct, spatulate, bract-like *sepals.* *Corolla* tubular-campanulate, 4-lobed, withering and persistent. *Stamens* inserted at the sinuses of the corolla, short. *Style* short, persistent; *stigma* 2-lipped. *Capsule* ovoid, partly 2- to 4-celled; *seeds* numerous, very minute. A low, smooth, purplish-green *perennial? flowers* axillary and terminal.

O. Virginica, *L.* Leaves somewhat fleshy, cuneate-obovate, or sub-rhomboid, often truncate, sessile and slightly decurrent.
VIRGINIAN OBOLARIA. Penny-wort.

Stem 3 to 6 or 8 inches high, often several from the same root, simple, or with a few axillary branches above. *Leaves* ¼ to ¾ an inch long, somewhat crowded above,—the lower ones in distant pairs, and very small. *Flowers* opposite, or terminal in threes, subsessile; *sepals* resembling the leaves; *corolla* pale purple, or sometimes nearly white.
Hab. Rich woodlands, among dead leaves: frequent. *Fl.* April. *Fr.* June.

ORDER LXXII. APOCYNÀCEAE.

Plants with a milky juice; leaves entire, mostly opposite, without *stipules; flowers* regular, pentamerous and pentandrous; *corolla-lobes* convolute and twisted in the bud; *stamens* alternate with the lobes; *filaments* mostly distinct; *pollen* granular; *fruit* usually a *follicle,* with the *seeds* comose, sparingly *albuminous.*

336. APO'CYNUM, *Tournef.*

[Gr. *Apo,* far from, and *Kyon,* a dog; being thought destructive of that animal.]

Calyx 5-parted. *Corolla* campanulate, 5-lobed, with 5 triangular

appendages in the *throat*, opposite the lobes. *Stamens* inserted at the base of the corolla, short; *anthers* sagittate, connivent, slightly adherent to the *stigmas*. *Ovaries* 2, oblong, surrounded at base by 5 glands. *Follicles* in pairs, rigid, long and slender; *seeds* imbricated, linear, with a silky tuft (*coma*) at apex. *Perennial herbs: flowers* in axillary or terminal paniculate cymes.

1. A. androsaemifòlium, *L.* Leaves ovate, rounded at base; cymes few-flowered; corolla-tube longer than the calyx,—the lobes recurved.

ANDROSAEMUM-LEAVED APOCYNUM. Dog's-bane.

Stem 2 to 3 feet high, smooth, purple, erect, with spreading branches. *Leaves* 2 to 3 inches long, acute, mucronate; *petioles* about ¼ of an inch in length. *Cymes* mostly terminal; *pedicels* with subulate *bracts* at base; *calyx-segments* lance-ovate, about half as long as the corolla-tube; *corolla* pale red, or whitish with purple stripes. *Ovaries* distinct; *stigmas* united, large. *Follicles* about 4 inches long, terete, attenuated at apex; *seeds* ¼ of an inch in length, very narrow, truncate at apex.

Hab. Copses; fence-rows, &c.: frequent. *Fl.* June. *Fr.* Sept.

2. A. cannabìnum, *L.* Leaves lance-oblong, acute at each end; cymes many-flowered; corolla-tube the length of the calyx,—the lobes erect.

HEMP APOCYNUM. Indian Hemp.

Stem 2 to 4 feet high, smooth, purplish and a little glaucous, with rather erect branches. *Leaves* 2 to 4 or 5 inches long, varying from ovate-lanceolate to linear-oblong, acute, or conspicuously mucronate; *petioles* ¼ to ½ an inch in length.—*Cymes* somewhat paniculate, one frequently dichotomal near the summit; *pedicels* with lance-linear *bracts* at base; *calyx-segments* lanceolate, about as long as the corolla-tube; *corolla* mostly greenish-white, sometimes tinged with red. *Follicles* as in the preceding, but more slender.

Hab. Borders of woods; slaty hills: not common. *Fl.* Aug. *Fr.*

Obs. The *bark* of this species is said to afford a strong fibre, like that of *hemp:* whence its common name.

ORDER LXXIII. ASCLEPIADÀCEAE.

Perennial herbs, mostly with a *milky juice; leaves* entire, usually opposite (sometimes verticillate, rarely scattered), *stipules* none; *flowers* regular, pentamerous and pentandrous; *corolla-lobes* mostly valvate in the bud; *filaments* mostly dilated, and connate in a tube, inclosing the pistils,—the *tube* augmented by a *crown* of 5 lobes, or scales, at summit; *anthers* erect, united in a pyramidal 5-*angled mass* which is truncate at apex,—each 2-celled; *cells* opening perpendicularly, or transversely; *pollen* in waxy masses, which are attached, in pairs, to 5 small processes at the angles of the stigma; *ovaries* 2; *styles* distinct, coalesced at summit, forming a 5-angled *stigma* common to both; *fruit* a *follicle*; *seeds* imbricated, compressed, mostly margined and comose; *albumen* thin.

An Order remarkable for the peculiar structure of the flowers (well illustrated in Prof. GRAY'S admirable *Botanical Text Book*),—and containing a number of plants interesting to the curious; though but few of any economical value.

337. ASCLE\PIAS, *L.*

[The Greek name of *Æsculapius;* to whom the genus is dedicated.]

Calyx deeply 5-parted, persistent; *segments* lanceolate, spreading.

Corolla 5-parted, reflexed, deciduous. *Crown* of 5 *hooded lobes*, each containing a subulate or horn-like *incurved process*. *Anthers* adherent to the stigma, tipt with membranaceous appendages,—the *cells* opening perpendicularly, with rigid projecting wing-like margins; *each cell* containing a flattened pyriform *waxy pollen-mass*,—the two contiguous pollen-masses of adjacent anthers forming pairs, which hang by their slender summits from 5 small black shining cloven *tubercles*, or glands, at the angles of the *stigma*. *Ovaries* in pairs, one of them usually abortive. *Follicles* somewhat ventricose, acuminate, soft; *seeds* numerous, each with a tuft of silky hairs at the *hilum*. *Flowers* in *simple* pedunculate *umbels*, terminal and lateral.

§ 1. Follicles *muricate with flexible points;* leaves *opposite.*

1. A. Cornùti, *Decaisne.* Leaves elliptic-ovate or oblong, acute, tomentose beneath; umbels subterminal.
A. Syriaca. *L. & Fl. Cestr. ed.* 2. *p.* 169.

Cornutus's Asclepias. Silk-weed. Wild Cotton.

Stem 3 to 4 feet high, rather stout, simple or nearly so, smoothish. *Leaves* 6 to 8 inches long, acute, or with a small acumination; *petioles* about half an inch in length. *Umbels* 2 to 4, axillary near the summit of the stem; *common peduncles* 2 to 3 inches long; *pedicels* 1 to 1½ inches in length, with lance-linear *bracts* at base; *flowers* numerous, rather large, sweet-scented, many of them abortive; *corolla* greenish-purple; *follicles* few, 3 to 5 inches long; *seeds* ovate, or pyriform.
Hab. Low grounds; along streams: frequent. *Fl.* June. *Fr.* Sept.

Obs. This coarse species appears to have been named, by Linnaeus, under the mistaken impression that it was a *Syrian* plant; but, being exclusively *American*, it has been deemed expedient to correct the misnomer, of *Syriaca*, and substitute that of the man who first noticed it in a history of Canadian plants.

§ 2. Follicles *not muricate.* † Leaves *mostly opposite.*
* Stems *simple or nearly so.*

2. A. phytolaccoides, *Pursh.* Leaves ovate, or oval-lanceolate, acuminate; umbels mostly lateral, long-pedicelled and loose.

Phytolacca-like Asclepias. Poke-leaved Swallow-wort.

Stem 3 to 4 or 5 feet high, rather slender, somewhat pubescent in lines. *Leaves* 6 to 9 inches long, acute at each end; *petioles* about half an inch in length.—*Umbels* sometimes terminal as well as lateral; *common peduncles* 2 to 3 inches long; *pedicels* 1 to 1½ inches in length, slender and flaccid, with subulate-linear *bracts* at base; *corolla* greenish-white; *crown* with tinges of purple at base; *follicles* 4 to 6 inches long, minutely pubescent.
Hab. Copses; fence-rows, &c.: frequent. *Fl.* June. *Fr.* Sept.

3. A. purpurascens, *L.* Leaves elliptic, or ovate-oblong, rather obtuse and mucronate; umbels terminal, erect.
A. amoena. *Mx. & Fl. Cestr. ed.* 2. *p.* 169.

Purplish Asclepias.

Stem 2 to 3 feet high, somewhat corymbosely branched above, mostly marked with 2 pubescent lines. *Leaves* 4 to 6 inches long, sometimes acute, or with a small abrupt acumination; *petioles* ¼ to ½ an inch in length. *Umbels* numerous; *common peduncles* 1 to 2 inches long; *pedicels* near an inch in length, with subulate

bracts at base; *corolla* bright purple; *crown* pale red; *follicles* 4 or 5 inches long.
Hab. Fence-rows; old fields, &c: frequent. *Fl.* June. *Fr.* Sept.

4. A. variegàta, *L.* Leaves ovate, oval, or obovate, subglaucous beneath; umbels subterminal, rather dense-flowered.
VARIEGATED ASCLEPIAS.

Stem 2 to 3 feet high, sub-simple, often with a short horizontal branch at summit, nearly smooth. *Leaves* 3 to 5 inches long, mostly rather acute, and mucronate, the lower ones rounded and emarginate; *petioles* ½ an inch to ¾ in length.—*Umbels* few (1 to 3 or 4); *common peduncles* ½ an inch to 1½ inches long; *pedicels* ½ an inch to ¾ in length, with setaceous *bracts* at base; *corolla* greenish externally, white within; *crown* white, purple at base; *follicles* 4 to 5 inches long.
Hab. Woodlands; slaty hills: frequent. *Fl.* June. *Fr.* Sept.

5. A. quadrifòlia, *Jacq.* Leaves ovate-lanceolate, acuminate, —the middle ones in a whorl of 4; umbels terminal, loose.
FOUR-LEAVED ASCLEPIAS.

Stem 18 inches to 2 or 3 feet high, slender, smooth, with a pubescent line. *Leaves* 2 to 5 inches long, all opposite except a whorl of 4 at the middle of the stem, thin and membranous; *petioles* ¼ to ½ an inch in length. *Umbels* mostly 2, sometimes solitary; *common peduncles* 1 to 2 or 3 inches long; *pedicels* about an inch long, flaccid, with subulate caducous *bracts* at base; *corolla* white; *crown* whitish, with a tinge of purple at base; *follicles* 3 to 5 inches long, slender, smooth.
Hab. Rich woodlands; fence-rows, &c.: frequent. *Fl.* May. *Fr.* Aug.

6. A. obtusifòlia, *Mx. Leaves* ovate-oblong, or elliptic, obtuse, sessile and somewhat clasping; umbel mostly solitary, on a long terminal peduncle.
OBTUSE-LEAVED ASCLEPIAS.

Stem 2 to 3 or 4 feet high, smooth. *Leaves* 4 or 5 inches long, often emarginate, mucronate, wavy on the margin and somewhat auriculate at base, smooth, glaucous beneath. *Umbel* many-flowered, on a *common peduncle* 6 or 8 inches in length; *pedicels* about an inch long, with lance-linear ciliate *bracts* at base; *corolla* greenish-purple; *crown* purple,—the *hoods* truncate, somewhat 5-toothed; *follicles* 4 or 5 inches long, smoothish.
Hab. Dry, slaty hills: not very common. *Fl.* June. *Fr.* Aug.

7. A. rùbra, *L.* Leaves ovate-lanceolate, acuminately tapering to a sharp point, subsessile; umbels terminal (often solitary), on long peduncles.
A. laurifolia. *Mx. & Fl. Cestr. ed.* 2. *p.* 171.
RED ASCLEPIAS.

Stem 1½ to 2 feet high, slender, smooth, with a pubescent line. *Leaves* 3 to 5 inches long, in distant pairs, smooth, scabrous-ciliate on the margin; *petioles* scarcely ¼ of an inch long. *Umbel* usually solitary,—sometimes 1 or 2 subterminal additional ones; *common peduncle* 2 to 3 inches long; *pedicels* about an inch in length, with subulate *bracts* at base; *corolla* yellowish-green externally, reddish-purple within; *crown* purple, tinged with greenish-orange; *follicles* 3 to 4 inches long, nearly smooth.
Hab. North Valley Hill: rare. *Fl.* July. *Fr.* Sept.

** Stems *paniculately branching.*

8. A. incarnàta, *L.* Leaves oblong-lanceolate, acute, obtuse at base, petiolate; umbels numerous, terminal and subterminal.
FLESH-COLORED ASCLEPIAS.

Stem 2 to 4 feet high, with somewhat corymbose branches above, smoothish, with pubescent lines, or sometimes coarsely tomentose-pubescent. *Leaves* 3 to 6 inches long, often almost truncate at base; *petioles* ¼ to ½ an inch in length.—*Umbels* rather small; *common peduncles* 1 to 2 inches long, often densely pubescent; *pedicels* ½ an inch to ¾ in length, with lance-linear caducous *bracts* at base; *corolla* reddish-purple; *crown* palish purple, or flesh-colored; *follicles* about 3 inches long, pubescent.

Hab. Low grounds; along streams: frequent. *Fl.* July. *Fr.* Sept.

†† Leaves *alternate,—or the lower ones opposite.*

9. A. tuberòsa, *L.* Hirsute; juice not milky; leaves oblong, and lance-linear, subsessile; umbels numerous, in a terminal corymb.

TUBEROUS ASCLEPIAS. Butterfly-weed. Pleurisy-root.

Stem about 2 feet high, usually oblique or leaning, with spreading or recurved branches. *Leaves* 2 to 4 inches long, varying from lance-linear to oblanceolate, acute or obtuse, on very short *petioles*. *Umbels* often forming corymbs on the curved branches; *common peduncles* ½ an inch to an inch in length, or sometimes wanting; *pedicels* about ¾ of an inch long, with subulate *bracts* at base; *corolla* greenish-orange; *crown* bright orange color; *follicles* about 4 inches long, tomentose-pubescent.

Hab. Sandy old fields; fence-rows, &c.: frequent. *Fl.* July. *Fr.* Sept.

Obs. This showy species is worthy of a place in the flower-garden. It is the only one, with us, which is not *lactescent*. Though formerly reputed medicinal, it is now neglected.

††† Leaves *mostly verticillate, and numerous.*

10. A. verticillàta, *L.* Leaves narrow-linear, with revolute margins; umbels axillary and terminal.

VERTICILLATE ASCLEPIAS.

Stem 1 to 2 feet high, nearly simple, slender, sometimes decumbent, pubescent in lines. *Leaves* about 2 inches long, and scarcely a line wide, abruptly acute, sessile, crowded below, sometimes in semi-verticils, or opposite, near the summit. *Umbels* several, rather small; *common peduncles* ½ an inch to an inch long; *pedicels* about half an inch long, with subulate-linear *bracts* at base; *corolla* greenish-white, with tinges of purple; *crown* white; *follicles* about 2 inches long, slender, somewhat ventricose, smooth.

Hab. Sterile hills; on serpentine rock: frequent. *Fl.* July. *Fr.* Sept.

Obs. This species is rather local, here,—being pretty much restricted to *Serpentine banks*, where it is frequent.

338. ACERA'TES, *Elliott.*

[Gr. *a*, privative, and *Keras*, a horn; the hoods of the crown being without horns.]

Characters nearly as in *Asclepias;* but the *corolla* not reflexed,—the *pollen-masses* more slender, suspended by longer stalks,—and the *hooded lobes* of the *crown* destitute of the *horn-like process.*—*Leaves* usually opposite; *umbels* simple, on short extra-axillary peduncles.

1. A. viridiflòra, *Ell.* Leaves various,—ovate, roundish-obovate, lanceolate, and linear; umbels subterminal, globose, nearly sessile.

Asclepias viridiflora. *Rafin. & Fl. Cestr. ed.* 2. *p.* 174.
GREEN-FLOWERED ACERATES.

Stem 1 to 2 feet high, simple, rather stout and suffruticose, tomentose-pubescent. *Leaves* 2 to 3 inches long, often emarginate, mucronate, thickish and coriaceous; *petioles* ¼ of an inch in length. *Umbels* 2, 3, or 4, dense, nodding; *common peduncles* ¼ to ½ an inch long; *pedicels* about ½ an inch in length, with linear-lanceolate *bracts* at base; *corolla* pale green; *crown* greenish-white; *follicles* 3 or 4 inches long, ventricose, tomentose-pubescent.
Hab. Great Valley, and near Marlborough-ville: rare. *Fl.* July. *Fr.* Sept.

339. GONO'LOBUS, *Mx.*

[Gr. *Gonia*, an angle, and *Lobos*, a pod; from its ribbed, or angular follicles.]

Calyx 5-parted. *Corolla* rotate, deeply 5-parted,—the *lobes* convolute in the bud. *Crown* a small fleshy wavy lobed *ring*, in the throat of the *corolla*. *Anthers* partly hidden under the flattened pentagonal stigma, opening transversely; *pollen-masses* 5 pairs, horizontal. *Follicles* ventricose, more or less ribbed, softly muricate; *seeds* comose. *Stem* twining; *leaves* opposite; *flowers* in axillary pedunculate cymose *umbels*.

1. G. macrophyl'lus, *Mx.* Leaves orbicular-cordate, abruptly acuminate, petiolate; peduncles mostly longer than the petioles.
LARGE-LEAVED GONOLOBUS.

Stem 4 to 6 feet long, slender, hirsutely pubescent, climbing over shrubs. *Leaves* 3 to 5 inches long, thinnish, finely pubescent; *petioles* 1 to 2 or 3 inches in length, hairy. *Umbels* loose; *common peduncles* 1 or 2 to 4 inches long; *pedicels* ½ an inch to an inch and half in length; *corolla* greenish and pubescent externally, dark dingy-purple on the inner surface; *follicles* 2 to 4 inches long.
Hab. Hilly woodlands; near Pughtown: rare. *Fl.* July. *Fr.* Sept.

ORDER LXXIV. OLEA'CEAE.

Trees, or *shrubs*, with opposite branches; *leaves* opposite, simple, or odd-pinnate; *stipules* none; *flowers* paniculate, or racemose, perfect and complete,—or sometimes *dioicous* and *apetalous*; *calyx* 4-cleft,—the teeth sometimes obsolete; *corolla* (when present) 4-lobed, or of 4 petals, valvate in the bud; *stamens* usually 2; *ovary* 2-celled; *fruit* various,—baccate, drupaceous, samaroid, or capsular, by abortion often 1-celled, and 1- or 2-seeded; *seeds* mostly in hard fleshy *albumen*.

A small but interesting Order. *Olives*, and *Olive oil*, are afforded by the *drupes* of the genus (*Olea*) which is the type of the Family,—the fleshy *pericarp* chiefly ("memorabili inter vegetabilia exceptione," *DC.*) yielding the *oil*. The *Manna*, of the shops, is obtained from a species of *Ash* (*Fraxinus rotundifolia*, *Lam.*).

a. Leaves *simple*. † Fruit a *Berry*.

340. LIGUS'TRUM, *Tournef.*

[The classical Latin name; said to be formed from *ligare*, to tie.]

Calyx 4-toothed, deciduous. *Corolla* funnel-form, 4-lobed; *lobes* ovate, obtuse. *Stamens* included. *Style* short; *stigma* bifid. *Fruit* a globose 2-seeded *berry*. *Shrubs*: *leaves* entire; *flowers* in terminal thyrsoid *panicles*.

1. *L. vulgàre*, L. Leaves elliptic-lanceolate, mucronate, smooth, on short petioles; panicles compact.
COMMON LIGUSTRUM. Privet. Prim.

Stem 6 to 10 feet high, with numerous opposite branches. *Leaves* 1 to 1½ inches long, varying from lanceolate and acute, to oblanceolate and obtuse, hardy and persisting green through half the winter; *petioles* ⅛ to ¼ of an inch in length.—*Corolla* white,—the *tube* longer than the calyx. *Berries* black (sometimes white, or greenish).

Hab. Roadsides. Nat. of Europe. *Fl.* June. *Fr.* Octo.

Obs. This shrub was brought from England, by the early settlers of Chester County, for the purpose of *hedging;* but it did not answer. I recollect numerous vestiges of those early hedges, about the close of the last century; but they have now (1852) all disappeared. The shrub, however, is *naturalized* to some extent.

†† Fruit *a Drupe.*

341. CHIONAN'THUS, *L.*

[Gr. *Chion*, snow, and *anthos*, a flower; from its snow-white blossoms.]

Calyx very small, 4-parted, persistent. *Corolla* of 4 long linear *petals*, slightly connected at base. *Stamens* 2 (sometimes 3 or 4), very short. *Stigma* emarginate. *Drupe* oval; *nut* striate, 1-seeded; *seed* without *albumen!*—*Small trees: buds* remarkably 4-cornered and pyramidal; *leaves* entire; *flowers* in loose pendulous trichotomous *racemes.*

1. C. Virginica, *L.* Leaves oval, or obovate-lanceolate, subcoriaceous, smoothish; racemes terminal and axillary.

VIRGINIAN CHIONANTHUS. Fringe-tree.

Stem 10 to 20 feet high, with spreading branches. *Leaves* 4 to 6 inches long, acute at each end; *petioles* about half an inch in length. *Racemes* 3 or 4 inches long, somewhat paniculate,—the terminal pedicels by threes. *Petals* white, nearly an inch long. *Drupes* of a livid blackish color when mature.

Hab. Banks of West Brandywine: rare. *Fl.* June. *Fr.*

Obs. The singular beauty of this ornamental little tree is beginning to be appreciated, by our people; and it is, consequently, making its appearance in the yards, and lawns, of all persons of taste. The mature *fruit* has a remarkably disagreeable bitterish taste,—and therein shows its affinity to the *type* of the Order.—"*Ripe olives,*" says Sir J. E. SMITH, in his Correspondence, "are purple like a damson, but of the most abominable bitter taste."

b. Leaves *odd-pinnate;* fruit *samaroid.*

342. FRAX'INUS, *Tournef.*

[The classical Latin name; meaning rather obscure.]

Polygamo-dioicous: Calyx 4-cleft, or obsolete. *Corrolla* of 2 or 4 oblong *petals*,—or (as in the North American species,) wholly wanting. *Stamens* mostly 2. *Style* single; *stigma* bifid. *Fruit* a 1- or 2-celled *Samara*, compressed, winged at apex. *Trees: flowers* (*dioicous* in the U. States) small, in crowded *panicles*, or *racemes*, from the axils of last year's leaves,—the *staminate* ones in dense dark-brown clusters.

† Calyx *present*, 3- or 4-*toothed;* leaflets 7 to 9, *petiolulate, nearly or quite entire.*

1. F. Americàna, *L.* Leaflets oblong-ovate, somewhat pubes-

cent and glaucous beneath; petioles and young branches smooth.
F. acuminata. *Lam. & Fl. Cestr. ed.* 2. *p.* 8.
AMERICAN FRAXINUS. Ash. White Ash.

Stem 50 to 80 feet high; young branches smooth, marked with white dots. *Leaflets* 3 to 5 inches long, acuminate, slightly dentate; *petioles* about 3 inches in length, below the leaflets. *Samaras* 1 to 1½ inches long spatulate-linear, obtuse, tapering and terete at base, in long loose racemes.

Hab. Borders of woods, and low meadow grounds: common. *Fl.* May. *Fr.*

Obs. The timber of this tree is highly valued by wheel-wrights, coach-makers, &c. while the offal wood makes excellent fuel.

2. F. pubéscens, *Walt.* Leaflets elliptic-lanceolate, densely pubescent beneath; petioles and young branches velvety-pubescent.
PUBESCENT FRAXINUS. Red Ash.

Stem 40 to 60 feet high. *Leaflets* 2 to 5 or 6 inches long, acuminate, subserrate; *petioles* 2 to 3 inches in length. *Samaras* about 2 inches long, narrowly lanceolate-spatulate, often with an abrupt point, tapering and almost acute at base.

Hab. Low grounds; along Brandywine: frequent. *Fl.* May. *Fr.*

Obs. A smaller tree, and less valuable than the preceding.

†† Calyx *obsolete;* leaflets 9 *to* 11, *sessile, serrate.*

3. F. sambucifòlia, *Lam.* Leaflets ovate-lanceolate, somewhat rounded and unequal at base, the midrib hirsute beneath.
SAMBUCUS- OR ELDER-LEAVED FRAXINUS. Black Ash. Water Ash.

Stem 30 to 50 feet high; young branches smooth, green, marked with black elliptic dots, or warts. *Leaflets* 3 to 4 or 5 inches long, acuminate, rugose and shining above, with a villous tuft at base, and in the axils of the nerves beneath: *petioles* 2 to 4 inches long, below the leaflets. *Samaras* about an inch long, elliptic-oblong, broadish, obtuse at both ends.

Hab. Low grounds; along rivulets: not very common. *Fl.* April. *Fr.*

Obs. This is the least common, the least in size, and the least valuable, of the three species here enumerated. The *Syringa vulgaris, L.* or *Lilac*—a well-known and much cultivated ornamental shrub, with *capsular fruit*—belongs here.

DIVISION III. APET'ALOUS EXO'GENOUS PLANTS.

Corolla usually none*; the *floral envelopes* being mostly in a *single series* (*Calyx*),—or sometimes wanting altogether.

ORDER LXXV. ARISTOLOCHIA'CEAE.

Herbs, or suffruticose plants,—sometimes nearly *stemless*, sometimes *twining* and *climbing; leaves* alternate, simple, entire, more or less cordate at base, petiolate, often with leaf-like *stipules; calyx-tube* more or less adherent to the ovary,—the *border* mostly 3-lobed, valvate in the bud; *stamens* 6 to 12, epigynous; *anthers* adnate, extrorse; *ovary* mostly 6-celled; *stigmas* radiate; *fruit* a fleshy or coriaceous *capsule*, 3- to 6-celled, many-seeded; *seeds* with a large *raphe; embryo* minute, in fleshy *albumen*.

343. AS'ARUM, *Tournef.*

[Gr. *a*, privative, and *Seira*, a cord; being anciently rejected from garlands.]

Calyx campanulate; *border* 3-parted, persistent; *tube* wholly adherent to the ovary. *Stamens* 12; *filaments* subulate, inserted on, or cohering with, the summit of the ovary, produced above the anthers into a slender point. *Styles* united into a very short thick *column*, bearing 6 radiating crested *stigmas* at summit. *Capsule* fleshy, crowned with the persistent calyx-lobes, opening irregularly.—*Perennial herbs: stem* very short, from a creeping pungently aromatic *rhizoma; flower* terminal, pedunculate, and solitary, between the long *petioles* of the *only pair of leaves*.

1. A. Canadénse, *L.* Leaves broad-reniform, glossy-green above; capsule ovoid, woolly.

CANADIAN ASARUM. Wild Ginger. Colt's-foot.

Stem assurgent, 1 to 2 inches long; *leaves* 2 to 4 inches long, and 3 to 5 inches wide; *petioles* 4 to 6 or 8 inches in length. *Flower* large, often concealed under dead leaves, nodding in the fork of the petioles, on a *peduncle* 1 to 1½ inches in length; *calyx-lobes* lanceolate, acuminate, dark brownish-purple inside, often reflexed.

Hab. Rich woodlands; frequent. *Fl.* May. *Fr.* June.

344. ARISTOLO'CHIA, *Tournef.*

[A Greek name; having reference to reputed medicinal virtues.]

Calyx tubular, ventricose above the ovary, bent, or straight; *border* deciduous, oblique, 2- or 3-lobed,—the lower lobe sometimes extended to a lip. *Stamens* 6, inserted on an epigynous disk; *anthers* subsessile, wholly adnate to the short *style* and angular radiating 6-lobed *stigma*. *Capsule* coriaceous, not crowned, septicidally 6-valved. Erect, or twining *perennials: flowers* pedunculate, subradical, or axillary.

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* If *exceptions prove rules*, the student will find, in the preceding groups, numerous *supports* of the regulation which governs *this division* of the Exogenous Tribe! The *Dialypetalous* division contains many plants which are *apetalous*,—as may be seen in the *Orders* RANUNCULACEAE, CISTACEAE, CARYOPHYLLACEAE, ACERACEAE, RHAMNACEAE, ROSACEAE, ONAGRACEAE, CRASSULACEAE, and SAXIFRAGACEAE. The GAMOPETALOUS division, also, presents some which are *destitute of Petals*,—as in the *Order* OLEACEAE.

On the other hand, a *corolla*, or its analogue, is sometimes found among the *Apetalous* Families,—as in the orders EUPHORBIACEAE, and JUGLANDACEAE.

1. A. Serpentària, *L.* Herbaceous; stem nearly erect, slender and flexuose; leaves lance-oblong, auriculate-cordate at base; flowers subradical; calyx-tube much bent.

SNAKE-ROOT ARISTOLOCHIA. Virginia Snake-root.

Stem 9 to 15 inches high, rather leaning, simple, or somewhat branched from the base, leafy above, with minute abortive leaves below. *Leaves* 2 to 5 inches long, sometimes hastate-sagittate; *petioles* ¼ to near an inch in length. *Flowers* rather large, few, dull purplish-brown, often concealed under leaves; *peduncles* 1 to 2 inches in length; *bracts* small, ovate, alternate; *capsule* turbinate, ½ an inch to ¾ in length, somewhat fleshy, pubescent.

Hab. Rich woodlands: frequent. *Fl.* June. *Fr.* August.

Obs. The *root* is a well-known and very valuable aromatic stimulant.

ORDER LXXVI. PHYTOLACCÀCEAE.

Herbs, or *suffruticose plants; leaves* alternate, entire, without *stipules; flowers* racemose; *calyx* of 4 or 5 petal-like slightly connected *sepals; stamens* as many, or twice as many, as the sepals; *ovary* mostly composed of 10 verticillate confluent 1-ovuled *carpels,* with the *styles,* or *stigmas,* distinct; *fruit* baccate, or dry; *embryo* forming a ring round mealy *albumen.*

345. PHYTOLAC'CA, *Tournef.*

[Gr. *Phyton,* a plant, and *Lachanon,* a pot-herb; the young shoots being so used.] *Flowers* mostly perfect: *Sepals* 5, roundish-ovate, persistent. *Stamens* 10; *anthers* incumbent. *Fruit* a depressed-globose compound 5- to 10-celled *berry. Perennial herbs: leaves* petiolate, large; *flowers* in lateral racemes.

1. P. decàndra, *L.* Stout; smooth, and often purple; leaves ovate-oblong; berries 10-celled, juicy, dark purple.

DECANDROUS PHYTOLACCA. Poke. Poke-weed. Pigeon-berry.

Stem 4 to 6 or 8 feet high, branching, terete, or obtusely ridged. *Leaves* 5 to 10 inches long, acute, or acuminate, thin; *petioles* half an inch to 2 inches in length. *Racemes* usually opposite the leaves, 3 to 6 inches long, simple; *pedicels* about half an inch in length, each with a subulate *bract* at base, and usually 2 smaller subopposite *bracts* near the middle. *Sepals* white.

Hab. Rich banks; borders of woods: common. *Fl.* June. *Fr.* Aug.

Obs. The *young shoots* of this plant afford a very tolerable substitute for *Asparagus,*—while the coarse *root* is said to be an active emetic. KALM, in his Travels, calls the plant by the name of *American Nightshade.*

ORDER LXXVII. CHENOPODIA'CEAE.

Chiefly coarse weed-like *herbs; leaves* mostly alternate, more or less fleshy; *stipules* none; *flowers* inconspicuous, destitute of *bracts,*—sometimes *dioicous,* or polygamous; *calyx* mostly free from the *ovary,* 2- or 3- to 5-lobed, imbricated in the bud, persistent, embracing the fruit; *stamens* usually as many as the calyx-lobes, and opposite them; *ovary* 1-celled, becoming a 1-seeded *utricle,* or *akene,* in fruit; *embryo* peripherical, coiled round the farinaceous *albumen.*

§1. Flowers *perfect*; seeds *mostly horizontal*.

346. CHENOPO'DIUM, *L.*

[Gr. *Chen*, a goose, and *Pous, podos*, a foot; in allusion to the form of the leaves.]

Calyx 5-parted,—the *lobes* finally often *keeled*. *Ovary* depressed; *styles* 2, very short. *Utricle* membranaceous, included in the connivent 5-angled calyx. *Seed* horizontal, lenticular, with the margin rather acute; *embryo* forming a complete *ring* round the albumen. Plants smooth, and more or less glaucous-mealy; *flowers* greenish, sessile, in spiked, racemose, or panicled *clusters*.

1. *C. álbum*, L. Leaves glaucous beneath, rhomboid-ovate, sinuate-dentate, cuneate and entire at base; racemes compact, pulverulent, somewhat leafy.

White Chenopodium. Lamb's-quarters. Goose-foot.

Annual. *Stem* 3 to 5 or 6 feet high, angular, branched, often striped with green and yellow, sometimes purplish. *Leaves* 1 to 3 inches long,—the lower ones often larger; *petioles* 1 to 2 or 3 inches in length. *Flowers* in clusters; *calyx* depressed, 5-angled by the prominent keels of the incurved lobes; *seed* dark purple, or nearly black, smooth and shining, lens-shaped, with a small notch on one side.

Hab. Gardens, &c. Nat. of Europe. *Fl.* July. *Fr.* Octo.

Obs. A rank, troublesome weed, in our gardens. The *young plants* are sometimes used as *greens*, in the spring.

2. *C. hy'bridum*, L. Leaves green on both sides, cordate-ovate, acuminate, angularly and remotely dentate; racemes loosely paniculate, leafless.

Hybrid Chenopodium. Maple-leaved Goose-foot.

Annual. *Stem* 2 to 3 feet high, rather slender, angular and striate, branched.—*Leaves* 2 to 4 inches long, thin, bright green; *petioles* 1 to 2 inches in length. *Flowers* paniculate,—the sub-divisions cymose; terminal panicle long and loose, with divaricate branches. *Seed* rather large, nearly black, slightly punctate and striate.

Hab. Along Schuylkill. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. Naturalized on the banks of the Schuylkill,—but still rare. The *C. rhombifòlium*, enumerated in *Fl. Cestr. ed.* 2. is now regarded as a *var.* of *C. úrbicum*, L. and is, moreover, a doubtful plant, in *our Flora*.

347. AMBRI'NA, *Spach.*

[Etymology not ascertained.]

Flowers nearly as in *Chenopodium*,—but the *calyx-lobes not keeled*, the *seed* sometimes *vertical*, and the *embryo*, instead of forming a *complete ring* round the albumen, curving merely in the form of a *horse-shoe*. *Styles* often 3. *Seed* with an obtuse margin. Somewhat glandular-pubescent and viscid (never *mealy*), and often exhaling a strong balsamic odor; *flowers* greenish, racemose. All the species here enumerated, if not *foreigners*, are evidently *strangers* in *Chester County*.

1. *A. Bòtrys*, Moquin. Leaves oblong, sinuate-lobed or pinnatifid; racemes cymose-paniculate, divergent, leafless.

Chenopodium Botrys. *L. & Fl. Cestr. ed.* 2. *p.* 177.

Jerusalem Oak. Feather-Geranium.

Annual. *Stem* 1 to 2 feet high, branched. *Leaves* 1 to 2 inches long; *petioles* ¼ to ¾ of an inch in length. *Flowers* in numerous rather short axillary branching racemes,—forming altogether an oblong slender panicle; usually a single sessile flower in the forks of the peduncles. *Seed* small, dark purplish-brown.
Hab. Roadsides. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. This is partially naturalized in some few localities,—and is occasionally seen in gardens; but is not common. It is a fragrant herb; but, unlike the following two, the odor is dissipated in drying.

2. *A. anthelmíntica*, Spach. Leaves lance-oblong, narrowed at base, unequally sinuate-serrate; racemes long, spike-like, leafless.
Chenopodium anthelminticum. *L. & Fl. Cestr. ed:* 2. *p.* 177.
WORM-DESTROYING AMBRINA. Worm-seed.

Perennial. *Stem* 2 to 3 feet high, angular, grooved, branched. *Leaves* 1 to 2 or 3 inches long, resinous-dotted beneath; *petioles* ¼ to ¾ of an inch in length.—*Flowers* in small clusters, disposed in slender naked racemes, or spikes. *Styles* 3, united at base.
Hab. Roadsides; gardens, &c. *Fl.* July. *Fr.* Sept.

Obs. This is said to be a native of our hemisphere,—and even of our Southern States. The *herb* has a strong unpleasant odor; and the *seeds* yield the well-known *worm-seed oil*,—a most unpalatable but effective *vermifuge;* for which the plant is sometimes cultivated.

3. *A. ambrosioìdes*, Spach. Leaves oblong, acute at each end, remotely dentate; racemes interrupted, leafy.
Chenopodium ambrosioides. *L. & Fl. Cestr. ed.* 2. *p.* 175.
AMBROSIA-LIKE AMBRINA. Mexican Tea.

Annual. *Stem* 1 to 2 feet high, much branched, angular. *Leaves* 1 to 2 inches long,—those on the stem narrowed to a *petiole*, those on the branches and racemes lance-linear, mostly entire, subsessile. *Flowers* in interrupted sessile clusters, on slender axillary leafy branches.
Hab. Roadsides, &c. Nat. of both Hemispheres. *Fl.* Aug. *Fr.* Octo.

Obs. This has a strong persistent odor, much resembling that of the preceding; and, I think, is often mistaken for it, by those who use the plant medicinally.

348. BE'TA, *Tournef.*

[Celtic, *bett*, red: or, from its fruit resembling the Greek letter B (*Beta*).]

Calyx urceolate, 5-cleft,—the *base* adherent to the ovary, and finally indurated, the *lobes* remaining unchanged. *Ovary* depressed; *stigmas* 2. *Utricle* immersed in the base of the calyx, and covered by the lobes; *seed* horizontal. *Root* large and fleshy, formed of concentric zones; *flowers* clustered in leafy spikes.

1. B. VULGÀRIS, L. Smoothish; greenish-purple; lower leaves ovate-oblong, wavy, upper ones lance-ovate; flowers in sessile axillary clusters.
COMMON BETA. Garden Beet.

Biennial. *Root* large (sometimes 5 or 6 inches in diameter, and more than a foot long), of various forms and colors,—usually deep crimson, or pale yellow. *Stem* 2 to 4 feet high, sulcate-angled, somewhat paniculately branching. *Radical leaves* 6 to 12 inches long; *petioles* 4 to 8 inches in length. *Calyx* purplish-brown, fleshy

at base, finally indurated or externally suberose,—the *lobes* keeled, incurved and sub-saccate at apex. *Seed* depressed, loosely farinaceous.
Hab. Gardens, &c. Nat. of Europe. *Fl.* July. *Fr.* Septem.

Obs. The *variety*, called "Sugar Beet,"—with a pale yellowish root—is extensively cultivated, on the continent of Europe, for the purpose of making *Sugar*,—and has been partially tried, in this country: But, while we have the *Sugar Maple* and *Sugar Cane* to supply us, it is not probable the *Beet* will be much relied upon, for that object. A large white-rooted variety, called *Mangel Wurtzel*, or *Scarcity root* (*B. Cicla, L.*), is sometimes cultivated as food for Milch Cows, and other Stock.

¿2. Flowers *dioicous*; seeds *vertical*.

349. SPINA'CIA, *Tournef.*

[Latin, *Spina*, a thorn; the covering of the fruit being often spinulose.]
STAMINATE FL. *Calyx* 4- or 5-parted; *lobes* equal. PISTILLATE FL. *Calyx* ventricose-tubular, unequally 2- to 4-toothed. *Ovary* ovoid; *styles* 4, elongated, capillary; *stigmas* the terminal superficies. *Akene* compressed, included in the indurated tube of the calyx, which is sometimes 2- or 3-horned on the back. *Embryo* forming a ring round the albumen. *Annuals: flowers* greenish,—the *pistillate* in axillary clusters, the *staminate* in racemose-paniculate clusters.

1. S. OLERÀCEA, Miller. Leaves petiolate, hastate-lanceolate, incised at base, or sagittate and entire.
POT-HERB SPINACIA. Spinach.

Stem 18 inches to 2 feet high, somewhat branched, or often simple. *Leaves* 2 to 4 inches long, often cuneately tapering at base; *petioles* 1 to 3 or 4 inches in length. *Fruit* inclosed in the subglobose persistent calyx, which is often unarmed.
Hab. Gardens. Nat. of the East. *Fl.* June. *Fr.* Aug.

Obs. This well-known pot-herb is said to have been first brought into Spain, by the Arabs; thence diffused over Europe.

ORDER LXXVIII. AMARANTHÀCEAE.

Weed-like *herbs*; *characters* nearly as those of the preceding Order,—but the *flowers* imbricated with dry scarious persistent *bracts*, which are usually colored; *calyx* of 3 to 5 *sepals*, dry, scarious and persistent; *stamens* as many as the sepals, and opposite them; *fruit* a *utricle*, 1- or several-seeded, bursting irregularly; *seeds* lenticular-reniform, often vertical; *embryo* curved round farinaceous *albumen*.

350. AMARAN'THUS,* *L.*

[Gr. *a*, not, *maraino*, to fade, and *anthos*, a flower; the flowers not fading.]
Monoicously polygamous: Calyx of 3 or 5 sepals, mostly colored,

* Several modern authors (as LINDLEY, ENDLICHER, and MOQUIN-TANDON) are endeavoring to restore the orthography of RAY,—who, in his *Historia Plantarum* (*fide* MOQUIN, *in DC. Prodr.*), says "*Amarantus* malè cum *th* scribitur *Amaranthus*; nam graecè est *amarantos*, &c." But, as HOOKER, GRAY, and others, adhere to the orthography which has been long established in our own language,—and with which we have become so familiar,—I have concluded to follow their example.

and slightly connected at base. *Stigmas* 2 or 3. *Utricle* circumscissed, or indehiscent, 1-seeded; *embryo* forming a half circle round the albumen. Coarse *annuals: flowers* minute, in axillary or terminal spiked clusters.

1. *A. álbus*, L. Pale green and smooth; much branched; leaves spatulate-oblong, retuse, setaceously mucronate; flowers whitish, triandrous, in small axillary clusters.

WHITE AMARANTHUS.

Stem 1 to 2 or 3 feet high; principal *branches* from near the base, spreading.—*Leaves* half an inch to 1½ inches long, entire, narrowed at base to a slender *petiole* ¼ of an inch to 1½ inches in length. *Bracts* subulate-lanceolate, spinescently acuminate, longer than the flowers.

Hab. Waste places; barn-yards, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. The books give this as a native of Virginia and Pennsylvania; but, to me, it has decidedly the appearance of a naturalized stranger, in this County.

2. *A. hy'bridus*, L. Roughish-pubescent; sparingly branched; dull green; leaves lance-ovate; flowers green, pentandrous, clustered in dense compound ovoid-oblong spikes.

HYBRID AMARANTHUS.

Stem 2 to 4 or 5 feet high. *Leaves* 2 to 5 inches long, tapering to the apex, but the point rather obtuse, emarginate and setaceously mucronate, the base abruptly narrowed to a *petiole* 1 to 3 inches in length. *Flowers* sometimes becoming purplish, the staminate and pistillate intermixed.

Hab. Gardens, and cultivated lots: abundant. *Fl.* Aug. *Fr.* Octo.

Obs. This, also, is given as a native of our continent; but I am pretty well satisfied it is not indigenous, in *Chester County*. It is a troublesome *weed*, in gardens, if not kept in due subjection.

3. *A. spinòsus*, L. Smoothish; bushy-branched; often purplish; leaves rhomboid-lanceolate; axils spinose; flowers pentandrous, clustered in compound oblong terete spikes.

THORNY AMARANTHUS.

Stem 18 inches to 2 or 3 feet high. *Leaves* 1 to 2 inches long, rather obtuse, mucronate, roughish-dotted, with glaucous blotches beneath; *petioles* about as long as the leaves, with 2 subulate *spines* at base ¼ to ½ an inch in length.

Hab. Waste places. Nat. of India. *Fl.* Aug. *Fr.* Octo.

Obs. This is a vile pest,—which has found its way to our seaports, and is gradually extending itself into the country. It cannot be too sedulously guarded against.

ORDER LXXIX. POLYGONA'CEAE.

Mostly *herbs*, with nodose stems; *leaves* alternate, usually entire, with *stipules* commonly sheathing the stem, above the leaves; *flowers* generally perfect; *calyx* of 3 to 6 *sepals* more or less connected at base, and persistent; *stamens* 4 to 12, inserted on the base of the calyx; *ovary* 1-celled; *fruit* akene-like,—*lenticular* when there are 2 *styles*, *triquetrous* when there are 3 *styles*; *embryo* curved, or straightish; *albumen* mealy.

351. POLYG'ONUM, *L.*

[Gr. *Poly*, much, or many, & *Gonu*, a knee, or joint; the stem being much jointed.]

Calyx mostly 5-parted, often colored, embracing the fruit. *Stamens*

5 to 9, mostly 8,—arranged singly, or in pairs, opposite the calyx-lobes. *Styles* 2 or 3,—and the *akene*, consequently, either lenticular or triquetrous; *embryo* in a groove of the albumen, and curved half way round it. *Flowers* fasciculate, often with sheathing *bracts; pedicels* articulated.

§1. Stems *more or less erect.*

† Flowers *in terminal racemes or spikes.* * Styles 2, *and akene lenticular.*

1. *P. orientàle*, L. Tall; hairy; leaves ovate, acuminate; stipules herbaceous, salver-form, ciliate; stamens 7.

ORIENTAL POLYGONUM.

Annual. Stem 4 to 6 or 8 feet high, paniculately branched above. *Leaves* 4 to 6 inches long, often subcordate at base; *petioles* 1 to 2 inches in length, somewhat winged by the decurrence of the leaves; *stipules* tubular, with the border spreading, or reflexed. *Racemes* numerous, 2 or 3 inches in length, nodding, on hirsute peduncles; *Flowers* bright purple, rather large, crowded; *pedicels* rather longer than the ciliate sheathing *bracts.*

Hab. Gardens, &c. Nat. of Asia. *Fl.* July. *Fr.* Sept.

Obs. This showy species has become naturalized about our gardens, and cultivated lots. JOHN BARTRAM probably refers to it, in a letter to Miss COLDEN, where he says—"The species of Persicary thee mentions, is what TOURNEFORT brought from the three churches, at the foot of Mount Ararat."

2. P. Pennsylvánicum, *L.* Leaves lanceolate; stipules scarious, smooth, not ciliate; peduncles glandular-hispid; stamens 5 or 8.

PENNSYLVANIAN POLYGONUM.

Annual. Stem 2 to 3 feet high,—smooth below, and geniculate, with tumid joints,—paniculately branched and glandular-hispid above. *Leaves* 3 to 6 inches long; *petioles* ¼ of an inch to an inch in length; *stipules* tubular, truncate.—*Racemes* numerous, 1 to 2 inches in length, often somewhat nodding; *flowers* bright rose-color, in crowded fascicles; *pedicels* rather longer than the smoothish sheathing *bracts.*

Hab. Moist, low grounds; road-sides, &c.: common. *Fl.* July. *Fr.* Sept.

3. *P. Persicària*, L. Leaves lanceolate, usually marked with a dark lunate or triangular spot near the middle; stipules hairy, ciliate; peduncles smooth; stamens 6.

PEACH-LEAVED POLYGONUM. Spotted Knot-weed. Lady's-thumb.

Annual. Stem 1 to 2 feet high, somewhat branching, smooth, often purplish. *Leaves* 2 to 4 inches long, tapering to *petioles* 1 line to ⅓ of an inch in length; *stipules* tubular, fringed with bristles about ⅓ the length of the tube. *Racemes* about an inch long; *flowers* purple, or bright crimson, on *pedicels* about as long as the sheathing *bracts.*

Hab. Waste places. Nat. of Europe. *Fl.* Aug. *Fr.* Sept.

Obs. This has become a common *weed*, among us.

4. P. amphíbium, *L.* Leaves lance-oblong, subcordate at base; stipules not ciliate; peduncles glandular-hispid; stamens 5. AMPHIBIOUS POLYGONUM.

Perennial. *Stem* 12 to 18 inches long, nearly simple, striate, smooth below, hirsute near the summit, decumbent at base, radicating at the lower nodes.—*Leaves* 4 to 6 inches long, sometimes ovate-lanceolate,—the *upper* ones subsessile, the *lower* ones on *petioles* 1 to 3 inches in length; *stipules* tubular,—the lower ones smooth, upper ones hirsute, *Racemes* few, dense-flowered, 2 to 3 inches long; *flowers* bright purple; *pedicels* shorter than the hirsute sheathing *bracts*.
Hab. Margin of the Schuylkill: rare. *Fl.* Aug. *Fr.* Octo.

Obs. There are 1 or 2 pretty distinct *varieties* of this semi-aquatic species,—partly, perhaps, owing to their places of growth; being found sometimes floating in pools,—at others radicating on the mud, along their margin.

5. P. Virginiànum, *L.* Leaves lance-ovate, acuminate; stipules ciliate; raceme spike-like, virgate, slender; flowers subsolitary and distant; calyx 4-parted; stamens 5.

VIRGINIAN POLYGONUM.

Perennial. *Stem* 2 to 3 or 4 feet high, simple, striate-ribbed, hairy above, near the nodes. *Leaves* 3 to 6 inches long; *petioles* ⅓ to ¾ of an inch in length; *stipules* tubular, very hairy. *Raceme* 12 to 18 inches long, simple,—sometimes 1 or 2 shorter ones from the axils of the upper leaves; *flowers* greenish-white, or often purplish, mostly solitary, a little recurved, conspicuously articulated to short *pedicels* which proceed from tubular bristly-ciliate *bracts*.
Hab. Rich woods; borders of thickets: frequent. *Fl.* July. *Fr.* Sept.

**Styles *mostly* 3, *and akene triquetrous*; stamens 6 *or* 8.

6. *P. Hydropìper*, L. Very acrid; leaves lanceolate, pellucid-punctate, wavy-margined; stipules ciliate with shortish bristles; racemes filiform, flaccid and nodding; fascicles few-flowered, rather distant; calyx glandular-dotted.
P. punctatum. *Fl. Cestr. ed.* 2. *p.* 248. not of *Ell.* (*fide* ENGELMANN).
WATER-PEPPER POLYGONUM. Water-Pepper. Smart-weed.

Annual. *Stem* 12 to 18 inches high, slender, more or less branched, sometimes decumbent, smooth, often purplish. *Leaves* 2 to 4 inches long, acute at each end, subsessile; *stipules* tubular, somewhat inflated, hairy, fringed with bristles ⅓ to ⅔ the length of the tube. *Racemes* 2 to 4 inches long, slender and interrupted, at first nodding, finally erect; fascicles 2- to 4- flowered; *flowers* greenish, with white edges; *pedicels* proceeding from bristly-ciliate sheathing *bracts*. *Styles* sometimes 2. *Akenes* opaque and roughish-dotted.
Hab. Moist waste grounds: introduced? Nat. of Europe. *Fl.* Aug. *Fr.* Sept.

Obs. I have a suspicion that this is but a *naturalized* weed, among us. It would seem to be distinct from the *P. punctatum*, of ELLIOTT,—with which I have heretofore confounded it. Dr. ENGELMANN, writing to me, in October, 1847, says—*Polygonum Hydropiper* and *P. punctatum* are two well-distinguished species; known from a distance already by the heavy pendulous green spikes of the former, and the light more distant-flowered erect whitish spikes of the latter; this has, also, amongst other distinguishing characters, shining smooth nuts,—the other opaque rough ones, &c. Both grow here [*St. Louis, Missouri*] common."

7. P. hydropiperoides, *Mx.* Not acrid; leaves linear lanceo-

late; stipules ciliate with long bristles; fascicles rather crowded: calyx not glandular-dotted.
P. mite. *Pers. & Fl. Cestr. ed.* 2. *p.* 249.
HYDROPIPER-LIKE POLYGONUM. Mild Water-Pepper.

Perennial. Stem 1 to 2 feet long, often decumbent and radicating at the lower nodes, smoothish, somewhat branched above. *Leaves* 2 to 4 inches long, sessile, roughish- (not pellucid-) punctate; *stipules* tubular, hirsute, fringed with bristles nearly as long as the tube. *Racemes* few, chiefly terminal, 1 to 2 inches in length; *flowers* mostly purple, with pale red or whitish edges; *pedicels* in fascicles of 2 or 3, short, from green, or often purple, bristly-ciliate sheathing *bracts*. *Styles* rarely 2. *Akenes* smooth and shining.
Hab. Wet places; margins of rivulets: frequent. *Fl.* Aug. *Fr.* Sept.

†† Flowers *axillary* (1, 2, *or* 3), *subsessile*; styles 3, *and akene triquetrous.*

8. P. ténue, *Mx.* Stem erect, angular; leaves lance-linear, cuspidate, erect; stipules ciliate; flowers mostly solitary; stamens 8.
SLENDER POLYGONUM.

Annual. Stem 6 to 12 or 15 inches high, slender, sometimes simple, generally with upright flexuose branches, often much branched from near the base, with acute scabrous angles. *Leaves* an inch to inch and half long, narrow, 3-nerved, sessile; *stipules* dark chestnut-brown, tubular, with several lance-linear segments ending in long setaceous points. *Flowers* green, with whitish edges, sometimes in pairs, on very short pedicels.
Hab. Dry, sandy banks; slaty hills: frequent. *Fl.* July. *Fr.* Sept.

9. *P. aviculàre,* L. Stems procumbent, terete; leaves elliptic-lanceolate, narrow, spreading; stipules lacerate; stamens usually 5.
Also, P. erectum. *L. & Fl. Cestr. ed.* 2. *p.* 247.
BIRD POLYGONUM. Knot-grass. Door-weed.

Annual. Stem 6 to 12 inches long, much branched and spreading, smooth.—*Leaves* half an inch to an inch long, sessile; *stipules* white. *Flowers* green, edged with white, and often tinged with purple, small, subsessile, in clusters of 2 or 3.
Hab. Yards; foot-paths, &c. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. This humble *weed* is thoroughly naturalized, about our dwellings. The *P. erectum, L. & Fl. Cestr. ed.* 2. *p.* 247. is now generally regarded as a *variety*,—though pretty distinct in habit, and of much larger growth. It is nearly *erect*, 1 to 2 or 3 feet high, with *oval petiolate leaves* 1 to 2 inches in length, and yellowish-green *flowers*. This variety has also been introduced from Europe; and inclines more to moist shaded grounds.

‡ 2. Stems *clambering, or twining.*

† Stems *clambering, retrorsely aculeate*; flowers *in pedunculate clusters.*

* Styles 2, *and akene lenticular.*

10. P. arlfòlium, *L.* Leaves hastate, acuminate, on long petioles; clusters racemose, few-flowered; peduncles glandular-hispid; stamens 6.
ARUM-LEAVED POLYGONUM. Halbert-leaved Tear-thumb.

Annual. Stem 3 to 6 feet long, rather coarse, branching, sulcate-angled, often purplish. *Leaves* 2 to 5 inches long; *petioles* ½ an inch to 3 inches in length; *stipules* ovate, clasping, ciliate. *Flowers* purple, with paler edges; *calyx* mostly 4-parted; *bracts* hirsute.
Hab. Swamps; along sluggish rivulets: common. *Fl.* Aug. *Fr.* Sept.

Obs. This, and the next following species, usually grow in company,—clambering over other plants, and forming entangled bunches. Both are worthless, unwelcome *weeds*, in meadows,—especially among second crop hay.

* * Styles 3, *akenes triquetrous.*

11. P. sagittàtum, *L.* Leaves sagittate, acute, on short petioles; clusters capitate; peduncles smoothish; stamens mostly 8.
SAGITTATE POLYGONUM. Arrow-leaved Tear-thumb.

Annual. Stem 2 to 4 feet long, slender, branching, 4-angled. *Leaves* 1 to 3 inches long; *petioles* ¼ to ¾ of an inch in length; *stipules* lanceolate, clasping, or sheathing, smooth. *Flowers* pale red, with the edges nearly white.
Hab. Swampy thickets, and low wet grounds: common. *Fl.* Aug. *Fr.* Sept.

† † Stems *twining, not aculeate:* flowers *in racemes;* styles 3, *and akenes triquetrous.*

12. *P. Convólvulus,* L. Leaves oblong, subhastate-cordate; calyx-lobes keeled, but not winged.
BIND-WEED POLYGONUM. Wild Buckwheat. Black Bindweed.

Annual. Stem 2 or 3 to 6 feet long, branching, roughish. *Leaves* 1 to 2½ inches long; *petioles* ½ an inch to 2 inches in length; *stipules* short. *Flowers* green, edged with white, or tinged with purple, in slender interrupted leafy racemes; *pedicels* articulated above the middle.
Hab. Cultivated grounds. Nat. of Europe. *Fl.* July. *Fr.* Sept.

13. P. dumetòrum, *L.* Leaves broadish-cordate; calyx-lobes winged on the keel,—the wings decurrent on the pedicels.
P. scandens. *L. & Fl. Cestr. ed.* 2. *p.* 252.
BUSH, OR THICKET POLYGONUM. Climbing Buckwheat.

Annual. Stem 8 to 12 feet long, branching, smoothish. *Leaves* 2 to 3 inches long; *petioles* 1 to 2 inches in length; *stipules* short. *Flowers* greenish, edged with white, or purplish, fasiculate, in interrupted *racemes* 1 to 3 inches in length; *pedicels* articulated below the middle.
Hab. Moist thickets: frequent. *Fl.* August. *Fr.* Septem.

Obs. This is thought to be identical with the European *P. dumetorum.*

352. FAGOPY'RUM, *Tournef.*

[So named, from its fruit resembling that of the *Fagus*, or Beech.]

Calyx nearly equally 5-parted; *lobes* petal-like, withering. *Stamens* 8, alternating with as many hypogynous *glands. Styles* 3; *stigmas* capitate. *Akene* triquetrous, embraced at base by the persistent calyx; *embryo* large, in the centre of the albumen which it divides into 2 parts; *cotyledons* broad, foliaceous, plicate and twisted. *Annuals: stems* finally purple; *flowers* white, fasciculate, in paniculate racemes.

1. F. ESCULÉNTUM, Moench. Stem erect, paniculately branched, sulcate-angled, smoothish; leaves triangular-sagittate, or subhastate, acute, petiolate; racemes compound, terminal and axillary.
Polygonum Fagopyrum. *L. & Fl. Cestr. ed.* 2. *p.* 252.
ESCULENT FAGOPYRUM. Common Buckwheat.

Stem 2 to 4 feet high. *Leaves* 2 to 3 or 4 inches long; *petioles* 1 to 2 or 3 inches in length; *stipules* often large, clasping, smooth, not ciliate. *Flowers* in rather

crowded fascicles, sometimes imperfect; *pedicels* 1 to 2 lines long, obscurely articulated above the middle. *Akenes* equally triquetrous, smooth, dark brown, often striately clouded.

Hab. Fields. Nat. of Asia. *Fl.* Aug. *Fr.* Sept.

Obs. Extensively cultivated for its *seeds*,—the farinaceous *albumen* of which affords a savory article of food, in winter, when properly managed. The English Botanists speak of it merely as "an excellent food for *poultry*"; but, in Pennsylvania, we have amended the statement, by substituting *People* for "Poultry."—The glandular nectariferous *flowers* are a favorite resort of the *Honey-Bee*.

353. RU'MEX, *L.*

[The ancient Latin name; which seems to be of undetermined meaning.]

Flowers sometimes *dioicous: Calyx* of 6 sepals,—the 3 *inner* ones larger, valvately connivent, often bearing a grain-like *tubercle* on the back. *Stamens* 6, in pairs opposite the outer sepals. *Styles* 3; *stigmas* pencil-tufted. *Akene* triquetrous, free, not winged; *embryo* slightly curved, lying along one side of the albumen. Coarse *perennials: petioles* somewhat sheathing at base; *flowers* mostly green, verticillate, in paniculate racemes.

† Flowers *perfect*. * Inner sepals *entire, and all* 3 *graniferous*.

1. *R. crispus*, L. Radical leaves lance-oblong, rather acute, wavy or curled on the margin; verticils crowded.

CURLED RUMEX. Sour Dock. Curled Dock.

Stem 2 to 4 feet high, sulcate-angled, smoothish, somewhat paniculately branched above. *Radical leaves* 8 to 12 or 15 inches long, and 1 to 2 or 3 inches wide; *petioles* 2 to 4 inches in length; *stem-leaves* smaller, linear-lanceolate. *Flowers* in crowded verticillate fascicles, with scarious involucres at base; *inner sepals* much larger than the outer ones, entire or obsoletely denticulate near the base,—each with an ovoid acuminate excrescence, or grain, on the back.

Hab. Moist grounds. Nat. of Europe. *Fl.* May. *Fr.* July.

Obs. The *Docks*, of this County, are all homely troublesome *weeds*, and are extensively naturalized on the grounds of slovenly farmers. The *radical leaves* of this species are often used as a pot-herb, or early "*Greens*."

** Inner sepals *dentate, one principally graniferous*.

2. *R. obtusifolius*, L. Radical leaves subcordate-oblong, obtuse, crenulate; verticils loose and rather distant.

OBTUSE-LEAVED RUMEX. Bitter Dock. Broad-leaved Dock.

Stem 2 to 4 feet high, sulcate-angled, roughish, paniculately branched. *Radical leaves* 8 to 12 inches long, and 4 to 6 inches wide; *petioles* 3 to 6 inches long.—*Flowers* in interrupted verticillate fascicles; *inner sepals* with long acute teeth near the base, and one of them bearing a large grain on the back.

Hab. Meadows, &c. Nat. of Europe. *Fl.* June. *Fr.* Aug.

†† Flowers *dioicous, finally purple*; sepals *not graniferous*.

3. *R. Acetosella*, L. Lower leaves lanceolate-hastate,—the lobes acute, spreading; inner sepals entire.

Sheep Sorrel. Field Sorrel.

Stem 6 to 12 or 15 inches high, slender, branching, somewhat angular and furrowed. *Leaves* 1 to 2 inches long,—the lower ones mostly all hastate, and on *petioles* as long or longer than the leaves,—the upper ones on short petioles, and not hastate. *Verticils* of flowers halved, 6- to 8- flowered. *Pistillate plants* mostly taller than the staminate.

Hab. Sandy grounds. Nat. of Europe. *Fl.* May. *Fr.* Aug.

Obs. This little *weed* (well known for its acid juice,) is often so abundant as to be a nuisance on the farm.

354. RHE'UM, *L.*

[Named from *Rha*, the ancient name of the river Volga,—its native region.]

Calyx of 6 sepals, withering and persistent. *Stamens* 9,—*in pairs* opposite the outer sepals, *single* opposite the inner ones. *Styles* 3, short; *stigmas* large, multifid. *Akene* triquetrous, winged at the angles; *embryo* straight, in the centre of the albumen. Stout *perennials: leaves* chiefly radical, very large; *flowers* fasciculate, racemose-paniculate.

1. R. RHAPÓNTICUM, Ait. Leaves cordate-ovate, rather obtuse,—the sinus at base dilated; petioles with a shallow channel above, rounded at the edges.

RHAPONTIC RHEUM. Pie Rhubarb.

Root tuberous, large, reddish-brown, yellow within. *Stem* 3 to 5 feet high, stout, striate-sulcate, smoothish, fistular, paniculately branched above. *Radical leaves* 1½ to 2 feet long; *petioles* 5 to 10 or more inches in length, thick and fleshy; *stipules* large, membranaceous, sheathing. *Flowers* greenish, with white edges; *pedicels* ⅓ to ½ an inch long, articulated near the middle.

Hab. Gardens. Nat. of Scythia. *Fl.* May. *Fr.* July.

Obs. Cultivated for its stout acid *petioles*,—which are used by the pastry cook, in early spring, as a substitute for fruit.

ORDER LXXX. LAURA'CEAE.

Aromatic *trees*, or *shrubs; leaves* alternate, simple, without *stipules; flowers* clustered, often polygamo-dioicous; *calyx* of 4 to 6 colored sepals, imbricated in 2 rows in the bud; *stamens* definite, usually more numerous than the sepals; *anthers* introrse, 2- to 4-celled, opening by uplifted persistent *valves! style* single; *fruit* a *berry*, or *drupe; seed* solitary, destitute of *albumen*.

The *tropical* plants of this Order are interesting,—affording *Cinnamon*, *Cassia*, and *Camphor;* and also that species of *Laurus* (*L. nobilis, L.*) of which the Ancients formed their *Laurel* wreaths, or crowns.

355. SAS'SAFRAS, *Nees.*

[Altered from *Salsafras*,—the popular Spanish name.]

Flowers dioicous: Sepals 6, united at base. STAM. FL. *Stamens* 9, in 3 series,—the 3 innermost each with a pair of stipitate *glands* at base; *anthers* 4-celled. PISTILLATE FL. with 6 rudiments of *stamens*. *Drupe* ovoid, on a clavate fleshy *peduncle*. *Trees: leaves* often lobed, but the margins entire; *flowers* greenish-yellow, coaetaneous, in terminal bracteate corymbose racemes.

1. S. officinàle, *Nees.* Leaves ovate, or some of them 2- or 3-

lobed and cuneate at base; drupe dark blue; peduncle purple.
Laurus Sassafras. *L. & Fl. Cestr. ed.* 2. *p.* 254.
OFFICINAL SASSAFRAS. Sassafras.

Stem 20 to 40 or 50 feet high, and 6 to 12 inches (sometimes near 2 feet) in diameter,—branches, while young, yellowish and pubescent. *Leaves* 3 to 5 inches long, silky-pubescent when young, finally smooth; *petioles* ½ an inch to an inch in length. *Flowers* from the same buds, and contemporaneous, with the leaves; *pedicels* ¼ to ½ an inch long, silky-villous.
Hab. Woods; old fields, and fence-rows: frequent. *Fl.* April. *Fr.* Sept.

Obs. The *bark*, both of the stem and root, is a powerful yet pleasant aromatic stimulant,—which acquired for it at an early day, in Europe, an exaggerated reputation for medicinal virtues.—The *pith* of the young branches contains much mucilage,—said to afford a salutary wash for sore eyes; and MICHAUX alleges that bed-steads made of the *wood* "are never infested with insects."

356. BENZOIN, *Nees.*

[A name said to be derived from the Arabic,—expressive of *perfume.*]

Flowers polygamo-dioicous: Sepals 6, united at base. STAM. FL.—*Stamens* 9, in 3 series,—the 3 innermost lobed at summit, and gland-bearing at base; *anthers* 2-celled. PISTILLATE FL. with 15 to 18 alternating filiform and spatulate *rudiments of stamens. Drupe* oval; *peduncle* not clavate. *Shrubs: flowers* yellow, preceding the leaves, in small lateral *fascicles* with a deciduous *involucre.*

1. B. odoriferum, *Nees.* Leaves obovate-oblong, mostly acute, often cuneate at base; drupe red, or finally dark purple.
Laurus Benzoin. *L. & Fl. Cestr. ed.* 2. *p.* 253.
ODORIFEROUS BENZOIN. Spice-wood. Wild-Allspice. Fever-bush.

Stem 6 to 8 or 10 feet high; branches virgate, brittle. *Leaves* 2 to 4 inches long, sometimes with a short acumination, occasionally obtuse and rounded at apex: *petioles* about half an inch long. *Flowers* in clusters of 3 to 5 from a bud, which is distinct from the leaf-buds; *pedicels* smooth, about 2 lines in length.
Hab. Moist, low grounds; about springs: frequent. *Fl.* April. *Fr.* Sept.

Obs. A strongly aromatic shrub,—of the twigs of which a decoction was formerly in great vogue, as a medicinal drink for horned Cattle, in the spring of the year.

ORDER LXXXI. THYMELEACEAE.

Shrubs, not aromatic; *leaves* alternate, entire, without *stipules; flowers* perfect; *calyx* regular, corolla-like, more or less tubular; *stamens* usually twice as many as the calyx-lobes; *ovary* free; *fruit* a berry-like *drupe; seed* solitary, with little or no *albumen.*

357. DIRCA, *L.*

[Gr. *Dirke*, the name of a fountain, near Thebes; applied to this genus.]

Calyx tubular-campanulate, truncate,—the *border* obscurely 4-toothed. *Stamens* 8, exserted, unequal. *Style* filiform, longer than the stamens; *stigma* capitate; *drupe* oval. *Flowers* pale greenish-yellow, preceding the leaves, in small terminal and lateral *fascicles* (sometimes solitary, often in pairs), on deflected peduncles.

1. D. palústris, *L.* Bushy; leaves obovate-oblong, acute at each end, subsessile; buds densely villous, 1- 2- or 3-flowered.
MARSH DIRCA. Leather-wood.

Stem 2 to 4 or 5 feet high, slender, much branched from the base,—the branches apparently jointed, flexible, the *wood* soft and brittle, but with a very tough greyish-yellow *bark*. *Leaves* 3 or 4 inches long, often subrhomboid, on very short *petioles*. *Flowers* sometimes solitary, usually 2 or 3, on short thickish *pedicels*, which are united below in a *common peduncle*. *Drupe* about ¼ of an inch in diameter, reddish or orange-color when mature.
Hab. Shaded rivulets, on the slaty hills: not common. *Fl.* April. *Fr.* June.

Obs. The soft pliable branches of this shrub are rendered so tough and strong, by the bark, that they may be used as ligatures,—whence the common name, *Leather-wood.*

ORDER LXXXII. SANTALA'CEAE.

Herbs, shrubs, or *trees; leaves* alternate, entire, without *stipules; calyx-tube* adherent to the *ovary; border* 4- or 5-cleft, valvate in the bud; *stamens* as many as the calyx-lobes, inserted opposite them into the edge of a fleshy *disk* at their base; *ovary* 1-celled, with 2 to 4 *ovules* suspended from the apex of a free *central placenta; style* 1; *fruit* always 1-seeded, indehiscent; *embryo* at the apex of copious *albumen*. This order is chiefly remarkable for containing the fragrant *Sandal-wood,*—afforded by species of *Santalum*.

358. COMAN'DRA, *Nutt.*

[Gr. *Kome*, hair, and *Andres*, for stamens; from the tufts attached to the anthers.]
Flowers perfect: *calyx* campanulate, 5-cleft, lined above the ovary with a *disk* which has a 5-lobed free border,—the lobes of the disk alternating with the calyx-lobes. *Stamens* inserted between the disk-lobes; *anthers* attached to the calyx-lobes by a tuft of *yellow filaments! Fruit* dry and somewhat *nut-like*, free at apex, crowned with the persistent calyx-lobes. *Perennial herbs: flowers* whitish, in terminal corymbulose clusters.

1. C. umbellàta, *Nutt.* Smoothish and somewhat glaucous; leaves ovate, or obovate-oblong, subsessile; calyx-tube longer than the ovary, finally urceolate.
Thesium umbellatum. *L. & Fl. Cestr. ed.* 2. *p.* 163.
UMBELLATE COMANDRA. Bastard Toad-flax.

Stem 9 to 15 inches high, often branched near the summit. *Leaves* an inch to an inch and half long, rather obtuse, sometimes acute, or mucronate, often narrowed at base to a very short *petiole*. *Flowers* in small umbels, or fascicles of 3 to 5, with involucral *bracts* at base,—the whole forming a corymbose panicle.
Hab. Dry, sterile, rocky banks: frequent. *Fl.* June. *Fr.* Sept.

ORDER LXXXIII. NYSSÀCEAE.

Trees; leaves alternate, entire, without *stipules; flowers* polygamo-dioicous; *calyx-tube* (of the *fertile* flowers) adherent to the *ovary; border* 4- or 5-lobed, valvate in the bud; *stamens* usually as many (sometimes twice as many) as the calyx-lobes, and opposite them; *ovary* with a single *ovule*, suspended from the top of the cell; *fruit* a berry-like drupe; *seed* with but little *albumen*.

359. NYS'SA, *L.*

[The name of a Water Nymph; applied to this genus.]
Polygamo-dioicous: Calyx 5-parted. *Stamens,* in the STERILE FLOWER,

5 to 10, inserted round a *disk* in the bottom of the calyx. FERTILE FLOWER with the border 5-parted, deciduous; *stamens* 5. *Drupe* oblong-oval. *Flowers* greenish, small, axillary, solitary, or in little pedunculate clusters.

1. N. multiflòra, *Wangenh.* Leaves oval and obovate, often acuminate; fertile peduncles about 3-flowered; drupe black.

MANY-FLOWERED NYSSA. Sour Gum. Black Gum. Pepperidge.

Stem 40 to 60 or 70 feet high; branches numerous, horizontally spreading, and often a little drooping. *Leaves* 2 to 4 inches long, dark green and shining above, paler and pubescent beneath,—becoming a bright crimson in autumn; *petioles* ½ an inch to an inch in length, often margined, conspicuously villous-ciliate.—*Staminate flowers* pedicellate, 2 to 5 or 6 in a loose cluster, on a slender *common peduncle* about an inch long. *Fertile flowers* sessile, mostly 3 in a dense involucrate cluster (sometimes 2, or only 1), on a clavate *common peduncle*, which at first is about half an inch—finally 1 to 1½ inches—in length. *Drupe* near half an inch long, bluish-black and succulent when mature; *nut* striate-angular.

Hab. Moist woods, and low grounds: frequent. *Fl.* May. *Fr.* Sept.

Obs. The woody fibres of this tree are remarkably curled, or oblique and interlocked,—so as to render the timber very difficult to split; on which account it is much used for making naves, or *hubs*, for heavy carriage wheels, and also hatters' blocks. A striking *variety*—with *leaves* and *fruit* more than twice the usual size—was observed near London Grove Meeting House, during the past summer (1851), by Mr. JOSHUA HOOPES.

ORDER LXXXIV. LORANTHA'CEAE.

Shrubby plants, *parasitic* on *trees*; *leaves* mostly opposite, entire, coriaceous, without *stipules*; *flowers* dioicous, or monoicous; *calyx-tube* (of the *fertile* flowers) adherent to the ovary; *border* obsolete, or 3- or 4- toothed; *petals* usually 4, free, or connected; *stamens* as many as the calyx-lobes; *ovary* 1-celled, with a single *ovule* suspended from the apex of the cell; *fruit* a 1-seeded *berry*; *seed* with fleshy *albumen*.

360. VIS'CUM, *L.*

[The Latin name for glue, or birdlime; from its viscid or glutinous fruit.]

Flowers mostly *dioicous*,—the *staminate* apetalous: *Calyx* subcoriaceous,—in the *staminate* flowers 3- or 4-parted, with triangular *lobes* valvate in the bud, and each lobe with a sessile *anther* on its inner face,—in the *pistillate* flowers with an obsolete border, and 4 *petals*. *Stigma* sessile. *Berry* globular, with a gum-like viscid pulp. *Stem* and *branches* jointed; *flowers* greenish, in short axillary spikes.

1. V. flavéscens, *Pursh.* Yellowish-green; leaves elliptic-obovate, obtuse, on short petioles; berries pearly white.

YELLOWISH VISCUM. Mistletoe.

Stem 9 to 18 inches high, terete, much branched,—the *branches* opposite and decussate, with a cellular bark which appears to be transversely incised, or sulcate (as if articulated), at the ramifications. *Leaves* ¾ of an inch to 1½ inches long, 3-nerved beneath, smooth, fleshy or subcoriaceous, narrowed at base to a thickish terete *petiole* 1 or 2 lines in length. *Flowers* small, sessile, verticillate, or clustered on short interrupted spikes,—the *staminate* flowers mostly 3-parted.

Hab. Branches of trees (mostly *Nyssa*): very rare. *Fl.* May. *Fr.* Novem.

Obs. This remarkable *parasite* is becoming so rare amongst us, that it may be regarded as one (or soon to be one) of the *extinct plants* of Chester County. It is, however, rather abundant in New Jersey,—and frequent, also, in the adjoining States of Delaware and Maryland. Doctor DARWIN thus refers to the *Mistletoe*, in his imaginative Poem:—

"Oh! stay, bright habitant of air, alight,
Celestial VISCA, from thy angel-flight!—
Scorning the sordid soil, aloft she springs,
Shakes her white plume, and claps her golden wings;
High o'er the fields of boundless ether roves,
And seeks amid the clouds her soaring loves!"

ORDER LXXXV. ULMA'CEAE.

Trees, or *shrubs*; *leaves* alternate, simple, serrate, roughish, with deciduous *stipules*; *flowers* perfect, or polygamous; *calyx* campanulate, persistent, 4- to 8-cleft,—the *lobes* imbricated in the bud; *stamens* usually as many as the calyx-lobes, and opposite them; *ovary* 1- or 2-celled, with a single suspended *ovule* in each cell; *styles* or *stigmas* 2; *fruit* 1-celled, 1-seeded, indehiscent,—either a *samara*, or a *drupe*; *albumen* none, or scanty.

SUBORDER I. UL'MEAE.

Flowers perfect, fasciculate; *fruit* a samara; *albumen* none; *embryo* straight.

361. UL'MUS, *L.*

[The ancient name, in the Latin Classics.]

Calyx about 8-cleft, membranaceous. *Ovary* compressed, ovate, 2-celled; *styles* 2, diverging, *stigmatic* along the inner edge. *Samara* with a broad membranaceous margin all round, by abortion 1-celled, 1-seeded. *Flowers* in lateral fascicles, preceding the leaves, purplish brown.

1. U. Americàna, *L.* Leaves oblong-ovate, smoothish above; flowers conspicuously pedicellate; samara oval, densely villous-ciliate on the margin.

AMERICAN ULMUS. White Elm. Weeping Elm.

Stem 60 to 80 feet high; branches long and spreading, often rather drooping.—*Leaves* 3 to 5 inches long, acuminate, unequal at base, serratures uncinately acuminate; *petioles* ¼ to ½ an inch in length, smoothish; *stipules* smooth. *Styles* pubescent, nearly white. *Samara* bifid at apex, with the segments incurved so as to leave an apparent *foramen* through the margin.

Hab. Low grounds; along streams: not very common. *Fl.* April. *Fr.* June.

Obs. This is a noble *shade tree*, for streets and avenues,—and is much used for that purpose, in New England; but is too much neglected in Pennsylvania.

2. U. fúlva, *Mx.* Leaves obovate-oblong, very scabrous above; flowers subsessile; samara orbicular, naked on the margin.

TAWNY ULMUS. Slippery Elm. Red Elm.

Stem 30 to 50 feet high; young branches virgate. *Buds* clothed with a fulvous tomentum. *Leaves* 4 to 6 or 8 inches long, conspicuously acuminate, subcordate at base; *petioles* about ⅓ of an inch long, pubescent; *stipules* hairy. *Calyx* often 7-cleft, clothed and ciliate with a reddish-tawny pubescence. *Styles* glandular-pubescent, purple. *Samara* cleft at apex, with the segments so incurved and overlapped as to give the margin the appearance of being entire.

Hab. Rich, low grounds; fence-rows, &c.: frequent. *Fl.* April. *Fr.* June.

Obs. The inner bark of this species is so abundant in *mucilage*, that it has been added to the *materia medica*, in our shops. Being of smaller size, and the branches rather straggling, it does not answer for a *shade tree* so well as the preceding.

SUBORDER II. CELTID'EAE.

Flowers monoicously polygamous; subsolitary; *fruit* a drupe; *albumen* scanty; *embryo* curved.

362. CEL'TIS, *Tournef.*

[An ancient name of the *Lotus*,—applied to this genus.]

Calyx deeply 5- or 6-parted. *Ovary* ovoid, 1-celled; *stigmas* elongated and acuminate, spreading or recurved, glandular-pubescent. *Drupe* with thin flesh, globular, smooth. *Flowers* axillary, solitary or in pairs, dull greenish-yellow.

1. C. occidentàlis, *L.* Leaves obliquely lance-ovate, acuminate, sharply serrate; drupes yellowish-green.

WESTERN CELTIS. Hack-berry. Sugar-berry. Nettle-tree.

Stem 20 to 60 feet, or more, in height. *Leaves* 2 to 4 or 5 inches long, roughish and somewhat coriaceous; *petioles* ⅓ to ⅔ of an inch in length. *Flowers* small, on *pedicels* ½ an inch to ¾ in length. *Drupes* about ⅓ of an inch in diameter, of a sweetish taste.

Hab. Great Valley, and slaty hills: rare. *Fl.* May. *Fr.* Sept.

Obs. There is a small form of this, occasionaly found on our slaty hills,—which seems to be the *C. pumila*, of PURSH. There is also one of large size,—with larger and coarser leaves,—which has been taken for *C. crassifolia*, of LAMARCK; but that species does not appear to be very distinctly defined. Perhaps they may both be nothing more than *varieties* of *C. occidentalis.*

ORDER LXXXVI. SAURURÀCEAE.

Herbs, aquatic or marsh; *stems* jointed; *leaves* alternate, entire, with sheathing *stipules* adnate to the petioles; *flowers* perfect, destitute of *calyx*, or other envelopes; *stamens* 3 to 6, or more; *anthers* introrse; *ovaries* 3 to 5, more or less connate; *stigmas* recurved; *seeds* few; *embryo* minute, cordate, in a little *sac* at the apex of the *albumen.*

363. SAURU'RUS, *L.*

[Gr. *Sauros*, a lizard, and *Oura*, a tail; in allusion to the tail-like raceme.]

Stamens 4 to 8, usually 6, naked, hypogynous; *filaments* long and distinct. *Fruit* follicular,—the *carpels* somewhat fleshy, united at base, indehiscent, or opening along the ventral suture; *seeds* ascending, usually solitary. *Perennial: flowers* pedicellate, each from the axil of a small *bract*, and crowded in a subterminal virgate pedunculate white *raceme.*

1. S. cérnuus, *L.* Leaves sagittate-cordate, acuminate, petiolate; summit of the raceme at first nodding.

NODDING SAURURUS. Lizard's Tail. Breast-weed.

Rhizoma creeping, thick and porous. *Stem* 1 to 2 feet high, leafy, forked above, angular, smoothish. *Leaves* 4 to 6 inches long, glaucous beneath; *petioles* 1 to 2 inches in length, somewhat clasping at base. *Raceme* 3 to 6 inches long, very

pubescent, on a naked *peduncle* 2 to 4 inches in length, inserted opposite a leaf, on one of the divisions of the stem; *pedicels* short, with colored, sheathing, and somewhat spatulate *bracts*, at base.

Hab. Margins of pools, and streams: not common. *Fl.* June. *Fr.* Sept.

Obs. It appears, by the correspondence of PETER COLLINSON with JOHN BARTRAM, more than a century since, that this plant was then known by the name of *Aristolochia*,—probably from the resemblance of its *leaves* to those of the Virginia Snake-root; and that the bruised *rhizoma* was regarded as a salutary application to sore breasts,—an opinion which prevails among the good ladies, who deal in simples, at this day.

ORDER LXXXVII. CERATOPHYLLA'CEAE.

Aquatic *herbs; leaves* verticillate, rather rigid, finely and dichotomously dissected, without *stipules;* flowers monoicous, axillary, solitary, inconspicuous, destitute of *calyx*, but with an 8- to 12-cleft *involucre*. STAM. FL. *Anthers* sessile, indefinite (12 to 20). PISTILLATE FL. *Ovary* 1-celled, with a single suspended *ovule; style* filiform, oblique, persistent; *stigma* simple; *fruit* a beaked *akene; seed* "filled by a highly developed *embryo* with 4 cotyledons! and a conspicuous plumule."—A. GRAY. ["With 2 cotyledons and a many-leaved plumule." HOOKER & ARNOTT]. *Albumen* none.

364. CERATOPHYL'LUM, *L.*

[Gr. *Keras*, a horn, and *Phyllon*, a leaf; in reference to the rigid leaves.]

☞ The *Generic Character* the same as that of the *Order*.

1. C. echinàtum, *A. Gray.* Akene elliptic, with a terminal and 2 short lateral spines,—the slightly winged margins of which are armed with blunt teeth that finally elongate and equal the lateral spines.

C. demersum. *Fl. Cestr. ed.* 2. *p.* 527. not? of *L.*

ECHINATE, OR PRICKLY CERATOPHYLLUM. Horn-wort.

Perennial? deep green. *Stem* 6 to 12 or 18 inches long, filiform, branching, smooth, procumbent or floating under water. *Leaves* in verticils of 6 or 8, half an inch to near an inch long, fistular or cellular near the base, once or twice dichotomous,—the *segments* linear, capillary, finely serrulate, and mostly with 2 minute teeth at apex. *Fruit* oblong, with a terminal spine formed of the indurated style, and shorter spreading ones towards the base.

Hab. Brandywine, Schuylkill, and their tributaries: frequent. *Fl.* June. *Fr.* Aug.

ORDER LXXXVIII. CALLITRICHA'CEAE.

Slender flaccid aquatic *herbs; leaves* opposite, entire, without *stipules; flowers* monoicous, associated in the axils of the upper leaves, destitute of *calyx*, but usually between a pair of small fistular whitish *bracts; stamen* 1; *anther* reniform; *ovary* 4-lobed 4-celled; *styles* 2, subulate; *fruit* a fleshy-membranous indehiscent 4 lobed 4-celled *capsule; seeds* 4, solitary and suspended, filling each cell; *embryo* in the axis of fleshy *albumen*.

365. CALLI'TRICHE, *L.*

[Gr. *Kalos*, beautiful, and *Thrix*, hair; from its delicate hair-like stems.]

☞ The *Generic Character* the same as that of the *Order*.

1. C. vérna, *L.* Upper leaves spatulate-obovate, crowded and

stellate, floating,—the immersed ones linear; fruit subsessile between 2 falcate bracts,—the lobes parallel in pairs, bluntly keeled on the back.

VERNAL CALLITRICHE. Water Star-wort.

Annual. Stem 1 to 2 feet long, bifistular, branching, and throwing out radicles from the nodes. *Leaves* ⅛ to ⅔ of an inch long, sessile, somewhat clasping, punctate. *Staminate* and *pistillate flowers* sometimes solitary, more commonly associated and closely approximated in the axils of the leaves,—the *staminate* being next the stem, the *pistillate* exterior, each with 2 *bracts*.

Hab. Pools, and sluggish rivulets: frequent. *Fl.* April. *Fr.* July.

Obs. This plant presents some *varieties*, which are doubtless produced by the circumstances of their locality,—especially one which is often seen, prostrate and radicating, in muddy places from which the water has retired; but I am not sure that we have more than one species. The plant is thus noticed in DARWIN'S *Botanic Garden*:—

> "Thy love, CALLITRICHE, *two* Virgins share,
> Smit with thy starry eye and radiant hair;—
> On the green margin sits the youth, and laves
> His floating train of tresses in the waves;
> Sees his fair features paint the streams that pass,
> And bends forever o'er the watery glass."

ORDER LXXXIX. PODOSTEMÀCEAE.

Submersed coriaceous *aquatics*,—adhering to stones, with the aspect of an aquatic *moss*, or small *sea-weed*; *leaves* alternate, multifid, with sheathing *stipule-like* processes at the base of the petioles; *flowers* mostly perfect (or perhaps diclinous, and associated in the *spathe-like involucre*), destitute of proper *calyx*,—but bursting from a sac-like *spathe*; *stamens* 2 or 3, collateral, with the *filaments* between subulate *bractlets*, and united at base, forming a *pedicel*; *stigmas* 2; *fruit* a *capsule*, 2-celled; *seeds* numerous, without *albumen*.

366. PODOSTE'MUM, *Mx.*

[Gr. *Pous*, a foot, and *Stemon*, stamen; the stamens being on a common footstalk.]

☞ The *Generic Character* the same as that of the *Order*.

1. P. ceratophyl'lum, *Mx.* Leaves dichotomously dissected, somewhat crowded above; peduncles axillary, solitary.

HORN-LEAVED PODOSTEMUM. River-weed.

Annual? *Plant* olive-green. *Root* none,—the *stem* 1 or 2 to 4 inches long, creeping, branching, and adhering to pebbles by fleshy processes,—or, in deep water, often erect. *Leaves* with flatted sublinear *segments*; *petioles* fleshy. *Flowers* enveloped in a coriaceous *sac*, without seam or natural opening, which is lacerated irregularly when the stamens burst forth; *stamens* usually 2,—the *filaments* united below into a pedicel. *Ovary* oblong-ovoid, with 2 opposite grooves, and several purple stripes; *stigmas* curved towards the anthers. Before the sac, or spathe, is ruptured, the stamens are bent over, and repose on each side of the stigmas.

Hab. Pebbly shallow streams; Brandywine: frequent. *Fl.* Aug. *Fr.* Octo.

ORDER XC. EUPHORBIÀCEAE.

Plants (*herbs*, in Chester County,) often with a *milky acrid juice*; *leaves* mostly simple; *stipules* small and deciduous, or wanting; *flowers* commonly monoicous; *calyx* usually valvate in the bud, sometimes wanting (and sometimes with added

petals!); *stamens* definite, or indefinite; *fruit* capsular, lobed, or composed of 2, 3, or many united carpels; *seed* suspended, mostly caruncled; *embryo* in fleshy *albumen*.

This large and varied—yet essentially natural—Family, comprises a number of plants possessing very active properties,—or otherwise curious and interesting.—Of such may be mentioned, the *Croton Tiglium, L.* which yields the powerful *Croton Oil*, or *Oil of Tiglium;* the *Ricinus communis, L.* or *Castor Oil Bean;* the *Jatropha Manihot, L.* which affords the *Cassava* and *Tapioca;* the *Crozophora tinctoria, Juss,* yielding *Turnsol;* the *Siphonia elastica, Pers.* affording the true *Caoutchouc* or *Gum elastic;* the *Buxus sempervirens, L.* affording the beautiful fine-grained *Box-wood;* the *Hura crepitans, L.* or tree that bears the curious *sand-box-like* fruit, &c. &c.

367. EUPHOR'BIA, *L.*

[Named after *Euphorbus*, physician to king Juba, of Mauritania.]

Flowers included in a cup-shaped 4- or 5-lobed *involucre* resembling a calyx or corolla, with *glands* at its sinuses. STAM. FLOWERS numerous, lining the base of the involucre, each from the axil of a little *bract*, and consisting of a *single stamen* jointed on a pedicel; *anther-cells* globular, separate. PISTILLATE FL. solitary, in the middle of the involucre, consisting of a naked 3-lobed 3-celled pedicellate *ovary; styles* 3, bifid. *Capsule* separating into 3 *carpels*, which severally split elastically into 2 valves. *Seeds* 1 in each carpel. Polymorphous herbs, with an acrid milky juice; *peduncles* often umbellate-clustered.

§ 1. Leaves *alternate, without stipules.* † Involucres *subsessile.*

1. E. Darlingtònii, *A. Gray.* Stem-leaves lance-oblong and oblanceolate, pale and softly pilose beneath, secondary floral leaves orbicular-dilated, all entire; fruit obscurely warty; seeds smooth. E. nemoralis. *Fl. Cestr. ed. 2. p.* 518. not of KITAIBEL.

DARLINGTON'S EUPHORBIA.

Perennial. Stem 2 to 4 or 5 feet high, often several from the same root, rather stout, smooth, simple, or with slender peduncle-like axillary branches. *Leaves* 3 or 4 inches long, sessile. *Umbel* terminal, 5- to 8-rayed,—the *rays* once or twice subdivided. *Lowest* set of *floral leaves* oval, very obtuse; all the rest rounded, broader than long, almost truncate at base, and closely sessile; *glands* obliquely oval, sessile. *Ovary* warty, often becoming nearly smooth in *fruit.*

Hab. Woodlands, and moist thickets: not very common. *Fl.* May. *Fr.* July.

Obs. This species has been found, growing very luxuriantly in thickets, along some of the rivulets among our slaty hills,—and in Londongrove. The Rev. M. A. CURTIS also met with it on the mountains of *North Carolina;* and Mr. JOHN M'MINN informs me, that he finds it in abundance along Spring Creek, near Bellefonte, in *Centre County, Penn'a.* It is rather remarkable, that a plant of its size should have been so long overlooked, by the Botanists.

†† Involucres *conspicuously pedunculate.*

2. E. corollàta, *L.* Leaves linear-oblong, obtuse, smooth,—the upper ones subverticillate; floral leaves small, ovate-oblong; involucre with white obovate petal-like appendages; fruit smooth, rather small.

COROLLATE EUPHORBIA. Flowering Spurge.

Perennial. *Stem* 1 to 3 feet high, slender, smooth, nearly simple. *Leaves* 1 to 2½ inches long, varying from ovate-oblong to linear and spatulate-oblong,—the longer ones often narrow; *petioles* scarcely a line in length. *Umbel* 5- or 6-rayed,—the *rays* di-and-tri-chotomous; *involucres* with minute incurved true lobes, and conspicuous accessory lobes, or *white appendages*,—each with a greenish oval *gland* at base.

Hab. Sandy banks; fence-rows, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

§ 2. Leaves *opposite, without stipules;* involucres *nearly sessile.*

3. *E. Láthyris*, L. Leaves linear-lanceolate, rather acute, entire, decussate; floral leaves lance-ovate and subcordate, mucronate; fruit smooth, rather large.

Mole-tree. Caper Spurge.

Biennial. Smooth. *Stem* 2 to 3 feet high, stout, mostly simple. *Leaves* 2 to 4 inches long, sessile, numerous, pointing 4 ways. *Umbel* 3- or 4-rayed,—the *rays* dichotomous; a single *involucre* subsessile in the centre or bosom of the rays.—*Glands* of the involucre lunate, 2-horned,—the horns dilated and obtuse.

Hab. Gardens, &c. Nat. of Europe. *Fl.* July. *Fr.* Octo.

Obs. This foreigner has become naturalized about many gardens,—having been introduced under a *notion* (imported with it,) that it protected them from the incursions of *Moles.*

§ 3. Leaves *opposite, with stipules;* involucres *dichotomal, or axillary.*

4. E. maculàta, *L.* Flatly prostrate, and diffusely branched; hairy; leaves obliquely oval, serrulate, often spotted; fruit hairy; seeds reddish-grey.

Spotted Euphorbia. Milk Purslane.

Annual. *Stem* 6 to 12 inches long, much branched from the base, and lying close to the ground. *Leaves* ¼ to ½ an inch long, often with a dark purple spot above; *petioles* scarcely a line in length; *stipules* minute, subulate. *Involucres* small, axillary, on short lateral branches, crowded so as to form leafy clusters; *glands* on very small *petal-like appendages*, which are white, or often purplish.

Hab. Cultivated grounds; Indian Corn fields: frequent. *Fl.* July. *Fr.* Octo.

5. E. hypericifòlia, *L.* Stem rather oblique or leaning, with divergent branches; smoothish; leaves obliquely oblong, or subfalcate, serrate; fruit smooth; seeds blackish.

Hypericum-leaved Euphorbia.

Annual: often purplish. *Stem* 9 to 18 inches high, slender; branches somewhat dichotomous, mostly pubescent on one side. *Leaves* ½ an inch to 1¼ inches long, linear-dotted, often stained with blotches along the midrib; *petioles* about a line in length; *stipules* scale-like. *Involucres* axillary and dichotomal, pedicellate, forming small corymbose clusters at the extremities of the branches; *glands* on small roundish subsessile *petal-like appendages*, which are white, or purple edged with white.

Hab. Thin pastures; roadsides, &c: frequent. *Fl.* July. *Fr.* Sept.

Obs. My friend Dr. Engelmann remarks (*in Litt.*), that "the *Seeds*, of these *stipulated Euphorbiae*, appear to be amongst the best characteristics; and *E. hypericifolia* is the only one amongst them with *blackish* seeds. All the others have *reddish-grey* seeds, of different sizes, shapes, and covering."

368. PHYLLAN'THUS, *L.*

[Gr. *Phyllon*, leaf, and *Anthos*, flower; the flowers often borne on apparent leaves.]

Flowers monoicous: *Calyx* 5- or 6-parted, alike in all. *Stamens* mostly 3; *filaments* united in a column, surrounded by 5 or 6 *glands*, or a 5- or 6-lobed glandular *disk*. *Ovary* seated on a glandular *disk*, 3-celled; *cells* 2-ovuled; *styles* 3, mostly bifid. *Capsule* separating into 3 *carpels*, which split into 2 valves. *Leaves* alternate, simple, with small *stipules*; *flowers* ochroleucous, minute, in axillary clusters.

1. P. Carolinénsis, *Walt.* Stem slender, smooth; leaves elliptic-obovate, obtuse, entire, on short petioles.

CAROLINA PHYLLANTHUS.

Annual. Stem 6 to 12 inches long, terete, rather rigid, often dark purple, branching, or nearly simple,—the alternate spreading branches, and leaves, distichously arranged. *Leaves* ⅓ to ¾ of an inch long; *petioles* scarcely a line in length; *stipules* minute, ovate-lanceolate, acuminate. *Flowers* subsessile, 2 to 4 in each axil, staminate and pistillate intermingled. *Capsules* depressed-orbicular. *Hab.* Moist grounds; Londongrove: rare. *Fl.* July. *Fr.* Sept.

369. ACAL'YPHA, *L.*

[An ancient Greek name for the Nettle; applied here.]

Flowers monoicous, axillary, surrounded by a conspicuous persistent *involucre-like bract*. STAM. FL. very small, in an interrupted pedunculate little *spike*, with a *pistillate* flower mostly at its base.—*Calyx* 4-parted. *Stamens* 8 to 16, very short, united at base. PISTILLATE FL. *Calyx* 3-parted; *lobes* connivent, persistent. *Ovary* 3-celled; *cells* 1-ovuled; *styles* 3, fringed. *Capsule* 3-lobed, separating into 3 globular *carpels*. *Leaves* alternate, *stipulate*.

1. A. Virgínica, *L.* Leaves oblong-ovate, or subrhomboid, obtusely serrate, petiolate; involucre-like bract roundish-cordate, acuminate, concave, unequally lobed.

VIRGINIAN ACALYPHA. Three-seeded Mercury.

Annual. Stem 9 to 18 inches high, often a little angular and striate, more or less pubescent, branching,—the branches sometimes with the leaves and bracts crowded, like a leafy raceme, and dark purple. *Leaves* 1 to 3 inches long; *petioles* ¼ of an inch to 2 inches in length; *stipules* minute, subulate. *Staminate spike* usually longer than the involucre-like *bract*, and inserted at its cordate base. *Hab.* Pastures; open woods, &c.: common. *Fl.* July. *Fr.* Sept.

ORDER XCI. JUGLANDA'CEAE.

Trees, with a resinous, sweet, or watery *juice*; *leaves* alternate, odd-pinnate, without *stipules*; *flowers* monoicous,—the *staminate* ones in *aments*, with an irregular *calyx*,—the *pistillate* with a *regular calyx* adherent to the *ovary* (and sometimes with small *petals*!); *fruit* a kind of dry *drupe*, with a woody or bony *endocarp* (or nutshell) containing a 4-lobed *seed*, without *albumen*; *cotyledons* fleshy and oily, sinuate-lobed.

An Order consisting chiefly of *Walnuts and Hickories*,—valuable for their *wood*, and some of them for their *fruit*.

370. JU'GLANS, *L.*

[From the Latin, *Jovis Glans*, the nut of Jupiter; by way of eminence.]

STAM. FL. *Aments* single, lateral, from buds without leaves.—

Calyx scale-like, 3- to 6-parted, adnate to an entire 1-flowered *bract*. *Stamens* 8 to 40, very short. PISTILLATE FL. terminal, solitary, or few and clustered. *Calyx* 4-toothed, with 4 small *petals* alternating with the calyx-teeth. *Styles* 2, very short: *stigmas* elongated, recurved and fringed. *Fruit* drupaceous,—the *epicarp* (or hull) somewhat fleshy, fibrous within, not opening; *nut* woody, rugose and irregularly furrowed. *Juice* resinous-aromatic; *pith* separated into transverse *laminae* or plates; *young branches* brittle.

1. J. RÈGIA, L. Leaflets 7 to 11, oval, nearly entire, smooth; fruit roundish-oval; nut subcompressed, smoothish.

ROYAL JUGLANS. English Walnut. Madeira Nut.

Stem 30 to 50 feet high, branched. *Leaflets* 2 to 5 or 6 inches long, acute, or sometimes rounded and emarginate at apex;—the terminal one largest, the lower pair smallest. *Aments* ovoid-oblong, 2 to 3 inches in length. *Pistillate flowers* in small terminal clusters of 2 or 3, on a rather short common peduncle. *Drupe* oval, or subglobose, mucronate, about 2 inches long, and 1 or 2 inches in diameter, with a smoothish subcoriaceous *epicarp; nut* oval, subcompressed, smoothish, or somewhat corrugated.

Hab. Yards, &c. Nat. of Persia. *Fl.* May. *Fr.* Octo.

Obs. This oriental species is usually called *English* walnut,—in consequence of having come to us by way of the mother country. Such misnomers are not unfrequent among our cultivated plants.—The *young fruit* of this is much esteemed, as a material for making *pickles*.

2. J. cinèrea, *L.* Leaflets 15 to 17, oblong-lanceolate, rounded at base, serrate, softly pubescent beneath; fruit ovoid-oblong, viscid-pubescent; nut oval, acuminate, deeply sculptured.

CINEREOUS JUGLANS. White Walnut. Butter-nut.

Stem 20 to 30 or 40 feet high, with numerous branches, and a smoothish cinereous bark. *Leaflets* 2 to 4 or 5 inches long, sessile. *Aments* 3 to 5 inches long.—*Pistillate flowers* 3 to 5 or 7, in a terminal spike, rather distant, on a long *common peduncle*. *Drupe* 2 to 3 inches long, and 1 to near 2 inches in diameter, with a short tapering protuberance at apex,—often slightly compressed and obscurely angular, softly hairy and clammy, the *epicarp* thinnish and somewhat coriaceous. *Hab.* Bottom lands; along streams: frequent. *Fl.* May. *Fr.* Sept.

Obs. The young *fruit* of this species—collected about the last of June—makes good *pickles*,—though inferior to the preceding. The ripe *seeds* are rather rancid, and scarcely eatable. The *bark* affords an *extract*, which, in the form of pills, is a convenient and popular cathartic.

3. J. nigra, *L.* Leaflets 15 to 21, ovate-lanceolate, subcordate at base; fruit globose, roughish-dotted, more or less spongy when mature; nut subglobose, rugose-sulcate.

BLACK JUGLANS. Black Walnut.

Stem 40 to 60 or 80 feet high, with spreading crooked branches,—often forming a broad roundish and rather open top, when growing solitary. *Leaflets* 2 to 4 inches long, serrate, subsessile,—the terminal one often starved, or abortive.—*Aments* about 2 inches long. *Pistillate flowers* in small terminal clusters of 2 to 4, on a short *common peduncle*. *Drupe* 1½ to 2½ inches in diameter,—the *epicarp*

(or hull) thickish and spongy, (sometimes oblong-ovoid, with a thinner *epicarp*,) greenish-yellow when mature.

Hab. Rich woods; fence-rows, &c.: frequent. *Fl.* May. *Fr.* October.

Obs. The *wood* of this noble tree, when fully grown, is dense and fine-grained, of a reddish-brown with darker shades; and for beauty, and value, rivals the celebrated *Mahogany*, in articles of furniture. The *seeds*, though somewhat oily, are eatable, and generally esteemed.

371. CA'RYA, *Nuttall.*

[Greek, *Karya*,—an ancient name for the Walnut.]

STAM. FL. *Aments* mostly in threes, slender, lateral, from buds with leaves. *Calyx* scale-like, 2- or 3-parted, adnate to an entire 1-flowered *bract*. *Stamens* 3 to 6; *anthers* subsessile, hairy. PISTILLATE FL. terminal, in small clusters. *Calyx* 4-cleft; *petals* none. *Stigmas* sessile, discoid, 4-lobed. *Fruit* drupaceous,—the *epicarp* coriaceous, or finally subligneous, opening more or less completely by 4 valves; *nut* bony, smooth, usually somewhat 4-angled. *Juice* watery, or often sweetish and syrup-like; *pith* continuous; *young branches* tough and pliable; *leaflets* acuminate; *pubescence* stellate.

† Valves *of the hull completely separating*; seed *large and sweet.*

1. C. álba, *Nutt.* Leaflets mostly 5, obovate-lanceolate, sharply serrate; aments smoothish; fruit depressed-globose; nut compressed, broad-oval, 4-angled, whitish and thin-shelled.

WHITE CARYA. Shell-bark, or Shag-bark Hickory.

Stem 60 to 80 feet high,—the outer *bark* exfoliating in long rigid scales or plates, which generally adhere in the middle, while one or both ends are elevated, making the surface very rugged and shaggy. *Leaflets* 3 or 4 to 6 or 8 inches long,—the terminal one usually largest, and the lower pair much smaller. *Aments* at the base of the young growth, 2 to 4 inches long, triple or 3-parted on a common peduncle, pendulous, with a linear-lanceolate *bract* at the base of each lateral ament; *stamens* mostly 4. *Pistillate flowers* mostly 2 or 3 together, sessile on a common peduncle. *Fruit* somewhat umbilicate at both ends, sulcate along the sutures of the valves; *epicarp* thick and subcarnosely coriaceous; *nut* about an inch long,—the shell thin and frangible.

Hab. Low grounds; along streams: frequent. *Fl.* May. *Fr.* Octo.

Obs. The *nuts* of this tree are well known, and highly esteemed. There are some *varieties*,—with the *bark* less shaggy, the *fruit* with a thinner epicarp, the *nut* with a thicker *shell*, and a kernel, or *seed*, of inferior quality. The whole genus is believed to be peculiar to this continent,—and is celebrated for affording a superior quality of fire-wood.

†† Valves *of the hull partially separating.* * Seed *small, but edible.*

2. C. tomentòsa, *Nutt.* Leaflets mostly 7, oblong-lanceolate, slightly serrate; aments tomentose; fruit oval; nut rather large, somewhat 6-angled, pale brown and thick-shelled.

TOMENTOSE CARYA. White-heart Hickory. Mocker-nut.

Stem 60 to 80 feet or more in height,—the *bark* with the fibres interlocked and not exfoliating. *Leaflets* 4 to 8 inches long, roughish-pubescent beneath, and sprinkled with dark-purple particles among the stellate pubescence. *Aments* 4 to 6 inches long. *Pistillate flowers* mostly in pairs, sessile on a short thick bracteate

common peduncle. *Fruit* about 2 inches long; *epicarp* thick and coriaceous, finally hard and woody,—the *valves* opening more than half way to the base; *nut* 6-angled near the apex, thick and bony.
Hab. Rich woodlands: common. *Fl.* May. *Fr.* October.

Obs. There are several *varieties* of this,—one (var. *maxima, Nutt.*) with remarkably large fruit, in *Montgomery County*, near the Schuylkill,—and possibly in this County, also. This species has the *wood* white to the centre,—and is regarded as the best of all, for fuel.—It is replete, in early summer, with a sweet syrup-like sap; and when cut, at that season, is much preyed upon by worms.

3. C. microcárpa, *Nutt.* Leaflets 5 to 7, oblong-lanceolate, serrate; aments smooth; fruit roundish-ovoid; nut small, somewhat 4-angled, thin-shelled.
SMALL-FRUITED CARYA.

Stem 60 to 80 feet high, with a close bark. *Leaflets* 4 to 8 inches long, nearly smooth on both sides,—the under surface sprinkled with dark-purple particles.—*Aments* 2 to 3 or 4 inches long. *Pistillate flowers* 2 or 3 together, sessile on a common peduncle; *calyx teeth* rather conspicuous. *Fruit* about ¾ of an inch in length; *epicarp* thin, with the sutures prominent.
Hab. Moist woodlands: frequent. *Fl.* May. *Fr.* October.

Obs. This species seems to be intermediate between *C. alba*, and *C. glabra;* and, I think, presents several *varieties.*

4. C. glàbra, *Torrey.* Leaflets about 7, lanceolate, serrate: aments smoothish; fruit pyriform or subglobose; nut smooth and even, thinnish-shelled but hard.
C. porcina. *Nutt. & Fl. Cestr. ed.* 2. *p.* 546.
SMOOTH CARYA. Pig-nut Hickory. Broom Hickory.

Stem 40 to 60 or 80 feet high, with a close bark, and tough twiggy branches.—*Leaflets* (sometimes 5, or 9,) 3 to 6 inches in length, generally smooth, and sprinkled with purple particles beneath. *Aments* 2 to 4 inches long, occasionally in pairs. *Pistillate flowers* solitary, or 2 or 3 together, sessile and rather distant, on a common peduncle; *calyx-teeth* long, linear-lanceolate. *Fruit* about an inch long; *epicarp* thin, opening but partially.
Hab. Low, moist woods: frequent. *Fl.* May. *Fr.* Octo.

Obs. The young saplings of this species were formerly much used for making splint brooms,—on account of the toughness of its woody fibres; and the sprouts, or seedling plants, are often employed, for the same reason, in rural economy, as a kind of rude ligatures, under the name of *Hickory Withes.* The mature *wood* is preferred, by wheel-wrights, for making the axles of carts and wagons.

** Seed *small, and intensely bitter.*

5. C. amàra, *Nutt.* Leaflets 7 to 9, oblong-lanceolate, serrate; aments pubescent; fruit roundish-ovoid, acuminate; nut obcordate, small, thin shelled and fragile.
BITTER CARYA. Swamp Hickory. Bitter-nut.

Stem 60 to 80 feet high, with twiggy branches and yellow buds,—the *bark* at first close and even, finally more or less fissured. *Leaflets* 2 to 5 or 6 inches long, slightly pubescent beneath. *Aments* 1 to 2 inches long, sometimes in pairs.—

Pistillate flowers solitary, or in pairs, pedunculate. *Fruit* ¾ of an inch long, thickly sprinkled with yellow resinous particles,—the *epicarp* thin, with 4 ridged or prominent sutures at summit, partially opening.
Hab. Low grounds; along streams: frequent. *Fl.* May. *Fr.* Octo.

Obs. This has a general resemblance to the preceding; but the rule—"by their *fruits* shall ye know them"—applies well, here.

ORDER XCII. CUPULIF'ERAE.

Trees, or *shrubs*; *leaves* alternate, simple, penninerved, with deciduous *stipules*; *flowers* monoicous,—the *staminate* ones mostly in cylindric (rarely globose) *aments*, the *pistillate* furnished with an *involucre* which forms a kind of *cupule*, or covering, to the (by abortion) 1-celled 1-seeded indehiscent *nut*; *calyx-tube* adherent to the 2- to 7-celled *ovary*,—the minute *calyx-teeth* crowning its summit; *embryo* without *albumen*,—the *cotyledons* thick and fleshy. A highly important and valuable Order,—as will appear by the plants here enumerated.

A. Anthers 2-*celled*. a. Cotyledons *hypogaean in germination*.

372. QUER'CUS, *L.*

]The ancient Classical name.]

STAM. FL. *Aments* several from the same scaly bud, simple, slender, pendulous,—the florets clustered, destitute of *bracts*. *Calyx* 6- to 8- (mostly 5-) parted; *stamens* 5 to 10 or 12. PISTILLATE FL. in small clusters, sometimes on a long common peduncle. *Involucre* 1-flowered,—formed of numerous little imbricated scales (or *bracts*) united into a *cup*, and becoming woody, or bark-like.—*Calyx* 6-toothed. *Ovary* about 3-celled,—each *cell* with a pair of collateral suspended *ovules*; *stigmas* as many as the cells. *Nut* (or *Acorn*) ovoid, or oblong, mucronate, surrounded at base (sometimes nearly included) by the enlarged indurated involucre, or *cupule*.—Mostly *trees*: *flowers* greenish,—the pistillate ones quite inconspicuous; all appearing in *May*, and the *fruit* generally mature in October. In about half the species, the acorns are *biennial*,—i. e. 2 years in coming to maturity. The *Oaks* constitute a noble genus,—being emphatically (as ENDLICHER says of the Order,) "*sylvarum decora*"—the pride and ornament of our American forests.

§ 1. FRUIT ANNUAL; clusters *mostly pedunculate*; leaves *not mucronate*; cupule *hemispherical or bowl-shaped*.

† White-Oak *group*; leaves *obtusely sinuate—or pinnatifid-lobed*.

1. Q. obtusiloba, *Mx.* Leaves tawny-pubescent beneath, obovate-oblong, cuneate at base, irregularly sinuate-lobed,—the upper lobes dilated, retuse; acorn roundish-ovoid, rather small.

OBTUSE-LOBED QUERCUS. Post Oak. Barrens White-oak.

Stem 20 to 40 or 50 feet high; branches irregular, spreading, densely pubescent while young. *Leaves* 4 to 6 inches long, subcoriaceous, mostly with 3 unequal angular sinuses,—the upper surface finally smoothish and shining. the under clothed with a ferruginous or tawny stellate pubescence; *petioles* about half an inch in length. *Acorn* about half an inch long, often depressed or umbilicate at apex,—the lower half embraced by the scaly hemispherical *cupule*, which is sessile, or the fruit often in small clusters on a common peduncle.
Hab. Dry sterile hills; on Serpentine rock: frequent.

Obs. The *wood* of this, often rather scrubby-looking species, is valued for its durability; and is also esteemed as fuel.

2. Q. álba, *L.* Leaves oblong-oval, or obovate, regularly pinnatifid-lobed,—lobes small, oblong, obtuse, mostly entire, the sinuses narrow; cupule tuberculate; acorn ovoid-oblong.

WHITE QUERCUS. Common White-Oak.

Stem 60 to 100 feet high, and 2 to 4 or 5 feet in diameter, with a whitish or light grey bark. *Leaves* 4 to 6 inches long, usually with 3 to 5 lobes on each side (sometimes cuneate and 3-lobed); *petioles* ½ an inch to an inch in length. *Acorn* of medium size (near an inch long), seated in a shallowish bowl-shaped pubescent *cupule*,—the fruit generally in pairs, sessile on a *common peduncle* about half an inch in length.

Hab. Woodlands: every where common.

Obs. This is one of our finest and most valuable forest trees,—often attaining to an enormous size, and not less entitled than its English congener, to the epithets employed by COWPER:—

"Lord of the woods, the long-surviving Oak."

The *timber* is firm and durable, and much used in the various mechanic arts. The *keels* of some of our largest national vessels have been obtained from this Oak. The *bark* is astringent and tonic,—while the *acorns* are sweet and nutritious, affording a favorite food for swine. A *variety* (or hybrid), with more deeply-lobed *leaves*, and considerably larger *fruit*, has been observed near the South Western border of our County, by my vigilant friend, Mr. JOSHUA HOOPES.

†† Chestnut-Oak *group*; leaves *coarsely and obtusely sinuate-dentate.*

3. Q. bicolor, *Willd.* Leaves oblong-obovate, unequally dentate, densely villous and olive-green beneath; acorn ovoid-oblong.

TWO-COLORED QUERCUS. Swamp White-Oak.

Stem 40 to 60 or 70 feet high. *Leaves* 4 to 6 inches long, varying from broad-ovate to obovate; *petioles* about half an inch in length. *Fruit* in pairs (or often single), sessile on an axillary *common peduncle* 1 or 2 to 4 inches long; *acorn* rather large,—the *cupule* dentate on the margin.

Hab. Low grounds; along streams, &c.: frequent.

Obs. This is every way inferior in value to the preceding.

4. Q. montàna, *Willd.* Leaves broadly obovate, nearly equally dentate, pubescent and subglaucous beneath; cupule subturbinate at base; acorn elliptic-oblong, large.

MOUNTAIN QUERCUS. Rock Chestnut-Oak.

Stem 40 to 60 or 70 feet high,—when old, the *bark* thick and deeply furrowed. *Leaves* 4 to 8 inches long, sometimes roundish-obovate, unequal at base,—the teeth short, broad, and somewhat mucronate, with a callous point; *petioles* ½ an inch to an inch in length. *Fruit* on short *common peduncles; acorn* about an inch and quarter long, and ⅔ of an inch in diameter.

Hab. Hilly, rocky woodlands: frequent.

Obs. The *wood* of this is considered valuable,—and the *bark* is prized by Tanners. The *acorns*, also, are nutritious, and sought after by swine.

5. Q. Prinus, *L.* Leaves obovate-oblong, acute, nearly equally and obtusely dentate, green above; acorn ovoid, large.
Swamp Chestnut-Oak.

Stem 60 to 90 feet high. *Leaves* 5 to 8 inches long, conspicuously penninerved, with a coarse tooth for each nerve, and a small callus at apex of each; *petioles* 1 to near 2 inches in length. *Fruit* in pairs (1 often abortive) on a *common peduncle* about half an inch long; *acorn* rather thicker than the preceding, but not quite so long.
Hab. Great Valley: not very common.

Obs. This species—which is often a fine tree, affording valuable timber—presents some *varieties;* while the whole *group* have such a general resemblance, that the elder MICHAUX reduced them all to modifications of *Q. Prinus.*

6. Q. Castànea, *Willd.* Leaves oblong-lanceolate, acuminate, equally and rather acutely dentate, yellowish above; acorn roundish-ovoid, rather small.
CHESTNUT QUERCUS. Chestnut-Oak. Yellow Oak.

Stem 50 to 80 feet high. *Leaves* 3 to 6 inches long,—the points of the teeth (and along the whole edge of the leaf) callous; *petioles* ½ an inch to an inch long. *Fruit* sessile, or on what seems designed for a short *common peduncle. Acorn* sweetish and nutritious.
Hab. Great Valley; near Brooke's Mill: not common.

Obs. This is also variable; but, generally, the *leaves*—both in size and figure—have a striking resemblance to those of the *Chestnut-tree.*

7. Q. prinoides, *Willd.* Dwarf; leaves obovate and lance-oblong, obtuse or acute, coarsely (or often obsoletely) sinuate-dentate, acute at base; acorn ovoid, small.
Q. chinquapin. *Mx. & Fl. Cestr. ed.* 2. *p.* 536.
PRINUS-LIKE QUERCUS. Dwarf Chestnut-Oak. Chinquapin-Oak.

Stem 2 to 4 or 5 feet high, slender and much branched. *Leaves* 3 to 5 or 6 inches long,—the teeth mostly obtuse, often nearly obsolete, or the margin merely repand; *petioles* ¼ to ½ an inch in length. *Fruit* sessile, often abundant.
Hab. Dry, slaty hills: frequent.

Obs. There seems to be two *varieties* of this shrub;—the leaves of one looking like a dwarf specimen of *Q. montana,*—and of the other, like a miniature *Q. Castanea.*

§ 2. FRUIT BIENNIAL; clusters *sessile.*

††† Black and Red-Oak *group;* leaves *setaceously mucronate, repand, or acutely sinuate-lobed.*

* Cupule *subturbinate at base.*

8. Q. nigra, *L.* Leaves broadly cuneate, dilated at apex, and repand or obscurely 3- or 5-lobed at the end, rusty-puberulent beneath; cupule very scaly; acorn roundish-ovoid, rather small.
BLACK QUERCUS. Black-Jack.

Stem 20 to 30 or 40 feet high, with a thickish furrowed dark-colored bark.—*Leaves* 5 to 8 inches long, and 4 to 6 inches wide at apex, narrowed rapidly towards the obtuse base, so as to be almost triangular, coriaceous,—the bristle-like points somewhat deciduous; *petioles* about half an inch in length.
Hab. Thin soils; West Nottingham: rare.

Obs. This species—which is chiefly valued for fuel—is abundant in the adjacent districts of Maryland; but has only been found within the present year (1852), in our County, by the active researches of Mr. JOSHUA HOOPES.

9. Q. ilicifòlia, *Wangenh.* Dwarf; leaves cuneate-obovate, angulate-lobed, cinereous-tomentose beneath; fruit small, in numerous clusters on the branches; acorn roundish-ovoid.
Q. Banisteri. *Mx. & Fl. Cestr. ed.* 2. *p.* 533.

ILEX-LEAVED QUERCUS. Black Scrub-Oak. Bear-Oak.

Stem 3 to 6 or 8 feet high, with numerous crooked spreading branches. *Leaves* 2 to 3 or 4 inches long, often 3-lobed at apex, others angularly 5-lobed and somewhat fiddle-shaped; *petioles* half an inch to an inch in length. *Acorns* striped.
Hab. Sterile, slaty hills: frequent.

Obs. This worthless little species is abundant on our Barrens; but is rarely seen on good land.

10. Q. tinctòria, *Bartram.* Leaves obovate-oblong, sinuate-lobed, more or less rusty-puberulent beneath; cupule scaly, thick; acorn ovoid, rather small.

DYER'S QUERCUS. Black-Oak. Quercitron.

Stem 60 to 80 or 90 feet high, and 2 to 4 feet in diameter, with a thickish furrowed dark-colored outer bark, and a spongy yellow inner bark. *Leaves* 6 or 8 inches long, obovate in their outline, more or less deeply sinuate-lobed (usually 3 principal lobes on each side),—the under surface loosely clothed with little fascicles of short hairs, which give it a roughish powdery appearance; *petioles* 1 to 2 inches in length.
Hab. Rich upland woods: common.

Obs. The *wood* of this fine tree is not so valuable as that of some others; but the *inner bark* is a considerable article of commerce, under the name of *Quercitron.* It is employed in dyeing yellow; and has nearly superseded the use of *Weld* (*Reseda luteola, L.*), in the manufactories of Europe, in calico printing.

11. Q. coccinea, *Wangenh.* Leaves oval in outline, deeply sinuate-pinnatifid, with broad and open sinuses, smooth and shining green on both sides; cupule conspicuously scaly; acorn roundish-ovoid, depressed at apex.

CRIMSON QUERCUS. Scarlet-Oak.

Stem 50 to 80 feet high. *Leaves* 4 to 6 or 8 inches long, with 3 or 4 principal narrowish divergent lobes on each side, the sinuses deep, rounded and wider at bottom,—becoming a showy crimson in autumn: *petioles* 2 to 4 inches in length.
Hab. Hilly woodlands: frequent.

Obs. The *bark* of this tree is much sought after by our *Tanners,* who (not being acquainted with the *Q. falcata*) erroneously call it "*Spanish Oak*"; and give it the preference over all the other Oaks, that are common here, for their business. The crimson leaves of this species, where it abounds, impart a gorgeous and magnificent appearance to our forests, in autumn; and it is really marvellous, that a tree so handsome at all seasons, should be so rarely seen in the lawns and pleasure grounds of persons of any pretensions to taste.

12. Q. falcàta, *Mx.* Leaves lobed toward the apex, the lobes elongated, and the lateral ones more or less falcate,—the under surface clothed with a short greyish-tawny pubescence; cupule shallow; acorn roundish-ovoid.

FALCATE QUERCUS. Spanish-Oak.

Stem 50 to 80 feet high,—the young branches often tawny-pubescent. *Leaves* 4 to 8 or 9 inches long, obtuse at base, with 2 or 3 distant and mostly falcate lobes on each side,—those on small trees, or young branches, often dilated and 3-lobed at apex; *petioles* about an inch in length, densely pubescent when the young branches are. *Cupule* on a short peduncle.

Hab. Woods, on the North Valley hill: very rare.

Obs. Although abundant in Delaware, and Maryland, this species was not detected, in our County, until the present season (1852),—when specimens were brought to me, from the above named locality, by my friend JOSHUA HOOPES—whose vigilant and quick-discerning eyes, few such natural objects, within the circuit of his walks, are permitted to escape. The *bark* of this, which is the *true Spanish Oak*, is believed to be the best of the genus, for the purpose of tanning hides.

** Cupule *flat at base, shallow and saucer-shaped.*

13. Q. rùbra, *L.* Leaves pale beneath, sinuate-lobed, the sinuses rather shallow; acorn oblong-ovoid, rather large.

RED QUERCUS. Red Oak.

Stem 60 to 90 feet high. *Leaves* 5 to 8 or 9 inches long, and 3 to 6 inches wide, oblong or obovate, with short incised-dentate lobes (usually 3 principal lobes, and 2 or 3 smaller ones, on each side); *petioles* 1 to 2 inches in length. *Cupule* with the scales so compact as to present a smoothish, or nearly even, outer surface; *acorn* a little turgid, or plump, about an inch long.

Hab. Hilly woodlands: frequent.

Obs. Justice to myself, and to the truths of Natural History—as well as to Mr. EMERSON, author of the admirable Report on the Forest trees and Shrubs of Massachusetts—requires that I should here rectify a misapprehension under which I labored, when compiling the little work entitled *Agricultural Botany*. I had always understood (of course, from others—having no personal knowledge of the subject,) that the *bark* of this species was in high repute with the *Tanners*,—and so stated: But, on a more careful and particular inquiry of intelligent practical men, in that business, I learn that it is regarded as being much inferior in value to the bark of *Q. coccinea*,—and am now satisfied that Mr. EMERSON is substantially correct in the statement, that it is "almost worthless for the use of the Tanner." The *timber* of this tree is also of inferior value.

14. Q. palústris, *Du Roi.* Leaves smooth and green on both sides, deeply sinuate-pinnatifid, with broad rounded sinuses and divaricate lobes; acorn subglobose, small.

MARSH QUERCUS. Pin-Oak. Water-Oak.

Stem 40 to 60 or 70 feet high; branches numerous, rather slender, horizontal or drooping, often nearly covered with diseased knobs. *Leaves* 4 to 6 inches long, usually with 3 narrow divaricate lobes on each side; *petioles* 1 to 2 inches in length.—

Cupule nearly even on the outer surface, often abruptly tapering from the flat base; *acorn* scarcely half an inch long.
Hab. Wet, low grounds; along streams: frequent.

Obs. The *wood* of this species is very firm,—and is much employed by wheelwrights, and other mechanics. It would seem that *this*, and the *Q. falcata*, are severally pretty much confined to opposite sides of *Mason and Dixon's line;* the *Q. palustris* being chiefly northern, and the *Q. falcata* southern.

373. CASTA'NEA, *Tournef.*

[Named from a City of Thessaly (*Castanea*),—famed for Chestnuts.]

STAM. FL. interruptedly clustered in long naked cylindrical spike-form *aments*. *Calyx* 5- or 6-parted. *Stamens* 8 to 15. PISTILLATE FL. usually in threes, within ovoid squarrose solitary or clustered *involucres*. *Calyx* urceolate,—the *border* 5- or 6-cleft, crowning the 3- to 8-celled *ovary*. *Abortive stamens* 5 to 12. *Stigmas* bristle-like, as many as the *cells* of the ovary. *Nuts* (by abortion) 1-seeded, coriaceous, 1, 2, or 3 together, inclosed in the globose prickly *involucre*, which opens by 4 valves at maturity. *Cotyledons* thick, somewhat plicate and cohering together, sweetish and farinaceous. *Flowers* appearing after the leaves.

1. C. vésca, *L.* Leaves oblong-lanceolate, acuminate, sinuate-serrate, smooth and green on both sides; nuts usually 2 or 3 in each involucre.

EATABLE CASTANEA. Chestnut-tree.

Stem 60 to 80 or 90 feet high, and 2 to 4 or 5 feet in diameter. *Leaves* 6 to 9 inches long; *petioles* ½ an inch to ¾ in length. *Staminate flowers* whitish, in dense bracteate clusters, on axillary aments 4 to 8 inches in length; *stamens* long. *Pistillate flowers* in threes, in an ovoid *involucre* which is solitary, or often in clusters of 3 or 4, subsessile, enlarging, finally globose, about 2 inches in diameter, thickly covered or armed all over with sharp compound or coalesced prickles (modified *bracts*), and densely villous within. *Nuts* 3 (by abortion often 2, or 1), reddish-brown, smooth below, the upper half covered with a greyish-tawny pubescence; the middle nut flatted on both sides, the lateral ones plano-convex,—and when the lateral ones are both abortive, the central one becomes roundish-ovoid. *Hab.* Woodlands; slaty hills, abundant. *Fl.* June. *Fr.* Octo.

Obs. The American Chestnut-tree scarcely differs from the European, except in the size and flavor of the fruit. Our native *nuts* are smaller, and the *seeds* much sweeter, than those of the European variety. The *wood* of this tree is light, but very durable,—not esteemed for fuel, but highly valued for making fences.

2. C. pùmila, *Mx.* Dwarf; leaves obovate-oblong, acute, serrate or denticulate, whitish-tomentose beneath; nut solitary, ovoid, small.

DWARF CASTANEA. Chinquapin.

Stem 6 to 10 feet high (much larger under culture). *Leaves* 2 to 6 inches long; *petioles* about half an inch in length. *Aments* of staminate flowers 1 or 2 to 4 inches long, slender and numerous. *Involucres* of the pistillate flowers in spikes, or clustered on short tomentose axillary common peduncles, finally globose, an inch or inch and half in diameter, armed all over with the prickly *bracts*. *Nut* (by

abortion?) constantly solitary, small, ovoid, acute, dark brown, pubescent at summit.

Hab. Thin soils; near the Maryland line. *Fl.* June. *Fr.* Octo.

Obs. This shrub is rare, north of Maryland,—in some portions of which State it is very abundant. The *seeds* are sweet, and pleasant,—but are scarcely half the size of our chestnuts; while *both* (and especially the *chinquapins*) are very subject to be preyed upon by worms.

b. Cotyledons *epigaean in germination.*

374. FA'GUS, *Tournef.*

[Latin—from the Greek, *phago*, to eat; the fruit being esculent.]

STAM. FL. in globose long-peduncled pendulous clusters, with deciduous scale-like *bracts*. *Calyx* campanulate, 5- or 6-cleft. *Stamens* 8 to 12. PISTILLATE FL. usually in pairs, within an ovoid pedunculate *involucre*, which is formed of numerous coalesced subulate flexible *bracts*. *Calyx* urceolate,—the *border* elongated, and cleft into 4 or 5 subulate segments. *Ovary* 3-celled, with 2 *ovules* in each cell [*A. Gray.* "Ovula in loculis *solitaria*," *Endl.*]; *styles* 3, filiform; *stigmas* lateral. *Nuts* ovoid-triquetrous, usually 2 in the coriaceous flexibly-muricate 4-valved *involucre*. *Cotyledons* thick, plicately folded. *Trees*, with a thin smooth cinereous *bark*, horizontal *branches*, long terete acuminate *buds*, and greenish-yellow *flowers*.

1. F. ferruginea, *Ait.* Leaves oblong-ovate, acuminate, more or less dentate, ciliate; the flexible-armature, or bracts, of the involucre spreading, or recurved.

F. sylvatica. *L. & Fl. Cestr. ed.* 2. *p.* 538. not of *Linn.*

FERRUGINOUS FAGUS. Beech-tree.

Stem 40 to 60 or 70 feet high. *Leaves* 3 to 5 inches long, penninerved, plicate along the nerves while young, and silky-pilose, finally smoothish above; *petioles* ⅛ to ½ an inch in length; *Stipules* long, linear, membranaceous, tawny, caducous. *Aments* of staminate flowers loosely subglobose, numerous, on slender *peduncles* 1 to 1½ inches long. *Involucres* of pistillate flowers fewer, on rigid axillary peduncles about half an inch in length.

Hab. Low moist woodlands: frequent. *Fl.* May. *Fr.* Sept.

Obs. The *wood* of this tree, from its density and uniform texture, is much valued for many purposes; and the oily *Mast*, or seeds, afford a nutritious food for swine.

The *Beech*—although a symmetrical and handsome tree—has been unaccountably neglected, in this country, as an ornamental *shade-tree:* and yet it would seem, from VIRGIL'S Pastorals, that in the land of *sweet do-nothing* ("dolce far niente"), the Italian Peasant, of ancient times, found an enviable enjoyment under its spreading branches—

"*patulae recubans sub tegmine* FAGI."

Our *Aborigines*, however, think they have improved upon the luxurious indulgence of the Italians,—judging by the following remark of an Indian Chief to Col. BUTLER—as reported and rendered by ST. JOHN DE CRÈVECOEUR:—"Ah! mon frère, * * * tu ne con-

noitras jamais comme nous le bonheur de *ne penser à rien* et de ne rien faire : Après le sommeil, c'est ce qu'il y a de plus delicieux!"

B. Anthers 1-*celled;* staminate flowers *imbricated in simple cylindric aments.*

375. CO'RYLUS, *Tournef.*

[Gr. *Korys*, a helmet, or cap; in reference to the *Involucre.*]

STAM. FL. *calyx* of 2 collateral *scales* beneath the *bract*, and all three united at base. *Stamens* 8, subsessile; *anthers* bristly at apex.—PISTILLATE FL. in terminal bracteate *clusters*. *Ovary* 2-celled, with 1 *ovule* in each cell; *stigmas* 2, filiform. *Nut* bony, roundish-ovoid, subcompressed at apex, solitary or separately inclosed in the enlarged leathery foliaceous bilabiate lacerate-dentate *involucre.*—*Shrubs:* the staminate *aments* preceding the leaves, yellowish-green when in flower.

1. C. AVELLÀNA, L. Leaves orbicular-cordate, acuminate; stipules ovate-oblong, obtuse; involucre about the length of the fruit.

AVELLAN CORYLUS. Filbert. Hazel-nut.

Stem 6 to 10 feet high, branching from the base. *Leaves* 3 to 4 or 5 inches long, often obovate-cordate, doubly serrate; *petioles* ¼ to ¾ of an inch in length. *Pistillate flowers* few, in squamose clusters,—the *scales* (or *bracts*) enlarging, uniting and forming the *involucres*. *Stigmas* purple. *Nuts* rather large.

Hab. Yards, &c. Nat of Asia Minor. *Fl.* March. *Fr.* Sept.

Obs. The *Filbert*, or Hazel-nut, of the old world, is now becoming known among us,—and not unfrequently cultivated. "The bushes were originally imported into Italy from Pontus, and [the fruit] known among the Romans by the appellation of *Nux pontica*,—which, in the progress of time, was changed into that of *Nux Avellana;* from the place [*Avella*, near Naples] where they had been most successfully propagated." The young forked twigs of this shrub constitute the celebrated divining-rod (*Virgula divinitoria*), with which certain impostors beyond the Atlantic pretend to discover the localities of precious metals, and subterranean fountains. The imposture, and the credulity on which it operated, have both reached our shores; but the *Filbert* not being indigenous here, a capital substitute, or *phytognostic equivalent*, was discovered in the *Witch Hazel* (*Hamamelis*)! The twigs of *Peach trees*, also, have been found to answer the purpose nearly as well as Witch Hazel; and thus the occult sciences of *Ore-finding*, and *Water-smelling*, have been enabled, in some degree—even in this "progressive" age—to keep pace with the sublime mysteries of *Clairvoyance*, and *Spiritual Rappings;* as well as with the lucrative manufacture of *Panaceas*, and *Indian Specifics!* It is, indeed, both humiliating and discouraging, to contemplate the facility with which a large portion of mankind can be made the dupes of such miserable trumpery.

2. C. Americàna, *Marshall.* Leaves obovate-cordate, acuminate; stipules ovate; involucre about twice as long as the fruit, ventricose at base, the border dilated and compressed.

AMERICAN CORYLUS. Wild Hazel-nut.

Stem 4 to 6 feet high, slender, branching,—the young branches virgate, pubescent and glandular-hispid. *Leaves* 3 to 6 inches long, dentate-serrate; *petioles* ¼

of an inch to an inch in length. *Pistillate flowers* several (often 6 or 8), in pedunculate squamose clusters,—the *scales* enlarging, uniting and forming the glandular-hispid *involucres*. *Nuts* ½ an inch in length, rather wider than long.
Hab. Borders of thickets: frequent. *Fl.* March. *Fr.* Sept.

Obs. This shrub is well known, for its *fruit*,—which, however, is inferior to that of the preceding species.

3. C. rostràta, *Ait.* Leaves oblong-ovate, acuminate; involucre contracted into a tubular beak, and extended much beyond the fruit.
BEAKED CORYLUS. Dwarf Filbert.

Stem 2 to 4 or 5 feet high, slender, branching, smoothish. *Leaves* 2 to 3 inches long, truncate or slightly cordate at base, doubly serrate; *petioles* ⅓ to ½ an inch in length. *Pistillate flowers* few (about 3), in pedunculate clusters, sometimes solitary. *Involucres* hirsute, about 3 times as long as the fruit,—the *base* ovoid, half an inch in diameter—the *beak* about an inch long, nearly cylindrical, sulcate-striate, 2-parted half its length.
Hab. Along Brandywine, near Coatesville: rare. *Fl.* April. *Fr.* Octo.

Obs. This curious little species was detected in the above locality, in 1841, by Mr. JOHN M'MINN, a zealous Naturalist,—then of Chester, now of Centre County, Penn.

376. CARPINUS, *L.*

[The ancient Classical name.]

STAM. FL. *Aments* lateral, with simple ovate scale-like *bracts*,—the florets destitute of a proper *calyx*. *Stamens* about 12, at the base of the bract; *anthers* hairy at apex. PISTILLATE FL. in pairs, with small deciduous *bracts*, and enlarging foliaceous halved or 1-sided *involucres*, arranged in terminal loose *ament-like racemes*. *Calyx* urceolate,—the *border* cup-like, denticulate. *Ovary* 2-celled; *stigmas* 2, filiform. *Nuts* in pairs, small, ovoid, subcompressed, striate-ribbed, pedicellate,—each with a lateral enlarged open and leaf-like *involucre*. *Shrubs*, or small trees: *stems* obtusely and irregularly ridged, with thin smooth cinereous *bark; flowers* preceding the leaves.

1. C. Americàna, *Mx.* Leaves ovate-oblong, acuminate, doubly serrate; involucres 3-lobed, sub-hastate, unequally incised-dentate on one side.
AMERICAN CARPINUS. Horn-beam. Water-Beech.

Stem 10 to 20 feet high, often branched from the root, or growing in clusters.—*Leaves* 2 to 3 or 4 inches long; *petioles* ¼ to ½ an inch in length. *Pistillate aments* 2 to 3 inches long, loosely imbricated, or racemose,—each pair of florets subtended by an ovate acuminate deciduous *bract*. *Involucres* finally about an inch long.—*Nuts* about 8-ribbed, smoothish, dark brown.
Hab. Margins of rivulets, and swamps: frequent. *Fl.* April. *Fr.* Sept.

377. OS'TRYA, *Micheli.*

[Gr. *Ostreon*, a shell; from a fancied resemblance in the involucres.]

STAM. FL. nearly as in *Carpinus*. PISTILLATE FL. solitary, or in pairs, arranged in short slender terminal *aments*, with small caducous *bracts;* each floret (or pair of florets) inclosed in a *sac-like involucre* (composed of 2 membranous scales united by their mar-

gins),—and these *involucres*, becoming enlarged and imbricated, finally form a sort of *strobile*, or cone, resembling that of the common *Hop*. *Calyx* somewhat urceolate,—the border tubular, nearly entire, ciliate. *Ovary* 2-celled; *stigmas* 2, filiform, elongated.—*Nuts* solitary, compressed, lance-oblong, smooth. Slender *trees*, with brownish slightly-furrowed *bark*: *flowers* appearing with the leaves.

1. O. Virginica, *Willd.* Leaves oblong-ovate and obovate, acuminate, doubly serrate; involucres thickly beset with tawny bristles at base.

VIRGINIAN OSTRYA. Hop-Hornbeam. Iron-wood.

Stem 20 to 40 feet high; branches slender, pilose while young. *Leaves* 2 to 4 inches long, subcordate and often unequal at base; *petioles* about ¼ of an inch in length. *Pistillate aments* 1 to near 2 inches long, mostly solitary, finally ovoid-oblong, pedunculate and rather pendulous.

Hab. Woodlands; along Brandywine: not common. *Fl.* April. *Fr.* Sept.

Obs. The *wood* of this tree is remarkably hard and firm,—and hence one of its common names.

ORDER XCIII. MYRICÀCEAE.

Shrubs; *leaves* alternate, simple, resinous-dotted and aromatic, mostly *stipulate*; *flowers* monoicous, or dioicous, all *amentaceous*,—the *pistillate* aments globose, or ovoid; *ovary* 1-celled, with a single erect *ovule*, surrounded by hypogynous persistent *scales*; *fruit* a dry *nut*,—or sometimes *drupaceous*, and covered with a waxy secretion; *embryo* without *albumen*.

378. COMPTO'NIA, *Solander.*

[In honor of *Henry Compton*, Bishop of London,—a collector of Plants.]

Monoicous: STAM. FL. *Aments* cylindric, with imbricated reniform-cordate acuminate 1-flowered *bracts*, each bract with 2 *bractlets*.—*Stamens* 3 to 6; *anthers* 2-celled. PISTILLATE FL. *Aments* globose; *bracts* 1-flowered, each with 2 *bractlets*. *Ovary* surrounded by a sort of *involucre* consisting of 5 or 6 subulate persistent *scales*, which give a *bur-like* appearance to the globular cluster; *stigmas* 2, elongated. *Fruit* an ovoid-oblong indehiscent smooth *nut*. Slender, humble *bushes*, with narrow fern-like *foliage*.

1. C. asplenifòlia, *Ait.* Leaves linear-lanceolate, crenately pinnatifid, subsessile; stipules semi-cordate, acuminate.

ASPLENIUM-LEAVED COMPTONIA. Sweet Fern.

Stem 18 inches to 3 feet high, much branched,—the young branches pubescent. *Leaves* 1 to 4 inches long, rather acute at each end. *Staminate aments* ¾ to 1½ inches long. *Pistillate aments* ½ an inch to ¾ in diameter, resembling small globular *burs*.

Hab. Dry, slaty woodlands, and hill-sides: frequent. *Fl.* April. *Fr.* Sept.

Obs. The bruised leaves have a resinous aromatic odor,—and are reputed medicinal, in dysentery, and some other complaints.

ORDER XCIV. BETULÀCEAE.

Trees or *shrubs*; *leaves* alternate, simple, with deciduous *stipules*; *flowers* monoicous, all *amentaceous*; *bracts* 3-lobed, 2- or 3-flowered; *stamens* definite; *ovary* 2-

celled; *cells* 1-ovuled; *fruit* compressed, often winged, dry and indehiscent, by abortion 1-celled, 1-seeded; *seed* destitute of *albumen*.

379. BET'ULA, *Tournef.*

[The ancient Latin name.]

STAM. AMENTS with the *bracts* peltate,—each bract with 2 *bractlets*, and 3 *florets*. *Calyx* a *scale*, with 4 *stamens* at base (or 12 to each *bract*); *anthers* oblong, 1-celled, subsessile. PISTILLATE AMENTS with the *bracts* 3-lobed, imbricated. *Calyx* none. *Ovaries* 3 under each bract; *stigmas* 2, filiform. *Fruit* a lenticular *winged nut*, or *samara*, by abortion 1-celled, 1-seeded; *seed* pendulous. Mostly *trees*, with a smooth reddish-brown (sometimes white) *bark* which exfoliates in thin laminae.

1. B. nigra, *L.* Leaves rhombic-ovate, acute; fertile aments oblong; bracts villous,—the lobes sublinear, obtuse.

BLACK BETULA. Black Birch. Red Birch. River Birch.

Stem 50 to 70 feet high,—young branches virgate, with a cinnamon-colored bark. *Leaves* 2 to 4 inches long, sometimes roundish- or deltoid-ovate, doubly serrate; *petioles* ¼ to ¾ of an inch in length. *Pistillate aments* about an inch long, ⅓ to ½ an inch in diameter, obtuse, on short peduncles; *bracts* 3-cleft two thirds of their length. *Nuts* compressed, ovate, with a ciliate margin which is widest toward the base.

Hab. Low grounds; along streams: not common. *Fl.* April. *Fr.* Aug.

Obs. The *timber* of the *Birches* is not particularly valuable,—though sometimes converted into *lumber*. The *virgate branches* were famous instruments in the hands of Pedagogues, of the olden time, in promoting good order, and a close attention to study, among the rising generation; to which fact the Poet PHILIPS refers, when he sings of

——"afflictive *Birch*,
"Curs'd by unlettered, idle youth."

But the "march of mind," in our *age of progress*, has rendered such auxiliaries nearly "an obsolete idea"! The flexible twigs of this species—instead of being used to regulate and stimulate unruly and idle boys—are now chiefly employed in the manufacture of coarse *brooms*, for sweeping streets, and stable-yards, in our cities.

2. B. lénta, *L.* Leaves cordate-oblong, acuminate, fertile aments elliptic-ovoid; bracts hairy,—the lobes ovate-lanceolate, rather acute, prominently veined.

SOFT, OR PLIANT BETULA. Sweet Birch. Cherry Birch.

Stem 30 to 60 feet high; branches numerous, slender, pliable, dotted with small white scars. *Leaves* 3 or 4 inches long, thinnish, unequally and sharply serrate; *petioles* about half an inch in length. *Pistillate aments* about an inch long, and ⅔ of an inch in diameter, obtuse, subsessile; *bracts* 3-cleft nearly half their length. *Nut* compressed, elliptic-obovate, acute at each end, with a margin somewhat ciliate, and wider toward the summit,—but narrower throughout, and smoother, than in the preceding species.

Hab. Along rivulets, on the slaty hills: rare. *Fl.* April. *Fr.* Aug.

Obs. The *wood* of this is said to be rose-colored and fine-grained,—valuable for cabinet-work. The bark, and young twigs, are pleasantly aromatic,—and sometimes employed in domestic brewings, and diet-drinks.

380. AL'NUS, *Tournef.*

[The ancient Latin name for the Alder.]

STAM. AMENTS subfasciculate, cylindric, flaccid and pendulous; *bracts* peltate,—each with 5 *bractlets*, and 1 to 3 florets. *Calyx* 4-parted. *Stamens* 4, inserted at the base of the calyx-lobes, and opposite them; *anthers* ovoid, 2-celled. PISTILLATE AMENTS ovoid-oblong, with the *bracts* imbricated, fleshy, somewhat 3-lobed. *Calyx* of 4 scale-like *sepals*, adnate at base to the bracts, all persistent and becoming woody in fruit. *Ovaries* 2 under each bract; *stigmas* 2, filiform. *Fruit* a compressed angular *nut*, rarely winged. Mostly *shrubs*,—the *aments* produced in autumn, for the next spring.

1. A. serrulàta, *Ait.* Leaves obovate, subacuminate, denticulate-serrulate, smooth and green on both sides; stipules oval, obtuse.

SERRULATE ALNUS. Common Alder. Candle Alder.

Stem 6 to 10 feet high, with numerous crooked branches. *Leaf-buds* pedicellate, covered with a single scale. *Leaves* 2 to 4 inches long, strongly nerved and subplicate; *petioles* ⅛ to ¼ an inch in length. *Pistillate aments* half an inch to near an inch in length, oblong, rigid, dark purplish-brown, persistent, and often somewhat clustered, on short lateral branches below the staminate ones,—when in flower, bristled with the dark-purple exserted *stigmas*. *Nuts* not margined.

Hab. Margins of rivulets, and swamps: common. *Fl.* March. *Fr.* Octo.

Obs. A *variety* of this—with the *leaves* thinner, less plicate, and in every way full one-third larger than usual—was collected on the N. Valley Hill, in 1851, by Mr. JOSHUA HOOPES.

ORDER XCV. SALICÀCEAE.

Trees, or *shrubs*; *leaves* alternate, simple, mostly *stipulate*; *stipules* scale-like and deciduous, or foliaceous and persistent; *flowers* dioicous, all *amentaceous*; *bracts* 1-flowered; *calyx* none, or a subturbinate disk; *stamens* 1 to 12, or more, sometimes monadelphous; *anthers* 2-celled; *ovary* 1-celled, or imperfectly 2-celled, *many-ovuled*! *stigmas* 2, subsessile, each 2- or 3-lobed; *fruit* a follicular kind of *capsule*, opening at apex by 2 valves; *seeds* ascending, numerous, minute, the *funiculus* splitting into a silky *coma*! *albumen* none.

381. SA'LIX, *Tournef.*

[The Ancient Classical name.]

Aments with the *scales*, or *bracts*, entire. *Calyx* none,—or replaced by 1 or 2 little *glands*, between the stamens, or pistil, and the rachis. STAM. FL. *Stamens* 1 to 5 or 6; *filaments* sometimes united. PISTILLATE FL. *Stigmas* 2-lobed; *ovules* on parietal placentae near the base of the ovary. *Trees*, or *shrubs*—rarely *herbaceous*: *branches* numerous, terete and twiggy; *buds* covered by a *single scale*; *leaves* usually rather long and narrow, entire, or glandular-serrate.*

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*In revising our *Native Willows*, I have been under great obligations to JOHN CAREY, Esq. of New York,—the acute and able Botanist who elaborated that difficult family for Prof. A. GRAY'S *Manual*;—and who was so kind as to examine my *Chester County* specimens, and to determine them in accordance with the said *Manual*.

§1. Aments *precocious, lateral and sessile;* stamens 2; ovary *pedicellate.*
† Aments *ovoid, or short-cylindric;* leaves *entire, or obscurely wavy-toothed, hairy, or woolly, margins revolute.*

1. S. tristis, *Ait.* Leaves subsessile, oblanceolate, or cuneate-oblong, acute, or the lower ones obtuse; ovary with a long tapering beak, silvery-pilose; style short.
S. longirostris. *Mx.? & Fl. Cestr. ed.* 2. *p.* 558.
SAD, OR DARK SALIX. Dwarf Grey Willow.

Stem 1 to 2 feet high, often decumbent, slender, much branched, with a dingy dark-green bark,—the young branches clothed with a short cinereous pubescence; *terminal buds* often enlarged into truncated cones, or more frequently turbinated. *Leaves* ½ to 1½ inches long; *petioles* scarcely a line in length. *Pistillate aments* ¼ to ½ an inch long; *scales* obovate, silky-pilose, blackish at apex; *ovaries* on *pedicels* nearly twice as long as the scales.
Hab. Woodlands, and thickets; on slaty hills: frequent. *Fl.* April. *Fr.* May.

Obs. The student who undertakes to master this formidable genus, will find it necessary to note various minute features which would escape a common observer; and he should, moreover, attend to the characters as exhibited, at *different stages* of the plants, both by the *fructification,* and the *foliage.* Great care is requisite, also, to prevent confusion in the *Herbarium,*—which is apt to result from the collections being made at different times, and then mixing together *aments,* and *leaves,* belonging to different species. My amiable and lamented friend, the late Rev. Mr. SCHWEINITZ, used jocularly to say, that if *a Botanist* were to commit a very grave penitentiary offence, his punishment should be, to prepare a complete monograph of the *Solidagines!* I incline to the opinion, however, that it would be a much severer sentence, to require a perfect monograph of the *Salices.*

2. S. hùmilis, *Marshall.* Leaves petiolate, lance-oblong, and obovate-lanceolate, acute, or obtuse with an abrupt point; ovary acuminate, pubescent; style manifest.
S. conifera. *Fl. Cestr. ed.* 2. *p.* 558.
HUMBLE SALIX. Bush Willow.

Stem 3 to 6 feet high, much branched, with a dark greenish-brown bark,—the young branches densely clothed with a soft cinereous tomentum. *Leaves* strongly veined and tomentose beneath, 1½ to 4 or 5 inches long, and an inch wide, in the large forms,—while in the small forms, they closely approach those of the preceding species; *petioles* 1 line to ¼ of an inch long. *Pistillate aments* about an inch in length, often recurved; *capsules* tawny; *coma* of the seeds long and copious.
Hab. Low grounds; borders of thickets: frequent. *Fl.* April. *Fr.* May.

Obs. This is, doubtless, the *S. conifera,* of PURSH. Several species, however, bear *cones* at the extremities of the branches.

†† Aments *cylindric, large;* ovaries *densely silky;* leaves *smooth and shining above; glaucous beneath, finally smooth.*

3. S. discolor, *Muhl?* Leaves obovate-lanceolate, and lance-oblong, irregularly serrate, or entire; scales ovate, or oblong, obtuse, nearly black, very hairy. [not *S. discolor,* of *Fl. Cestr. ed.* 2.]
S. recurvata. *Fl. Cestr. ed.* 2. *p.* 557.
TWO-COLORED SALIX. Glaucous Willow.

Stem 2 or 3 to 8 or 10 feet high, branched; branches finally smooth. *Leaves* ¼ an inch to 2½ inches long, often cuneate-obovate and very entire; petioles about a line in length. *Pistillate aments* elongating, 1 to finally 2½ inches long; *coma* long and copious.

Hab. Woodlands; slaty hills: not common. *Fl.* April. *Fr.* May.

Obs. This seems to be very nearly allied to *S. eriocephala*, of MICHAUX. My specimens (which are imperfect) have also some resemblance to *S. rostrata*, of RICHARDSON.

††† Aments *ovoid, or cylindric, with a few small leaf-like bracts at base;* leaves *finely and evenly serrate, silky glaucous-gray beneath, drying black.*

4. S. sericea, *Marshall.* Leaves lanceolate, acuminate; pistillate aments narrowly cylindrical, closely flowered; ovaries ovoid-oblong, densely silky.

S. grisea. *Willd. & Fl. Cestr. ed.* 2. *p.* 561. *also,* S. discolor. *Fl. Cestr. ed.* 2. *p.* 559. not of *Muhl.*

SILKY SALIX.

Stem 4 to 8 or 10 feet high, with slender greenish-brown branches which are cinereous-pubescent when young, and brittle at base. *Leaves* 2 to 4 inches long; *petioles* 2 lines to half an inch in length. *Pistillate aments* ¾ to 1¼ inches long.—*Staminate aments* about half an inch long; *anthers* greenish-brown.

Hab. Low grounds; swampy thickets: frequent. *Fl.* April. *Fr.* May.

Obs. Specimens of this were made to represent *two species* in the *2nd Edition of Fl. Cestrica.*

5. S. petiolàris? *Smith.* Leaves lanceolate, acute, smooth above, slightly silky beneath, finally smooth; pistillate aments ovoid-cylindric, loosely flowered; ovary oblong, silky.

PETIOLED SALIX.

Stem 4 to 6 feet high. *Leaves* 2 to 3½ inches long; *petioles* ¼ to ½ an inch in length. *Pistillate aments* about an inch long.

Hab. Low grounds; margins of swamps. *Fl.* April. *Fr.* May.

Obs. This was collected on the East border of my farm, in West-Chester, in 1843,—and I have not attended to it sufficiently to ascertain if it be distinct from the preceding.

‡2. Aments *sometimes precocious, often coætaneous, lateral, with* 4 *or* 5 *leafy bracts at base;* ovary *sessile, usually smooth (minutely granular, under a lens),—sometimes pubescent.*

6. S. cordàta, *var.* myricoìdes, *Carey, in Gr. Man.* Leaves lanceolate, tapering, and rather acute (instead of cordate, or truncate) at base, subglaucous beneath; stipules obliquely ovate, denticulate; ovary tapering to the summit, often pubescent.

CORDATE SALIX, *var. myrica-like.*

Stem 2 to 6 feet high. *Leaves* 2 to 4 inches long; *petioles* about ½ an inch in length. *Pistillate aments* 1 to 2 inches long.

Hab. Along streams; North side of the County: rare. *Fl.* April. *Fr.*

Obs. Collected by D. TOWNSEND, Esqr. Judging from indifferent specimens, I should rather incline to consider this as *specifically distinct* from the original *S. cordata, Muhl.*

§ 3. Aments *coaetaneous, long and loose, at the summit of short lateral leafy branches;* ovaries *smooth;* scales *greenish-yellow, deciduous;* branches *brittle at base.*

† Ovary *sessile.*

7. *S. álba,* L. Leaves elliptic-lanceolate, acuminate, denticulate, silky-glaucous beneath; stipules lanceolate; styles short.

WHITE SALIX. White Willow. [See *S. vitellina, L. Fl. Cestr. ed.* 2. *p.* 562.]

Stem 30 to 50 or 60 feet high, much branched; branches rather erect, with a pale greenish-yellow bark. *Leaves* 2 to 3 or 4 inches long, the lower teeth glandular; *petioles* 1 to 2 lines in length. *Pistillate aments* 2 to near 3 inches long, greenish. *Hab.* About houses; low grounds. Nat. of Europe. *Fl.* April. *Fr.*

Obs. The *white willow,* if I mistake not, is the one which is preferred, and cultivated, by the manufacturers of Gun-powder, for the purpose of making *charcoal.* It was introduced as a *shade-tree,* about our old settlements; but is now generally superseded by the *Weeping Willow.* It is, however, partially naturalized in some localities. The *S. vitellina, L.* with more spreading orange-yellow branches, and rather shorter and broader leaves (which Mr. CAREY reduces to a *var.* of this)—is also occasionally seen, as a shade-tree, and partially naturalized. I think we have none but the *pistillate* plants, of *both varieties.* The *twigs* of the *var. vitellina,* or golden Osier, are much used, in Europe, for making baskets. In WATSON'S *Annals of Philadelphia,* we are told that the *Yellow Willow,* in this State, came originally from some wicker-work found sprouting, in Dock Creek. It was seen by Dr. FRANKLIN, who took it out and gave the cuttings to CHARLES NORRIS; who reared them on the grounds now the site of the Custom House, or late Bank of the U. States.

†† Ovary *pedicellate.*

8. *S. frágilis,* var. *Russelliàna, Carey,* in *Gr. Man.* Leaves lanceolate, acuminate, serrate-dentate with the teeth incurved, subglaucous beneath, and slightly silky while young; stipules semi-cordate; styles conspicuous.

S. Russelliana. *Smith, & Fl. Cestr. ed.* 2. *p.* 561.

BRITTLE SALIX. Bedford Willow.

Stem 30 to 50 feet high; *branches* rather erect, with a greenish-brown smooth bark, somewhat pubescent when young, remarkably brittle at base. *Leaves* 2 to 4 inches long, acute at each end, finally smooth; *petioles* 2 lines to ½ an inch in length, glandular and somewhat pubescent. *Pistillate aments* 2 to 2½ inches long; *capsules* tawny-green.

Hab. Low grounds. Nat. of England. *Fl.* May. *Fr.*

Obs. This species is abundant on the Brandywine, about Wistar's Bridge; and has been advantageously propagated, in that vicinity, in localities where few other trees would grow. I have seen none but *pistillate* plants.

9. S. nigra, *Marshall.* Leaves narrow-lanceolate, tapering and acute at each end, smooth and green on both sides, with the petiole and midrib pubescent; stipules small, caducous; stamens 3 or 4 to 6; styles short.

BLACK SALIX.

Stem 15 to 20 feet high, often crooked, or leaning, with a dark-colored rough bark; *branches* somewhat pubescent, and mostly dark purple, when young.—*Leaves* 2 to 3 inches long; *petioles* 1 to 2 or 3 lines in length, often very pubescent, sometimes smoothish. *Staminate aments* 1½ to 2 inches long, rather slender, tomentose; *stamens* usually about 5. *Pistillate aments* about an inch long.

Var. falcàta, *Carey*, in *Gr. Man.* *Leaves* 3 to 6 inches long, more or less falcate, tapering gradually to the apex, and often obtuse at base; *petiole* and midrib smooth; *stipules* reniform-cordate, reflexed, large and persistent on young branches.
S. Purshiana. *Spreng. & Fl. Cestr. ed.* 2. *p.* 560.
Hab. Low grounds; along streams: frequent. *Fl.* May. *Fr.* June.

Obs. Since the 2nd Edition was published, I have seen handsome *trees*, of the *var. falcata*, in the adjoining County of New Castle, 25 to 30 feet in height; and have received beautiful specimens from the banks of the streams among the Allegheny Mountains, from my industrious and observing friend, Mr. JOHN M'MINN.

10. S. lùcida, *Muhl.* Leaves ovate-oblong, oval, or lanceolate, often coriaceous, conspicuously acuminate, glandular-serrate, smooth and shining on both sides; stipules oblong, toothed; stamens about 5.
SHINING SALIX.

Stem 8 to 12 or 15 feet high; *branches* smooth, with a shining yellowish-brown bark. *Leaves* 2 to 6 inches long, and ¾ to 2 inches wide; *petioles* ¼ to ¾ of an inch in length, glandular near the leaf. *Staminate aments* 1 to 1½ inches long.—*Pistillate aments* 1 to 2 inches long. *Coma* of the seeds long and copious.
Hab. Banks of the Brandywine, near Downingtown: rare. *Fl.* May. *Fr.*

Obs. I have received, since the last Edition, specimens from the mountains, by Mr. JOHN M'MINN, of Clinton County, with leaves quite as large as those figured by MICHAUX, thick and coriaceous, with a remarkable acumination.

11. S. BABYLÓNICA, L. Young branches very slender, flaccid, and pendulous; leaves linear-lanceolate, acuminate, usually sharply serrate-dentate, smooth, glaucous beneath; stipules ovate, acuminate, glandular-dentate, revolute; aments recurved.
BABYLONIAN SALIX. Weeping, or Drooping Willow.

Stem 30 to 50 feet high, with a wide-spreading top; young branches greenish, numerous, long and perpendicularly pendent. *Leaves* 2 to 4 or 5 inches long; *petioles* 1 or 2 lines in length. *Pistillate aments* about an inch long, mostly curved or turned upward on the pendulous branches.
Hab. About houses. Nat. of the East. *Fl.* April. *Fr.*

Obs. This picturesque and elegant species is deservedly admired, and much cultivated, as an ornamental *shade-tree*. TOURNEFORT thus defines it:—"*S. orientalis*, flagellis deorsum pulchrè pendentibus." LINNAEUS, adopting the idea of RAUWOLF, gave it the specific name which it now bears,—in allusion to the 137th Psalm:—"By the rivers of *Babylon*, there we sat down, yea, we wept, when we remembered Zion. We hanged our harps upon the *Willows* in the midst thereof." According to Mr. WATSON, the Annalist of Philadelphia, the *first Weeping Willows* were introduced by Gov. JOHN PENN, for his Garden, in South third street. None but the

pistillate plant has yet been seen,—either here, or in Europe. A singular *variety* (*annulàris*, or Ring-leaved Willow), with small curled leaves, has been introduced within a few years. Several of the Willows afford good *material* for *Basket-work;* but the species most highly prized, for its pliable twigs, is the *Common Osier* (*Salix viminàlis, L.*),—which is said to be well worthy of culture, as a profitable business. I think I have not yet seen that species in our County; though its introduction would probably *pay*, at this time, better than *Morus multicaulis*.

382. POP'ULUS, *Tournef.*

[Latin, *Populus*, the people; being used to shade *the People's*, or public, walks.]

Aments with the *bracts* laciniately incised at apex. *Calyx* a subturbinate cup-shaped *disk*,—the *border* obliquely lengthened in front, entire, surrounding the stamens, or pistil. *Stamens* 8 to 12, or more; *filaments* distinct. *Stigmas* large, 2- or 3-lobed. *Trees: branches* more or less angular, often stoutish; *bud-scales* numerous, imbricated, coated with resinous varnish; *leaves* often broad, subcordate or ovate, on long laterally compressed *petioles; aments* preceding the leaves,—the *bracts* and *calyx* similar in both kinds.

1. P. tremuloides, *Mx.* Leaves cordate-orbicular, abruptly acuminate, denticulate; bracts deeply 3- or 4-lobed; lobes linear. TREMULA-LIKE POPULUS. American Aspen.

Stem 30 to 60 feet high, (tall and slender, when crowded,—shorter and round-topped, when single), with a smoothish cinereous bark. *Leaves* about 2 inches in length (on young plants, much larger), and rather wider than long; *petioles* 2 to 3 inches long, slender, laterally much compressed (or vertically dilated) near the leaf,—which compression subjects the leaf to a tremulous motion from the slightest breeze. *Pistillate aments* 3 to 4 or 5 inches in length. *Bracts* deeply incised, and fringed with long grey hairs. *Stigmas* dark purple.

Hab. Low grounds; Brandywine: not common. *Fl.* April. *Fr.* May.

Obs. This is sometimes cultivated, as an ornamental *shade-tree;* and its *bark* is a popular tonic. The *Quaking Aspen*, of Europe (*P. tremula, L.*)—which ours resembles—is scarcely known, here.

2. P. grandidentàta, *Mx.* Leaves roundish-ovate, acute, coarsely sinuate-dentate; bracts dentate, or 5- or 6-lobed; lobes small, unequal.

LARGE-TOOTHED POPULUS.

Stem 30 to 50 feet high,—when growing singly, the top rather large and roundish; bark smooth, greenish-gray. *Leaves* 3 to 4 or 5 inches long, and about as wide as long; *petioles* 2 to 3 inches in length. *Pistillate aments* 2 to 3 inches long. *Bracts* slightly fringed, or somewhat coarsely dentate.

Hab. Moist woodlands: becoming rare. *Fl.* April. *Fr.* May.

3. P. heterophyl'la, *L.* Leaves roundish-oblong, or deltoid-ovate, obtuse, uncinately serrate, often auriculately subcordate at base with the sinus small, densely and softly tomentose while young. VARIOUS-LEAVED POPULUS.

Stem 30 to 50 feet high, with a greyish-brown bark. *Leaves* 3 to 6 or 8 inches long, and 2 to 6 inches wide; *petioles* 2 to 4 or 5 inches in length,—at first densely clothed, like the leaves, with a soft cinereous (or often slightly tawny) tomentum.

Hab. Moist woods; E. Marlborough: rare. *Fl.* April. *Fr.*

4. P. GRÆCA, Ait. Leaves cordate-ovate, acuminate, uncinately serrate.

GREEK POPULUS. Athenian Poplar.

Stem 30 to 50 feet high, with irregular and rather spreading branches. *Leaves* 4 to 6 or 8 inches in length, and about as wide as long; *petioles* 1½ to 3 inches long. *Pistillate aments* 3 to 6 inches in length.

Hab. Streets, and yards. *Fl.* April. *Fr.* May.

Obs. This species was introduced, here, as a *shade tree*, early in the present century; but it was not generally adopted,—and is now nearly superseded by more eligible ones. We have only the *pistillate* plant; and the cottony *coma*, from the bursting capsules, is so abundant as to render the tree objectionable, in the immediate vicinity of dwellings. It is stated in SELBY'S History of British Forest Trees (1842), that the *North American Continent* is probably the "real native country" of this Poplar. If so, AITON'S specific name (*Graeca*,) was an unfortunate misnomer: a mistake, however, not uncommon in vulgar names.

5. P. DILATÀTA, Ait. Leaves much dilated, nearly deltoid, acuminate, serrate, smooth on both sides.

DILATED POPULUS. Lombardy Poplar. Italian Poplar.

Stem 60 to 80 feet high; branches numerous, nearly erect, forming a close conical-oblong symmetrical top. *Leaves* 2 to 3 inches in length, and rather wider than long; *petioles* about 2 inches in length. *Staminate aments* 2 to 3 inches long, the *bracts* finely fringed.

Hab. Streets, and avenues, *Fl.* April. *Fr.*

Obs. This was a favorite ornamental tree, for a number of years; but is now (1852) nearly obsolete. Mr. WATSON, in his Annals of *Philadelphia*, says it was introduced from *England*, in 1784, by WILLIAM HAMILTON, Esqr., of the "Woodlands," near that City.—The Botanical Editor of REES'S Cyclopaedia, however, thinks they have only the *pistillate* plant in England,—whereas it was the *staminate* plant that was introduced by Mr. HAMILTON; and he may have procured it from the Continent. SELBY, in his British Forest Trees, says this Poplar was probably brought into Italy, from *Persia*. It is called *P. fastigiata*, by DESFONTAINES; and SELBY uses the term *fastigiate* in its original sense of *taper-pointed*, *conical* or *pyramidal*,—instead of *level-* or *flat-topped*, which is the meaning attached to it by most modern Botanists.

6. P. ALBA, L. Leaves roundish-cordate, or often 3-lobed, coarsely dentate, smooth and green above, mostly white and densely tomentose beneath.

WHITE POPULUS. Silver Poplar. Abele-tree.

Stem 30 to 60 feet high, with spreading branches and a smooth greyish-white bark. *Leaves* 2 to 3 inches long,—when old, sometimes glabrous on both sides; *petioles* 1 to 2 inches in length. *Aments* 1 to 2 inches long,—the *bracts* finely laciniate and ciliate with white hairs.

Hab. Streets, and yards. Nat. of Europe. *Fl.* April. *Fr.*

Obs. This is becoming somewhat frequent, as a cultivated *shade tree*,—though its tendency to send up *suckers*, all around it, renders

it rather troublesome. It is this species to which that delightful Poet of Nature, COWPER, refers,—where he mentions the

"*Poplar*, that with silver lines his leaf."

ORDER XCVI. PLATANÀCEAE.

Trees, with a watery juice; *leaves* alternate, petiolate, palmately nerved and lobed, with sheathing intrapetiolar *stipules*,—the *petioles* tumid and hollow at base, concealing the young *buds*; *flowers* monoicous, minute, densely crowded in separate naked globose long-peduncled pendulous *aments*; *calyx* none: STAMINATE FLOWERS in small deciduous heads; *stamens* numerous, mixed with subclavate *scales* (or *staminodia?*): PISTILLATE FLOWERS in larger persistent heads; *ovaries* numerous, filiform-clavate, mixed with spatulate *scales* (abortive *ovaries?*); *styles* rather lateral, simple, subulate; *fruit* a 1-celled 1-seeded clavate coriaceous little *nut*, which is invested at base, with tawny pappus-like hairs; *seed* pendulous, with fleshy *albumen*.

383. PLAT'ANUS, *L.*

[Gr. *Platys*, broad; in allusion to the ample shade of its foliage.]

☞ The *Order* consisting of a single *Genus*, the *character of both* is necessarily the same. Large *trees*, with cinereous exfoliating *bark*.

1. P. occidentàlis, *L.* Leaves roundish-pentagonal, sinuate-lobed and dentate, clothed with a branching deciduous pubescence. WESTERN PLATANUS. Button-wood. Plane-tree.

Stem 60 to 100 feet high, and 3 to 5 feet, or more, in diameter,—with large spreading branches, and a smoothish cinereous bark, which exfoliates in broad thinnish plates. *Leaves* 4 to 6 or 8 inches in length, and rather wider than long,—the base at first truncate, finally subcordate; *petioles* 1 to 3 inches in length; *stipules* somewhat salverform, sheathing the young branches immediately above the petioles,—the *border* foliaceous, coarsely and unequally toothed. *Staminate* heads small, on peduncles 1 to 2 inches long. *Pistillate* heads about an inch in diameter, on peduncles 3 to 5 inches long. *Nuts* about ⅓ of an inch in length, slender, subterete, clavate. mucronate, the base acute.

Hab. Banks of streams, and roadsides: frequent. *Fl.* April. *Fr.* October.

Obs. This stately tree—originating from a very small seed—often attains to a larger size than any other, east of the Rocky Mountains. For a number years past, it has been affected with some disease, which has materially impaired its luxuriant growth,—the nature, or cause of which affection, seems not to be well ascertained.

ORDER XCVII. URTICA'CEAE.

Trees and *shrubs* with a milky juice,—or *herbs* with a watery juice; *leaves* alternate, or opposite, often *stipulate*; *flowers* monoicous, dioicous, or polygamous, furnished with a regular *calyx*,—sometimes arranged in *ament-like spikes*, or fleshy *heads*; *stamens* as many as the calyx-lobes, and opposite them; *ovary* free from the calyx, mostly 1-celled, with a solitary *ovule*; *fruit* an *akene*, or *utricle*,—often inclosed in the fleshy calyx, and clustered so as to form a *compound berry*,—or all contained in the cavity of the general *receptacle*; *embryo* curved, or straight,—with, or without *albumen*.

This is a comprehensive and important, though rather heterogeneous, order,—comprising 4 *subdivisions*, which ENDLICHER has erected into as many *distinct*

Orders, designated as the *Bread-fruit*, *Mulberry*, *Hemp*, and *Nettle* families. It certainly contains plants of remarkably dissimilar aspect and properties; such as the Nettle and the Mulberry—the bitter Hop and the luscious Fig—the nutritious Bread-fruit (*Artocarpus incisa, L.*) and the reputed deadly Upas (*Antiaris toxicaria, Leschen*). The celebrated Cow-tree, or *Palo de Vaca* (*Brosimum Galactodendron, Don*), of South America—"which yields a copious supply of rich and wholesome milk"—belongs to this Order; as also does the yellow-dye wood, called Fustic (*Maclura tinctoria, Don*), the wide-spreading Banyan tree (*Ficus religiosa, L.*) of India, &c.

SUBORDER I. MORE'AE. *

Trees, or *shrubs*, with a milky juice; *leaves* alternate, with deciduous *stipules*; *staminate* and *pistillate flowers* sometimes intermixed, but usually in separate spikes, or heads,—and occasionally (as in the *Fig*) included in the hollow receptacle; the *calyx*, or *receptacle*, of the *pistillate* flowers, becoming succulent in *fruit*; *stigmas* 2; *embryo* curved, in copious *albumen*.

384. MACLU'RA, *Nuttall.*

[Dedicated to *William Maclure*,—a munificent Patron of Natural Science.]

Flowers dioicous: STAM. FL. racemose. *Calyx* 4-parted. PISTILLATE FL. densely crowded, and coalesced, on a globose receptacle. *Sepals* 4, in opposite pairs, oblong, somewhat cucullate and fleshy. *Ovary* 1-celled, sessile; *style* terminal, bifid,—one branch large, much exserted, *stigmatic* on the inner side,—the other small, or abortive. *Akenes* 1-seeded, embraced by the sepals, and all coalesced into a large compound globose lactescent yellowish-green *berry*, with a glabrous, but uneven, irregularly tessellated surface. Small *trees*,—the branches armed with very sharp slender *spines*.

1. M. AURANTÌACA, Nutt. Leaves lance-ovate, acuminate, entire, smooth and shining above, puberulent beneath; berry subsessile, axillary, solitary.

ORANGE-LIKE MACLURA. Osage Orange. Bow-wood.

Stem 20 to 30 feet high, with a much-branched spreading or bushy top,—the *branches* virgate, but often inclined to droop or curve downward, armed with small and very sharp spines. *Leaves* 4 to 6 inches long, subcoriaceous, mucronate; *petioles* 1 to 2 inches in length; *stipules* oblong, somewhat cucullate, caducous.—Principal *style-branch* near an inch long, villous, purplish. *Fruit* coalesced in a solid globose *head* which is 2 to 3 inches in diameter.

Hab. Yards; hedges, &c. Nat. of Arkansas. *Fl.* May. *Fr.* Oct.

Obs. The *roots* of this are of a bright *orange color*,—and so abundant, and extensive, as to be troublesome, in gardens. The *wood* shows an affinity with that of the Mulberry,—and therefore is probably durable. It is said to have been highly valued for making *Bows*, by the aboriginal hunters and warriors. I have observed that Silk-worms feed greedily on its *leaves*; and the young plants, properly managed, promise to make a very neat and effective *hedge*,—though I apprehend the roots would exhaust the soil to an injurious extent on each side, in cultivated grounds.

* We have no plant belonging to the Suborder ARTOCARPEAE, or *Bread-fruit division*, growing in this County. The nearest approach to the structure and appearance of the Bread-fruit, is in the fruit of the *Maclura*, or Osage Orange,—which has been *introduced* from the South West.

385. MO'RUS, *Tournef.*

[From *Morea*,—the Greek name of the Mulberry.]

Flowers mostly *monoicous: calyx* 4-parted. STAM. FL. in loose ament-like spikes,—the spikes sometimes androgynous. PISTILLATE FL. in short dense spikes. *Ovary* 2-celled,—one of the cells smaller, and disappearing; *styles* 2, filiform, *stigmatic* on the inner side.—*Akene* compressed, ovate, covered by the persistent succulent *calyx*,—the *whole spike* thus becoming a compound terete oblong *berry*.—*Leaves* often lobed; *flowers* greenish.

1. M. rùbra, *L.* Leaves cordate-ovate, acuminate, sometimes 2- or 3-lobed, scabrous above, pubescent beneath; fruit dark purple. RED MORUS. Red Mulberry.

Stem usually 15 to 25 feet high, with numerous spreading branches. *Leaves* 4 to 6 or 8 inches long, dentate-serrate, often lobed on young plants; *petioles* 1 to 3 inches in length. *Flowers* numerous, in axillary pedunculate ament-like spikes,—often androgynous, sometimes dioicous. *Staminate spikes* 1 to near 2 inches long. *Pistillate spikes* about an inch long,—becoming juicy, sweet, and pleasantly esculent when mature.

Hab. Rich woodlands; fence-rows, &c.: frequent. *Fl.* May. *Fr.* July.

Obs. The *wood* of this small tree is very durable; and the *fruit* preferred to that of any other species, known here.

2. *M. álba,* L. Leaves obliquely cordate-ovate, acute, somewhat lobed, smoothish and shining; fruit usually yellowish-white. WHITE MORUS. White Mulberry.

Stem 10 to 20 or 25 feet high, branched, and spreading at top. *Leaves* 2 to 4 inches long (in young plants, much larger), unequally crenate-serrate, yellowish-green; *petioles* ½ an inch to an inch in length. *Pistillate spikes* shorter and smaller than in the preceding. *Fruit* straw-color, when mature,—rarely dark purple or nearly black.

Hab. Fence-rows, &c. Nat. of Asia. *Fl.* May. *Fr.* July.

Obs. The White Mulberry was introduced into this *County*, nearly a century since, with a view to the *Silk-culture*. The project, however, was soon abandoned; for, in that early stage of the Colony—with all manufacturing pursuits discountenanced by the Mother Country—the sparsely settled Agriculturists soon found it more profitable to attend to *mammiferous animals*, rather than *Insects*.—But the *tree* became partially naturalized,—and is yet to be seen about a number of old settlements. About fifteen years ago, a *variety* of this species—of smaller stature and much larger leaves (well-remembered by the name of *Morus multicaulis*)—was introduced, as being still better adapted to the feeding of Silk-worms; and soon thereafter, a scene of speculation and infatuation was exhibited, thoughout the U. States, which—like some of its European prototypes—bade defiance to all the suggestions of reason and common sense. There was a sort of wild enthusiasm, or *furor*, so universal and vehement, that it became positively ludicrous; and was scarcely exceeded, in absurdity, by the nearly contemporaneous *epidemic*, which led our excitable people, in a fit of political delirium, to wage a destructive war upon their own currency. During the prevalence of the *Moro-mania*, every body was eagerly engaged in prop-

agating myriads of trees *to sell*—without stopping to inquire *where* they could be sold, or *who* would be likely *to buy!* Of course, it was not very long until the bubble burst;—and the curious incidents of the hallucination now only serve

"To point a moral, or adorn a tale."

At some future day, and under different circumstances, it is quite possible that a portion of our population may find the Silk-culture an eligible business, and the *Morus multicaulis* a valuable little tree.

386. BROUSSONE'TIA, *Vent.*

[Dedicated to *P. N. V. Broussonet*,—a French Naturalist.]

Flowers dioicous: STAM. FL. in loose ament-like *spikes*, bracteate.—*Calyx* 4-parted. PISTILLATE FL. in dense capitate *clusters*, mixed with hairy scales. *Calyx* urceolate, 3- or 4-toothed. *Ovary* 1-celled, pedicellate; *style* 1, filiform, eccentric, *stigmatic* on one side. *Akene* softly fleshy, elevated on the *baccate pedicel*, which is surrounded at base by the calyx.

1. B. PAPYRIF'ERA, Vent. Leaves roundish-ovate, or subcordate, acuminate, serrate, often lobed, roughish above, pubescent beneath.

PAPER-PRODUCING BROUSSONETIA. Paper Mulberry.

Stem 15 to 20 or 25 feet high, with spreading branches, and tough *bark* on the twigs. *Leaves* 3 to 6 or 8 inches long; *petioles* 1 to 3 inches in length. *Staminate spikes* about 2 inches long. *Pistillate flowers* densely crowded on a globose receptacle.

Hab. Streets, and yards. Nat. of Japan. *Fl.* May. *Fr.*

Obs. The *staminate* plant was introduced, here, some 60 years since, as a *shade tree;* but it is inferior to many others in beauty,—and so prolific in troublesome *suckers*, that it is now becoming obsolete. The *pistillate* plant (especially *in fruit*) is said to be a handsomer tree; but it has been introduced so recently, that its character is scarcely known among us.

SUBORDER II. CANNABIN'EAE.

Herbs, with a watery juice; erect and annual,—or twining and perennial; *leaves* usually opposite, and *stipulate; flowers* dioicous,—the *staminate* ones racemose, or paniculate, with 5 *sepals* imbricated in the bud,—the *pistillate* ones clustered, either with single *bracts*, or with numerous *bracts* imbricated in strobile-like *aments; stigmas* 2, elongated; *fruit* a *nut*, or *akene; embryo* curved, destitute of *albumen*.

387. CAN'NABIS, *Tournef.*

[An ancient Greek name,—of obscure etymology.]

STAM. FL. in axillary compound racemes. PISTILLATE FL. spicate-clustered, with single *bracts*. *Calyx* urceolate, acuminate,—consisting of a single membranaceous *sepal* folded round the subglobose *ovary*. *Fruit* a *nut* (or *caryopsis*), ovoid, 1-celled, 2-valved, indehiscent, inclosed in the persistent calyx. *Stem* erect; *upper leaves* often alternate; *flowers* greenish.

1. C. SATI'VA, Leaves digitate, petiolate; leaflets 5 to 7, lanceolate, serrate.

CULTIVATED CANNABIS. Common Hemp.

Annual. Stem 5 to 8 or 10 feet high, obtusely angular and sulcate, roughish-pubescent, often branched. *Leaflets* 3 to 5 inches long; *common petioles* 1 to 3 inches in length. *Staminate flowers* in loose pedunculate axillary clusters, rather crowded in a kind of dense panicle at summit. *Pistillate flowers* axillary, sessile; mostly in pairs. *Stigmas* long, slender, densely pubescent, somewhat tawny.
Hab. Fields, &c.: very rare. Nat. of Persia. *Fl.* June. *Fr.* Aug.

Obs. This plant—so important in Commerce and the Arts—was formerly one of the regular crops, with many of our farmers; but it is now scarcely entitled to be enumerated among the cultivated plants of *Chester County*.

388. HU'MULUS, *L.*

[Latin, *Humus*, mould, or moist earth; in allusion to its place of growth.]

STAM. FL. in loose oblong axillary panicles. PISTILLATE FL. in short axillary and solitary *strobile-like aments; bracts* foliaceous, imbricated in several rows, each 2-flowered. *Calyx* a single membranaceous scale-like enlarging *sepal*,—its folded margin embracing the *ovary*. *Akene* 1-celled, invested with the enlarged *calyx*, which is sprinkled with orange-colored *resinous atoms*, and, together with the *bracts*, forming a membranaceous *cone*, or ovoid-oblong *ament*. *Stem* twining (*with the sun*—or E. S. West); *upper leaves* often alternate; *flowers* greenish.

1. H. LU'PULUS, L. Stem retrorsely aculeate; leaves mostly 3-lobed, cordate at base, petiolate, very rough.

LITTLE-WOLF HUMULUS. Common Hop. Hop-vine.

Perennial. Stem 10 to 15 or 20 feet long, several from the same root (or *rhizoma*), slender, somewhat angular and twisted, branched above. *Leaves* 3 to 5 inches long; *petioles* 1 to 3 inches in length. *Pistillate cones* proverbially numerous and crowded ("as thick as hops"), pendulous, 1 to 2 inches in length, at maturity; *bracts* broadly ovate, acuminate.
Hab. Gardens, &c. *Fl.* July. *Fr.* September.

Obs. This plant—though cultivated (i. e. the *pistillate* one) in almost every garden—is undoubtedly *indigenous* along our streams. The uses and value of the *cones* (or rather of the *bitter resinous atoms*, with which they abound,) are well known. The pistillate plant, in cultivation, being usually remote from the staminate, I think the ovaries are commonly *abortive*.

SUBORDER III. URTICEAE.

Herbs, with a watery juice,—often armed with stinging hairs; *leaves* opposite, or alternate, *stipulate; flowers* monoicous, dioicous, or polygamous, paniculate, spiked, or clustered; *style* single, or none; *fruit* an *akene*, or *nut* (*caryopsis*), usually embraced by the persistent calyx; *embryo* straight, in fleshy *albumen*.

389. URTICA, *Tournef.*

[Latin, *uro*, to burn, and *tactus*, touch; from the effect in handling it.]

Flowers chiefly *monoicous:* STAM. FL. *Sepals* 4 or 5, valvate in the bud. PISTILLATE FL. *Sepals* 4, in opposite pairs,—the outer pair smaller, sometimes abortive. *Stigma* pencil-tufted, or subulate.—*Akene* somewhat compressed, ovate-oblong. *Plants* mostly armed with stinging hairs; *flowers* greenish.

† Leaves *opposite*; flowers *spiked*; stigma *pencil-tufted*.

1. *U. dioìca*, L. Leaves cordate-ovate, conspicuously acuminate, deeply and acutely serrate; flowers mostly dioicous; spikes longer than the petioles.
DIOICOUS URTICA. Stinging Nettle.

Perennial. *Stem* 2 to 3 feet high, obtusely 4-angled, branching. *Leaves* 2 or 3 to 5 inches long; *petioles* ½ an inch to 2 inches in length. *Flowers* small, in interrupted clusters, on slender axillary branching hispid spikes.
Hab. Waste places. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. A naturalized nuisance,—often seen about the houses of slovenly farmers. Dr. DARWIN thus notices it:—

"Wide o'er the madd'ning throng URTICA flings
Her barbed shafts, and darts her poison'd stings."

†† Leaves *alternate*; flowers *paniculate*; stigma *subulate*.

2. U. Canadénsis, *L.* Leaves ovate, acuminate, obtusely serrate; panicles loosely and divaricately branched.
CANADIAN URTICA.

Perennial. Hispid, and more or less stinging. *Stem* 2 to 5 feet high, rather stout, terete, branching. *Leaves* 3 to 6 inches long, often inclining to elliptic, thinnish; *petioles* 1 to 3 inches in length, slender. *Panicles* often nearly as long as the leaves,—the lower or early ones mostly sterile, the upper or later ones fertile. *Fruit* smooth, larger than the sepals, obliquely orbicular-ovate, with the elongated *stigma* deflected along one margin.
Hab. Miry, shaded grounds: frequent. *Fl.* July. *Fr.* Sept.

390. PILE'A, *Lindley.*

[Latin, *Pileus*, a cap; from the form of the calyx-lobes, or staminodia.]

Flowers monoicous,—both kinds often intermixed in the same panicle, bracteate: STAM. FL. *Sepals* 3 or 4. PISTILLATE FL. *Calyx* with 3 unequal lobes, and an incurved scale (*staminodium*) before each. *Stigma* sessile, pencil-tufted. *Akene* compressed, ovate, minutely warty. *Flowers* greenish, minute, in paniculate corymbs.

1. P. pùmila, *A. Gray.* Stem smooth, succulent and translucent; leaves opposite, rhombic-ovate, acuminate, crenate-serrate, petiolate; corymbs shorter than the petioles.
Urtica pumila. *L. & Fl. Cestr. ed.* 2. *p.* 523.

DWARF PILEA. Rich-weed. Smooth Nettle.

Annual. Plant yellowish-green. *Stem* 6 to 18 inches high, simple, or branched from the base, obtusely 4-angled. *Leaves* 1 to 3 inches long, somewhat hairy; *petioles* 1 to 3 inches in length, slender, smoothish. *Fruit* sprinkled with brownish oblong wart-like dots.
Hab. Moist shaded places: frequent. *Fl.* July. *Fr.* Sept.

391. BOEHME'RIA, *Jacquin.*

[Named after *George Rudolph Boehmer*,—a German Botanist.]

Flowers chiefly *dioicous*,—sometimes intermixed, on simple axillary *spikes*: STAM. FL. in small bracteate clusters, on slender interrupted spikes. *Sepals* 4 or 5. PISTILLATE FL. bracteate, in shorter and thicker continuous spikes. *Calyx* tubular-ventricose, entire, or

4-toothed, inclosing the *ovary*. *Style* subulate, villous, or *stigmatic* on one side. *Akene* compressed, elliptic-ovate, invested by the persistent calyx. *Plants* more or less hairy, but not stinging; *flowers* greenish.

1. B. cylindrica, *Willd.* Leaves mostly opposite, lance-ovate, acuminate, dentate, on long petioles; pistillate spikes cylindrical. CYLINDRIC BOEHMERIA. False Nettle.

Perennial. *Stem* 2 to 3 feet high, mostly simple, obtusely 4-angled, with a groove on each side. *Leaves* 3 to 5 inches long; *petioles* 1 to 3 inches in length. *Spikes* 1 to 3 inches long, usually with 2 or 3 small leaves at the summit,—the *staminate* spikes generally longer than the pistillate ones; when the spikes are *androgynous* they are somewhat interrupted. *Fruit* with a thick pubescent margin, and acuminate with the pubescent style.

Hab. Moist thickets; along streams: frequent. *Fl.* July. *Fr.* Sept.

392. PARIETA'RIA, *Tournef.*

[Latin, *Paries*, a wall; one species often growing on old walls.]

Flowers polygamo-monoicous,—both kinds intermixed, in axillary cymose *involucrate* (or bracteate) *clusters:* STAM. FL. with a 4-parted persistent *calyx*, and an *abortive ovary*. PISTILLATE (or often PERFECT) FL. *Calyx* tubular-campanulate, 4-cleft; *lobes* acute, keeled. *Stamens* (when present) incurved at first, then bending back with an elastic force. *Stigma* subsessile, pencil-tufted.—*Akene* (or *caryopsis*) subcompressed, oval, smooth and shining, inclosed in the persistent calyx. *Leaves* mostly alternate; lobes of the *involucre* (or bracts) sublinear, hispid-ciliate; *flowers* finally reddish-brown.

1. P. Pennsylvánica, *Muhl.* Leaves oblong-lanceolate, rather obtuse, entire, petiolate; involucre longer than the flowers.

PENNSYLVANIAN PARIETARIA. Pellitory.

Annual. *Stem* 4 to 12 inches high, simple, or sometimes with opposite branches near the base, roughish-pubescent. *Leaves* 1 to 2 inches long, ciliate, somewhat hairy, thinnish and rough with elevated dots, tapering at base to a slender ciliate *petiole* ½ an inch to ¾ in length. *Clusters of flowers* sub-divided, so as to present the appearance of a 2- or 3-leaved *involucre* to each flower.

Hab. Banks of Schuylkill: rare. *Fl.* May. *Fr.* July.

SUB-CLASS II.

GYMNOSPÉRMOUS EXO'GENOUS PLANTS.

Pistil represented by an *open scale* (or *carpellary leaf*)—or sometimes entirely wanting,—the *ovules*, and *seeds*, consequently *naked* (i. e. without a proper *pericarp*); of course, there is neither *style* nor *stigma*,—and the *pollen* is applied immediately to the *ovules; cotyledons* often more than *two*.

ORDER XCVIII. CONIF'ERAE.

Trees, or *shrubs*, with resinous juice; *leaves* fascicled (by reason of the suppression of branches, or internodes), or scattered, mostly linear, needle-shaped, or subulate, and evergreen; *flowers* monoicous, or dioicous,—usually *amentaceous* and destitute of both *calyx* and *corolla; staminate* flowers consisting of one or more (often monadelphous) *stamens*, arranged in a kind of loose *ament; anthers* mostly covered at

apex by a dilated scale-like *connective*; *fertile* flowers usually in *cones* (or *strobiles*), with the *ovules* at the base of the *scales*,—or sometimes the *ovule* is partly immersed in a *fleshy disk*; *embryo* in the axis of fleshy and oily *albumen*.

A valuable and very interesting Order, of peculiar Botanical character,—comprising some of the most magnificent trees known, and yielding various balsams, resins, and resinous fluids, of great importance.

SUBORDER I. ABIETIN'EAE.

Flowers chiefly *monoicous*; *fertile aments* consisting of numerous persistent imbricated *carpellary scales*—each scale subtended by a *bract*,—*in fruit*, forming an ovoid or oblong *strobile*, with the *scales* more or less woody, and finally opening; *ovules* 2, adherent to the base of each carpellary scale, inverted (i. e. the *orifice* turned downward); *buds* scaly.

393. PINUS, *Tournef.*

[The Classical Latin Name.]

STAMINATE AMENTS clustered in terminal *spikes*. *Stamens* numerous, inserted on the axis; *anthers* subsessile, 2-celled; *cells* opening lengthwise. FERTILE AMENTS terminal, solitary, or clustered,—the *carpellary scales* with deciduous *bracts*. *Strobile* with the *scales* woody, thickened at apex, and often tipt with a short *spine*,—each scale with an excavation at base containing the 2 nut-like seeds.—*Seeds* winged by an adhering portion of the lining of the scale; *wing* deciduous. *Cotyledons* 3 to 12, linear. *Trees: leaves* in fascicles of 2 to 5, needle-shaped, evergreen,—the *fascicles* sheathed at base by the scarious bud-scales; *flowers* tawny, or purplish, appearing in May,—and the *fruit*, it is said, does not reach *maturity* until the autumn of the *second* year.

1. P. inops, *Ait.* Leaves usually in pairs, rather short; strobiles oblong-ovoid, often curved; spines of the scales slender and straight.
POOR, OR DESTITUTE PINUS. Scrub Pine.

Stem 15 to 30 or 40 feet high, with straggling branches. *Leaves* 1½ to near 3 inches long, sometimes in threes. *Staminate aments* oblong-ovoid, violet-purple. *Strobiles* 2 or 3 inches in length.

Hab. Sterile hills, and old fields: not common.

2. P. rigida, *Miller.* Leaves mostly in threes; strobiles ovoid, often in clusters; spines of the scales stout and recurved.
RIGID PINUS. Pitch Pine.

Stem 30 to 60 feet high, rugged and knotty from the bases of fallen branches.—*Leaves* 2 to 4 inches long, rarely in fours, from very short sheaths. *Strobiles* 2 to 4 inches long.

Hab. Slaty hills: not common.

3. P. strobus, *L.* Leaves in fives, rather long and slender; strobiles cylindric-oblong, nodding; scales without spines.
White Pine. Weymouth's Pine.

Stem 60 to 80 or 100 feet high (often much taller in the interior of the State), straight and with a smoothish bark; *branches* verticillate, rather slender. *Leaves* 3 to 5 or 6 inches long. *Strobile* 3 to 5 inches long, somewhat curved,—the scales slightly thickened at apex, loosely imbricated.

Hab. Rich woods; old field, &c.: not common.

Obs. This is one of the most useful of our northern Pines,—and the lumber it affords, in its best localities, is of immense value.—

The whole genus, however, is scarce, and of very moderate size, in *Chester County*.

394. A'BIES, *Tournef.*

[The Classical Latin name.]

STAMINATE AMENTS scattered, or clustered near the ends of the branchlets. FERTILE AMENTS lateral, or terminal, somewhat clustered, or solitary,—the *carpellary scales* with persistent, or evanescent *bracts*. *Strobile* with the scales rounded, thin and without any *spine* at apex, and not excavated at base. *Seeds* with a terminal membranaceous persistent *wing*. *Cotyledons* 3 to 12. *Trees: leaves* evergreen, solitary, short and rather rigid, scattered, or distichous.

§ 1. Strobiles *lateral, erect;* bracts *persistent;* anther-cells *opening transversely;* leaves *flat, scattered, finally bifarious.*

1. A. BALSÀMEA, Marshall. Leaves narrowly linear, glaucous beneath; strobiles oval-oblong; bracts obovate, mucronate, serrulate, slightly projecting, appressed.

BALSAMIC ABIES. Balsam Fir. Balm of Gilead.

Stem 30 to 40 feet high, with symmetrical branches forming a conical top,—the *bark* smoothish, containing numerous small sacs, or blisters, filled with a transparent balsam. *Leaves* about ¾ of an inch long, light green above. *Strobiles* 3 or 4 inches long, violet-purple,—the *scales* broad and rounded, thin and handsomely imbricated.

Hab. Yards, and lawns. Nat. of the Mountains. *Fl.* May. *Fr.*

Obs. Though not well calculated for *shade*, this is much cultivated about houses, as an ornamental tree.

2. A. PI'CEA, Lindley. Leaves linear, often emarginate, silvery white beneath; strobiles subcylindric.

PITCHY ABIES. Silver Fir.

Stem 40 to 60 feet high, with horizontal branches, and a smooth whitish bark.—*Leaves* about an inch in length, sometimes acute, deep glaucous-green and shining above. *Strobiles* 3 or 4 inches long, reddish-green, finally brown.

Hab. Yards, and lawns. N[illegible] of Europe. *Fl.* May. *Fr.*

Obs. This is a lar[illegible] and finer tree than the preceding,—and is becoming frequent [illegible] the grounds of persons of taste.

§ 2. Strobiles *terminal, pendulous;* bracts *evanescent;* anther-cells *opening lengthwise.*

† Leaves *flat, or slightly 4-angled, more or less bifarious.*

3. A. Canadénsis, *Mx.* Young branches slender, drooping; leaves flat, denticulate near the apex, obtuse; strobiles elliptic-ovoid, small.

Pinus Canadensis. *L. & Fl. Cestr. ed. 2. p.* 548.

CANADIAN ABIES. Hemlock-Spruce. Hemlock.

Stem 40 to 60 feet high, tapering much above; *branches* long, horizontal, or often rather depending. *Leaves* ½ an inch to ¾ in length, shining green above, bluish-glaucous beneath. *Staminate aments* roundish-ovoid, pedunculate, racemosely arranged round, and near the ends, of the flaccid branches. *Strobiles* about an inch long, bluish-glaucous when young, finally pale brown; *scales* obovate,—the apex rounded, thin, and entire.

Hab. Rocky banks of streams; Brandywine: not common. *Fl.* May. *Fr.*

Obs. This tree—though somewhat rare in *Chester County*—is so generally diffused throughout North America, that it has been adopted as *emblematic*, in Vignettes on Maps, and other devices, having reference to this Continent. The *timber* is often cut into lumber; but is much inferior in value to the White Pine. The *bark* is used in tanning leather,—and MARSHALL says, the Aborigines employed it to dye their splints, for baskets, of a red color. The young plants, properly managed, make a very beautiful (though not very effective) evergreen *hedge*.

4. A. EXCÉLSA, DC. Branchlets pendulous; leaves somewhat 4-angled, or keeled on both sides; strobiles cylindric-oblong, large.
TALL, OR LOFTY ABIES. Norway Fir.

Stem 60 to 80 feet, or more, in height, with spreading branches, and pendulous branchlets. *Leaves* about an inch long, scattered round the branches, but bifariously inclined. *Strobiles* 5 to 9 inches long, nearly cylindrical, light brown; *scales* rhomboid, flattish, rigid, thin and somewhat wavy on the edge, slightly lacerate-notched at the tapering apex. *Seed* with one edge of the *wing* a little thicker, like a *Maple Samara*.
Hab. Yards, and lawns. Nat. of Northern Europe. *Fl.* May. *Fr.*

Obs. This stately, solemn-looking tree, with its numerous dark-green waving branchlets, is becoming frequent in ornamental grounds. The *Burgundy Pitch*, of the shops, is said to be afforded by this species.

†† Leaves *needle-shaped, 4-angled, thickly scattered all round the branches.*

5. A. ÁLBA, MX. Branchlets rather slender and drooping; leaves slender, spreading, light bluish-green; strobiles oblong; scales entire.
WHITE ABIES. White Spruce. Single Spruce.

Stem 30 to 60 feet high, with a light-colored bark. *Leaves* ½ to ⅔ of an inch long, somewhat incurved. *Strobiles* 1 to near 2 inches in length, nearly cylindrical, pale brown; *scales* obovate, wavy on the edge.
Hab. Yards, &c. Nat. of Northern States. *Fl.* May. *Fr.*

Obs. Cultivated as an ornamental tree.

6. A. NI'GRA, Poiret. Young branches stout and erect; leaves short, erect, rigid, dark green; strobiles ovoid-oblong; scales crenulate at apex.
BLACK ABIES. Black Spruce. Double Spruce.

Stem 30 to 60 feet, or more, high, with a handsome conical top. *Leaves* about half an inch long, numerous, and appressed, all round the branches. *Strobiles* 1 to 2 inches long; *scales* wavy on the edge, and denticulate at apex.
Hab. Yards, and lawns. Nat. of Northern States. *Fl.* May. *Fr.*

Obs. Becoming frequent as an ornamental shade tree. The young branches are employed to give the flavor to *Spruce Beer*.

395. LA'RIX, *Tournef.*

[The ancient name.]

STAMINATE AMENTS lateral and scattered, bud-like, or the *stamens* in capitate clusters. FERTILE AMENTS on different branches, lateral,—the *carpellary scales* with colored persistent *bracts*. *Strobile*

erect, ovoid,—the *scales* as in *Abies*, but somewhat excavated at base. *Seeds* with a persistent *wing*. *Cotyledons* 2. *Trees: leaves* at first fasciculate or pencil-tufted, finally scattered,—either rigid and evergreen, or soft and deciduous.

† Leaves *rigid and evergreen.*

1. L. CÈDRUS, Miller. Leaves rather few in the fascicles, needle-form, acuminate; strobiles oval, obtuse, rather large.
CEDAR LARIX. Cedar of Lebanon.

Stem 30 to 50 or more feet high. *Leaves* ½ an inch to an inch in length.—*Strobiles* 3 to 4 inches long; *scales* broad, truncate, closely appressed.
Hab. Yards, and lawns. Nat. of Syria. *Fl.* *Fr.*

Obs. This noble tree—so well known for the references to it, in the sacred volume—has been recently introduced, and bids fair to become common, among us. The *Deodar Cedar*—a graceful Evergreen, with drooping branches, less rigid and rather longer bluish-green glaucous leaves—has been also introduced; and apparently belongs to *this section.*

†† Leaves *soft and deciduous.*

2. L. EUROPÆA, DC. Leaves numerous in the fascicles, flattish, linear, rather obtuse; strobiles oblong-ovoid, small.
EUROPEAN LARIX. Larch. White Larch.

Stem 60 to 80 or more feet high. *Leaves* an inch in length, proceeding from obtuse, scarious or thin-scaled buds, in beautiful pencil-like tufts,—finally often scattered by the elongation of the branches, or internodes. *Strobiles* about an inch long, purple while young, finally reddish-brown; *scales* orbicular, slightly reflexed and jagged on the margin.
Hab. Yards, &c. Nat. of Europe. *Fl.* May. *Fr.*

Obs. This beautiful tree is becoming quite frequent, on the premises of persons of taste. It is said to be very valuable for its *timber*. It also affords the *Venice Turpentine*, and a substance called *Manna of Briançon*. We have a *native* species (*L. Americana, Mx.*), on our mountains, which is likewise a handsome tree.

SUBORDER II. CUPRESSIN'EAE.

Flowers monoicous, or *dioicous; fertile aments* consisting of few *carpellary scales*, without *bracts; ovules* 1, 2, or several, at the base of the scales, erect (i. e. the *orifice* upward); *fruit* a roundish *strobile*, the *scales* opening, or sometime coalescent and drupe-like; *buds* naked.

† Flowers *monoicous;* strobile *dry, opening at maturity.*

396. THU'JA, *Tournef.*

[The ancient Greek name of some resinous tree.]

Aments terminal, ovoid, small,—the two kinds on *different branches.* STAM. FL. with the scale-like *connective* bearing 4 *anther-cells.*—FERTILE AMENTS with the *carpellary scales* imbricated, fixed by the base, each bearing 2 *ovules. Seeds* oblong, each with a membranous emarginate *wing. Cotyledons* 2. *Trees: leaves* evergreen, very short, ovate-rhombic, appressed, and mostly imbricated in 4 rows on the young flatted branches.

1. T. OCCIDENTÀLIS, L. Branches spreading; leaves closely appressed, rhombic-ovate, convex on the back; strobiles ovoid-oblong, upward-recurved on the pedicels; scales obtuse, nearly pointless. WESTERN THUJA. American Arbor-vitae.

Stem 30 to 50 feet high, with a conical top; young branches 2-edged, diverging horizontally. *Strobiles* ⅓ of an inch long, in racemose clusters on the recurved branchlets; *scales* 1-seeded; *seed* broadly winged.
Hab. Yards; cemeteries, &c. Nat. of Northern States. *Fl.* May. *Fr.*

Obs. Cultivated as an ornamental Evergreen. In the North it is regarded as a valuable tree, for its timber. The *strobiles* of this are much smaller, and paler green, than in the following.

2. T. ORIENTÀLIS, L. Branches erect; leaves slightly sulcate in the middle; strobiles roundish-ovoid or obovoid, erect; scales acute, with conspicuous recurved or spreading points.
EASTERN THUJA. Chinese Arbor-vitae.

Stem 10 to 20 feet high, usually of a shrub-like habit, with numerous erect branches from near the base,—especially while young; branchlets diverging vertically, or fan-like, with the edges up and down. *Strobiles* about half an inch long, subsolitary, deep green and glaucous.
Hab. Yards, &c. Nat. of China, and Japan. *Fl.* May. *Fr.*

Obs. This is a smaller tree, and of a brighter deeper green, than the preceding. It is often used for an ornamental *hedge;* and is decidedly better for *show* than *service,* when so employed.

397. TAXO'DIUM, *Richard.*

[Gr. *Taxos,* the yew, and *eidos,* form; from a resemblance in the foliage.]

Aments in clusters,—both kinds on the *same branches.* STAM. AMENTS numerous, in a terminal pyramidal *spike; stamens* few,—the *filaments* produced into a scale-like excentrically peltate *connective,* bearing 2 to 5 *anther-cells.* FERTILE AMENTS roundish-obovoid, usually in pairs at the base of the staminate spike,—the *carpellary scales* acute, recurved-spreading at apex, each with 2 *ovules* at base. *Strobiles* subglobose, formed of angular sub-peltate woody scales, scarcely opening. *Seeds* 2, angular; *cotyledons* 6 to 9. *Trees*: producing singular hollow *knobs,* or *exostoses,* on the superficial *roots*; *leaves* pinnately distichous, linear, delicate and deciduous.

1. T. DIS'TICHUM, Richard. Leaflets flat, pinnately arranged on slender herbaceous deciduous branches, which resemble common petioles.
DISTICHOUS TAXODIUM. Cypress. Bald Cypress.

Stem 60 to 100 feet high, somewhat fastigiately branched. *Leaflets* ⅓ to ½ an inch in length, on a common rachis, or herbaceous petiole-like branch, which is 1 to 2 or 3 inches long,—often solitary, and scattered on the woody branches; in one *variety* (*imbricaria, Nutt.*), the leaflets are frequently imbricated, "after the manner of the Junipers."
Hab. Lawns, &c. Nat. of Southern swamps. *Fl.* May. *Fr.*

Obs. This stately tree—which is much admired for its light feathery foliage (that turns to a bright copper-color, in autumn)—is beginning to find a place in lawns, and other appropriate places. The noblest specimen in Pennsylvania, is in the *Bartram Garden,*—

planted by the hands of its venerable Founder, more than a century ago. The *wood* of this tree is soft, fine-grained, and exceedingly durable; for which quality, while plentiful, it was preferred, and much used for making *shingles*, wherewith to roof houses.

†† Flowers *mostly dioicous;* strobile *drupe-like, not opening.*

398. JUNIP'ERUS, *L.*

[The Classical Latin name.]

STAMINATE AMENTS axillary or subterminal, ovoid, very small; *filaments* short and thick, bearing a scale-like excentrically peltate *connective; anther-cells* 3 to 6, attached to the lower edge of the *scale.* FERTILE AMENTS axillary, ovoid, consisting of 3 to 6 fleshy 1- to 3-*ovuled* coalescent *carpellary scales. Fruit* globular, small, scaly-bracteate at base. *Seeds* 1 to 3, angular, bony; *cotyledons* 2. *Shrubs,* or *trees: leaves* evergreen, rigid, subulate, or scale-like.

1. *J. communis,* L. Leaves verticillate in threes, linear-subulate, cuspidate, spreading, concave and glaucous above.

COMMON JUNIPERUS. Juniper.

Stem 6 to 8 or 10 feet high, with numerous erect branches,—or sometimes with low spreading straggling branches. *Leaves* ½ an inch to ¾ in length, pungently acuminate, keeled and shining green beneath. *Staminate aments* 2 to 3 lines in length, russet-color. *Strobiles* (called berries) about 2 lines in diameter, bluish-black and glaucous when mature.

Hab. Rocky woods. Nat. of Europe. *Fl.* April. *Fr.*

Obs. This is often seen in gardens,—and is partially naturalized. It is also sometimes used, on a small scale, for ornamental hedges. The alcoholic liquor called *Gin,* or *Geneva,* derives its flavor from the drupe-like fruit of this shrub.

2. J. Virginiana, *L.* Leaves in four rows,—on the young branches ovate, acute, appressed—on the older ones, subulate and somewhat spreading, green.

VIRGINIAN JUNIPERUS. Red Cedar.

Stem 30 to 50 feet high, often with longitudinal obtuse ridges. *Leaves* minute,—those on the *young branches* scarcely a line in length, opposite and decussate, imbricated, and making the branches 4-angled; those on the *older branches* 3 to 5 or 6 lines long, and cuspidate. *Strobiles* (or *berries*) about 2 lines in diameter, tuberculate with the points of the *scales,* dark blue when mature, and covered with a bright bluish-glaucous bloom.

Hab. Fence-rows; neglected fields, &c.: frequent. *Fl.* April. *Fr.* Octo.

Obs. The *wood* of this tree is reddish and fine-grained,—very durable, and valuable.

SUBORDER III. TAXIN'EAE.

Flowers dioicous; fertile flowers solitary, destitute of *carpellary scales,* sessile, in a bracteate disk, or concave peduncle; *ovule* naked, erect, ripening into a nut-like *seed,* which is partly immersed in the centre of the thickened fleshy cup-like *disk; buds* scaly.

399. TAX'US, *Tournef.*

[Probably from the Gr. *Taxon,* a bow; the wood being used for bows.]

STAMINATE AMENTS axillary, globular, small, exserted from scaly

buds; *anther-cells* 3 to 8, clustered under a peltate and somewhat lobed *connective*. FERTILE FLOWERS scaly-bracteate at base, consisting merely of a solitary *naked ovule*, seated in a cup-shaped *disk* which finally becomes pulpy and berry-like,—sometimes nearly inclosing the *seed*. *Cotyledons* 2, very short. *Shrubs* (*trees*, in Europe): *leaves* evergreen, linear, rigid, mostly distichous; *pulp* of the disk orange-red.

1. T. Canadénsis, *Willd.* A diffusely branching shrub; leaves mucronate, with recurved or slightly revolute margins, distichous. CANADIAN TAXUS. American Yew.

Stem 2 to 4 feet high, with straggling branches. *Leaves* ½ an inch to ¾ in length, smooth, entire, green on both sides, narrowed at base to a very short petiole.

Hab. Banks of the Schuylkill; Black Rock: rare. *Fl.* April. *Fr.* Octo.

2. T. BACCÁTA, L. A low tree, finally with large trunk; leaves acute, nearly flat, deep green, distichous, or sometimes crowded round the branches.

BACCATE TAXUS. Common Yew.

Stem seldom, as yet, seen more than a few feet high, among us; branches numerous and spreading. *Leaves* ½ to 1¼ inches long, mostly bifarious, subsessile. *Hab.* Yards, and Cemeteries. Nat. of Europe. *Fl.* April. *Fr.* Octo.

Obs. Becoming frequent in Church-yards, and rural Cemeteries. It was this densely branching Evergreen which the Gardeners, in old times, clipped and trimmed into so many fantastic shapes, by way of what they considered *ornament*. There has been recently introduced a very distinct *variety*,—with compact branches, and densely crowded leaves,—called *Irish Yew*,—which, when properly planted, may be trimmed into a very neat *hedge*, round a yard, or garden; though not calculated to be a substantial protection to the premises.

400. SALISBU'RIA, *Smith.*

[Dedicated to *Richard Anthony Salisbury*; an English Botanist.]

STAMINATE AMENTS axillary, filiform, pedunculate; *anthers* several, 2-celled,—*cells* pendulous from the lacerated scale-like *connective*, opening longitudinally, finally divaricate. FERTILE FLOWERS terminal, solitary, on simple or fasciculately branching peduncles; *ovule* naked, seated in a cup-shaped *disk*, in the thickened concave apex of the peduncle,—the disk finally becoming fleshy, embracing the base of the nut-like *seed*. *Cotyledons* 2, linear, elongated.—*Trees: leaves* plicately involute in the bud, deciduous, alternate, or somewhat fasciculate, on long petioles, fan-shaped and striate-nerved, more resembling *phyllodia* than true leaves.

1. S. ADIANTIFÒLIA, Smith. Leaves broadly cuneate and truncate, or inversely deltoid, often bifidly incised at apex, coriaceous, and striate with diverging nerves.

ADIANTUM-LEAVED SALISBURIA. Gingko, or Ginkgo.

Stem 40 to 60 or 80 feet high, with a light-grey bark, and branching, with something of the habit of a *Populus*, or Aspen. *Leaves* 2 to 3 inches long, and 3 to 4 inches wide at apex; *petioles* about 3 inches in length.

Hab. Yards, and lawns. Nat. of Japan. *Fr.* *Fl.*

Obs. This anomalous stranger is becoming frequent, as an ornamental *shade tree*, on the grounds of the curious. The finest specimens in this country, are probably those introduced by the late Mr. HAMILTON, at the "Woodlands," near Philadelphia.

CLASS II. ENDO'GENOUS OR MONOCOTYLE'DONOUS PLANTS.

STEMS not distinguishable into *bark*, *wood*, and *pith*; *leaves* mostly parallel-veined, alternate, and entire; *embryo* with a single *cotyledon*.

ORDER XCIX. ARÀCEAE.

Mostly *herbaceous*, and stemless,—with acrid or pungent juice; *leaves* radical, sometimes dissected; *petioles* sheathing at base; *flowers* dioicous, monoicous, or all perfect, crowded on a *spadix*, which is frequently surrounded by a *spathe*; *sepals* 4 to 6, or often none; *petals* none; *fruit* usually a *berry*; *seeds* with fleshy *albumen*, —or sometimes a large *fleshy embryo without albumen*.

§ 1. Spadix *with a surrounding spathe.*

† Flowers *dioicous, or monoicous*; sepals *none*; ovaries *distinct.*

401. A'RUM, *L.*

[An ancient name; of obscure etymology.

Flowers monoicous, with the *pistillate* ones below, on the *same spadix*,—or often dioicous. *Spadix* naked at summit. *Stamens* crowded, somewhat verticillate; *anthers* subsessile, 2- to 4-celled. *Ovaries* numerous, crowded, 1-celled; *stigma* subsessile. *Berries* 1- or several-seeded; *seeds* subglobose, *albuminous*. *Perennial herbs*, with a tuberous *rhizoma*; *leaves* dissected, scarious when dry; *petioles* elongated; *spadix* on a scape; *berries* orange-red.

1. A. triphyl'lum, *L*, Leaves mostly in pairs, ternately dissected; leaflets elliptic-ovate; spadix clavate, shorter than the cucullate spathe.

THREE-LEAVED ARUM. Indian Turnep.

Rhizoma turnep-shaped, rugose, 1 to 3 inches in diameter. *Leaflets* 3 to 6 inches long, sessile, often purplish; *common petioles* erect, 9 to 18 inches in length. *Scape* 6 to 15 inches high,—the base inclosed by the sheathing petioles. *Spathe* 3 to 5 inches long,—the lower half convolute, the upper half a little dilated, flat, ovate-lanceolate and cucullately incurved, variegated with purple, and yellowish stripes. *Spadix* generally *dioicous*, obtuse at apex. *Berries* in an ovoid-oblong cluster.
Hab. Rich, shaded grounds: frequent. *Fl.* May. *Fr.* Aug.

Obs. The turnep-shaped *rhizoma* (called a *Cormus*,) is very acrid, when recently gathered; but that quality is dissipated, in great measure, by boiling, or drying.

2. A. Dracóntium, *L.* Leaf mostly solitary, pedately dissected; leaflets lance-oblong; spadix subulate, longer than the convolute spathe.

DRAGON ARUM. Green Dragon.

Rhizomas clustered, tuberous, rather small. *Leaflets* 7 to 11 or 13 in number and 3 to 6 inches in length, subsessile; *common petiole* 12 to 18 inches long,

—often dichotomous at summit, with the branches divaricate; each branch bearing 3 to 5 or 6 leaflets, and always a dichotomal one in the centre, or division of the petiole. *Scape* 6 to 12 inches high, rather slender. *Spathe* 1 to 2 inches long, rolled into a tube, with a short erect acumination. *Spadix* mostly *dioicous*, terminating in a slender tapering acute point. *Berries* in an ovoid cluster, round the base of the spadix.

Hab. Low grounds; along the Brandywine: frequent. *Fl.* May. *Fr.* Sept.

402. PELTAN'DRA, *Rafin.*

[Gr. *Pelte*, a target, and *Aner*, stamen; from the peltate stamens.]

Flowers monoicous, entirely covering the tapering *spadix*, which is staminiferous at summit. *Spathe* elongated, convolute. *Anthers* sessile, with 5 or 6 *cells* surrounding the margin of a thick peltate *connective*, opening by a terminal *pore*. *Ovary* 1-celled; *stigma* subsessile. *Berries* 1- to 3-seeded; *seeds* obovoid, without *albumen*.—A stemless *perennial herb: leaves* on long petioles; *scapes* several.

1. P. Virginica, *Rafin.* Leaves oblong, mostly hastate-sagittate, acute,—the lobes obtuse; spadix finally subglobose, closely invested by the spathe.

Rensselaeria Virginica. *Beck. & Fl. Cestr. ed.* 2. *p.* 530.

VIRGINIAN PELTANDRA.

Plant deep green. *Root* of "thick tufted fibres." A. GRAY. *Leaves* 6 to 12 or 15 inches long, and 2 to 5 or 6 inches wide; *petioles* 9 to 15 inches in length. *Scapes* 9 to 18 inches high; *spathe* 2 to 3 inches long, at first subcylindric, acuminate,—the upper portion, and the staminate part of the spadix, at length rotting away, and leaving the oval cluster of green *berries* embraced by the fleshy base of the spathe.

Hab. Miry places; Wynn's Meadows: rare. *Fl.* June. *Fr.*

Obs. KALM says, "the *roots* often grow to the thickness of a man's thigh" (which, I presume, must be an exaggeration); and that the Indians eat them. I have not had an opportunity to see them.

†† Flowers *perfect;* sepals 4; ovaries *coalescing.*

403. SYMPLOCAR'PUS, *Salisbury.*

[Gr. *Symplokê*, connection, and *karpos*, fruit; from the coalescing ovaries.]

Spathe conch-shaped, acuminate. *Spadix* on a short peduncle-like *scape*, oval, densely covered and tessellated with flowers. *Stamens* 4, opposite the fleshy cucullate sepals. *Ovary* 1-celled; *style* 4-sided, tapering to a minute *stigma*. *Fruit* an oval fleshy *berry-like* mass, coalesced with the base of the persistent sepals, and imbedded in the spongy *receptacle*. *Seed* globular, destitute of *albumen*. *Perennial* stemless *herbs*, with a strong blended *odor* (when bruised) of skunk and garlic; *rhizoma* thick; *leaves* radical, enlarging; *spathe* subsessile, preceding the leaves, spotted with purplish-brown, and yellow.

1. S. foètidus, *Salisb.* Leaves at first orbicular-cordate, finally cordate-oval, on short petioles; spadix much shorter than the spathe.

FETID SYMPLOCARPUS. Swamp Cabbage. Skunk-weed.

Leaves finally near 2 feet long, entire, smooth; *petioles* 2 to 4 inches in length; *stipules* expanding, ovate-oblong, acuminate, or often spatulate. *Spadix* about an inch in diameter.

§ 2. Spadix *without a proper spathe;* flowers *perfect;* sepals 4 *to* 6.

404. ORON'TIUM, *L.*

[Etymology obscure; supposed to be from the river *Orontes.*]

Spadix terminating a terete clavate *scape*, covered with *flowers*,—the *lower* ones with 6 concave *sepals*, the *upper* with 4. *Stamens* as many as the sepals, and opposite them. *Ovary* 1-celled, with a single *ovule; stigma* minute, sessile. *Fruit* a green *utricle. Seed* without *albumen.* An aquatic stemless *perennial: leaves* oblong, petiolate, floating, very smooth, deep velvety green above; *flowers* yellow.

1. O. aquáticum, *L.* Leaves lance-oblong, or obliquely ovate-lanceolate, pale and somewhat glaucous beneath.

AQUATIC ORONTIUM. Golden Club. Floating Arum.

Leaves enlarging, finally 8 to 12 inches long, entire; *petioles* 2 to 5 inches in length. *Spadix* 1 to 2 inches long, on a *scape* 6 to 12 inches in length,—the spadix and upper part of the scape yellow. *Utricle* naked, subglobose, one third of an inch in diameter.

Hab. Pools; along the Brandywine: not very common. *Fl.* May. *Fr.* Aug.

Obs. This plant is very abundant in the sluggish streams of New Jersey; but rather uncommon, here. KALM says the Indians, and Swedes of that day, called it "*Taw-kee;*" and that the Indians plucked the seeds, and kept them for eating.

405. A'CORUS, *L.*

[Gr. *a*, privative, and *kore*, the pupil of the eye; a supposed remedy for sore eyes.]

Spadix lateral, sessile (emerging from the side of a *scape*, the upper portion of which closely resembles the leaves), densely covered and tessellated with flowers. *Sepals* 6, concave, each with a *stamen* inserted on its base; *anthers* reniform, 1-celled, opening transversely. *Ovary* trigonous, 3-celled; *ovules* several, pendulous; *stigma* sessile, minute. *Capsule* somewhat baccate, indehiscent; *seeds* few, *albuminous*, nestling in a gelatinous matter. Sub-aquatic smooth *perennial: rhizoma* creeping, pungently aromatic; *leaves* narrowish-ensiform; *spadix* terete, slightly tapering; *flowers* yellowish-green.

1. *A. Cálamus,* L. Scape subtriquetrous at base, dilated ancipital and leaf-like above the spadix.

REED ACORUS. Calamus. Sweet Flag.

Rhizoma about half an inch in diameter, throwing out fibrous roots verticillately. *Leaves* 2 to 3 feet long, and ½ an inch to ¾ wide. *Scape* as long as the leaves, —the upper foliaceous portion considered, by some, as an *open spathe. Spadix* 2 to 3 inches in length.

Hab. Swampy springs. Nat. of India. *Fl.* May. *Fr.* Sept.

Obs. This well-known, pungent aromatic, is thoroughly established in many localities; and, in such cases, not easily eradicated.

ORDER C. LEMNA'CEAE.

Minute stemless *herbaceous aquatics*, floating free on stagnant pools; *leaves*, as well as *stem*, substituted by a flat *frond*, which produces 1 or 2 *monoicous florets* from a *chink* at the edge, or upper surface,—and a few pendulous *radicles* from the under surface; *stamen* 1; *fruit* utricular; *embryo* straight, in the axis of fleshy *albumen*. Of this remarkable Order, Prof. A. GRAY observes: "Fructification much as in the *Arum Family*, of which these plants are minute and greatly reduced forms."

406. LEM'NA, *L.*

[An ancient Greek name; of uncertain meaning.]

Flowers 3 together, in a cleft in the edge of the *frond*, bursting through a thin membranaceous urceolate *spathe; two* of them consisting of *single stamens* (one preceding the other), with thread-like *filaments*, and 2-celled *anthers;* the *third* floret a 1-celled *ovary; ovule* mostly solitary, erect; *style* elongated, recurved; *stigma* funnel-form. *Utricle* 1-seeded, indehiscent. *Annuals. Fronds* laterally proliferous by a kind of *buds* formed in the chinks, as well as propagated by *seeds; roots* with a sheath-like appendage on the end; *flowers* microscopic, rarely found (never yet, *in this country*. Prof. A. GRAY).

† Fronds *bearing single roots;* ovule *solitary*.

1. L. minor, *L.* Fronds roundish-obovate, or oval, sessile, thickish, proliferous from near the base.

LESSER LEMNA. Duck's-meat. Duck-weed.

Fronds about a line, or line and half, in length, slightly convex beneath, somewhat succulent, green. *Root* a solitary fibre, from the centre of the frond, rather elongated.

Hab. Pools, and stagnant waters: frequent. *Fl.* *Fr.*

Obs. These singular little plants, as ENDLICHER remarks, are "*nemini non cognitae*"—known to every body,—especially this species; but they are so minute, that their organs are seldom seen, and are imperfectly understood.

2. L. trisúlca, *L.* Fronds elliptic-oblanceolate, petiolate, thin, denticulate at apex, proliferous from the sides.

THREE-FURROWED LEMNA.

Fronds ⅓ to ¾ of an inch long, nearly pellucid, finally elongated and narrowed at base to a slender tail, or petiole, obtuse at apex, proliferous from near the middle of the sides, so as to form crosses. While these lateral fronds remain sessile, they present the appearance of a 3-lobed leaf.

Hab. Stagnant waters; New Garden: not common. *Fl.* *Fr.*

†† Fronds *bearing a fascicle of roots;* ovules 2.

3. L. polyrhiza, *L.* Fronds roundish-obovate, thickish, palmately veined, proliferous from near the base.

MANY-ROOTED LEMNA.

Fronds 2 to 4 lines in length, of a rather firm texture, and often dark purple beneath, with a little cluster of *radicles* from near the centre.

Hab. Stagnant pools; along Schuylkill: not common. *Fl.* *Fr.*

ORDER CI. TYPHÀCEAE.

Marsh herbs: leaves sessile, sheathing at base, narrow-ensiform, or linear; *flowers* monoicous, in a dense cylindric spadix-like *spike*, or glomerate in *heads*, destitute of proper floral envelopes; *fruit* nut-like, or a sort of dry drupe, indehiscent, mostly 1-seeded; *seed* suspended; *embryo* straight, in copious *albumen*.

407. TY'PHA, *Tournef.*

[Gr. *Typhos*, a bog, or marsh; from its place of growth.]

Flowers in a long dense terminal cylindric interrupted *spike*, or *spadix*, with an intervening caducous *spathe*,—the *upper* portion consisting of *stamens* only, intermixed with simple hairs,—the *lower* consisting of *ovaries* surrounded by numerous clavate bristles; *style* simple; *stigma* unilateral, tongue-shaped. *Nutlets* minute, pedicellate. Smooth *perennials: rhizoma* creeping; *stems*, or *culms*, simple, without *nodes* (except at base, where the leaves originate); *leaves* narrow-ensiform, or linear, thickish, erect, about as long as the culm.

1. T. latifòlia, *L.* Leaves ensiform-linear, nearly flat; staminate and pistillate portions of the spike contiguous.

Broad-leaved Typha. Cat-tail. Cooper's Reed. Reed-mace.

Culm 4 or 5 feet high, terete, leafy at base. *Leaves* ½ to ⅔ of an inch wide, tapering at apex, but obtuse. *Staminate spike* 6 to 8 inches long, and near an inch in diameter, yellowish-brown,—the sheathing *bract*, or *spathe*, membranaceous, as long as the spike. *Pistillate spike* 4 to 6 inches long, ½ an inch to ¾ in diameter, greenish-brown.

Hab. Borders of pools: frequent. *Fl.* June. *Fr.* Sept.

Obs. The *leaves* of this plant were formerly used, by Coopers, to secure the joints in the heads of casks from leaking; and the hairy *fruit*, from the mature spikes, is sometimes collected by poor people to fill their beds. It is, however, a miserable substitute for feathers, or hair,—and even for clean oats chaff, corn-husks, or cut straw.

2. T. angustifòlia, *L.* Leaves narrowly linear, channelled near the base; staminate and pistillate portions of the spike a little distant.

Narrow-leaved Typha. Small Cat-tail.

Culm 3 to 5 feet high, slender. *Leaves* ⅙ to ⅓ of an inch wide, nearly linear throughout. *Staminate* and *pistillate spikes* ¼ to ⅓ of an inch in diameter, and separated by a naked space of 1 to 2 inches between them.

Hab. Pools, and wet places; near Unionville: rare. *Fl.* June. *Fr.* Sept.

Obs. These species appear to be common to both hemispheres.

408. SPARGA'NIUM, *Tournef.*

[Gr. *Sparganon*, a fillet, or band; from its ribbon-like leaves.]

Flowers in dense globose *heads*, which are scattered along the stem near the summit, in the axils of leaf-like *bructs*,—the *upper* heads consisting of *stamens*, with minute scales interposed,—the *lower* heads larger, consisting of sessile *pistils*, each surrounded by 3 to 6 calyx-like scales. *Fruit* a sort of *dry drupe*, turbinate and acuminate. Smooth *perennials: root* fibrous; *leaves* linear, obtuse.

1. S. Americànum, *Nuttall.* Stem mostly simple; leaves tri-

angular at base, the sides flat; stigma conical, oblique, about half as long as the style.

AMERICAN SPARGANIUM. Bur-reed.

Stem 9 to 18 inches high, flexuose, terete, sometimes with 2 or 3 short axillary branches at summit. *Leaves* 6 to 24 inches long (mostly overtopping the stem), and ¼ to ½ an inch wide. *Staminate heads* 4 or 5 to 9, somewhat contiguous in twos or threes. *Pistillate heads* 2 to 5 (usually 3), yellowish green, ½ an inch to ¾ in diameter, the lowest one often pedunculate.

Hab. Sluggish rivulets; ditches, &c.: frequent. *Fl.* July. *Fr.* Sept.

Obs. This appears to be very nearly allied to *S. simplex*, of Europe. I have specimens from Wynn's Meadows, near the head waters of the Brandywine, which are every way so much *smaller*, that they might constitute—if not a *species*—at least a *variety*, *pumilum*.

ORDER CII. NAIADA'CEAE.

Immersed aquatics; stems nodosely jointed, often radicating; *leaves* cellular, with sheathing *stipules*, or bases; *flowers* mono-dioicous, axillary, naked and inconspicuous,—or perfect, and with a calyx, in pedunculate spadix-like *spikes; ovaries* solitary, or 2 to 4 contiguous, yet distinct, 1-celled, 1-ovuled; *seed* without *albumen*.

§ 1. Flowers *mono-dioicous, axillary, naked, monandrous.*

409. NAI'AS, *L.*

[Gr. *Naias*, a Water-nymph; from its place of growth.]

STAM. FL. a single *stamen*, inclosed in a membranous *spathe; anther* at first subsessile, the *filament* finally elongated. PISTILLATE FL. a single *ovary*, tapering into a short *style; stigmas* 2 to 4, subulate; *ovule* erect. *Fruit* a seed-like *nutlet*, inclosed in a loose *epicarp*.—*Annuals: stems* slender, dichotomously branching; *leaves* opposite and verticillate; *flowers* sessile.

1. N. flexilis, *Rostkow.* Leaves mostly verticillate in sixes, linear, membranaceous, denticulate near the apex.

Caulinia flexilis. *Willd. & Fl. Cestr. ed.* 2. *p.* 519.

FLEXIBLE NAIAS.

Stem 6 to 12 or 18 inches long, filiform, jointed, smooth. *Leaves* half an inch to an inch long, aggregated or subverticillate in fours or sixes, sometimes opposite, very narrow, dilated and sheathing at base. *Seed* oblong, shining, pale straw-color.

Hab. Ponds, and sluggish streams: frequent. *Fl.* July. *Fr.* Sept.

410. ZANNICHEL'LIA, *Micheli.*

[Dedicated to *John Jerome Zannichelli;* a Venetian Botanist.]

Flowers sessile, usually both kinds in the same axil. STAM. FL. a single *stamen*, with a slender *filament* bearing a 2- to 4-celled *anther*. PISTILLATE FL. usually of 4 sessile *pistils* in the same cup-shaped *involucre; stigma* somewhat peltate, often 2-lobed. *Fruit* an oblong coriaceous *nutlet*, beaked with the short *style; seed* pendulous.—*Annuals: stems* very slender, branching; *leaves* opposite, or alternate, linear and entire, with sheathing membranous *stipules*.

1. Z. palústris, *L.* Fruit somewhat compressed, sometimes pedicellate; style half the length of the fruit.
MARSH ZANNICHELLIA.

Stem 6 to 15 inches long, floating. *Leaves* 1 to 2 or 3 inches in length. *Flowers* green; *anther* tawny. *Fruit* blackish, rugged or dentate on the back.
Hab. Pools, and slow streams: rare. *Fl.* July. *Fr.*

Obs. This aquatic was detected in White Clay Creek, near Avondale, in the S. Western part of the County, in 1849, by my friend EZRA MICHENER, M. D. whose attainments in Zoology, and successful researches in Cryptogamy, and other difficult branches of Botany, have placed him in the front rank of our Chester County Naturalists.

§ 2. Flowers *perfect, on pedunculate spikes;* stamens 4, *opposite as many* sepals.

411. POTAMOGE'TON, *Tournef.*

[Gr. *Potamos*, a river, and *Geiton*, a neighbor; from its place of growth.]

Sepals rounded, valvate in the bud. *Anthers* subsessile, 2-celled.—*Ovaries* 4, free; *ovule* ascending; *stigma* subsessile. *Fruit* consisting of 5 sessile fleshy or coriaceous *nutlets*; *seed* hook-shaped. *Perennials: stems* jointed, often creeping or radicating; *leaves* opposite, or alternate, pellucid when immersed,—the *upper* ones sometimes floating on the surface, opaque, and coriaceous; *spikes* axillary and terminal; *flowers* dull green.

† Upper leaves *floating, often opposite, on long petioles.*

1. P. nàtans, *L.* Immersed leaves lance-linear, often imperfect; floating ones elliptic-oblong, sometimes rounded or cordate at base.
SWIMMING POTAMOGETON. Floating Pond-weed.

Stem 9 to 18 inches long, usually simple. *Floating leaves* 2 to 3 inches long; *petioles* 3 to 6 inches in length. *Immersed leaves* 2 to 6 inches long,—sometimes abortive, or nothing more than a petiole. *Spike* emerged, about an inch long, on an axillary *peduncle* 2 to 3 inches in length.
Hab. Pools, and sluggish streams: frequent. *Fl.* July. *Fr.* Sept.

†† Leaves *all immersed and similar, mostly alternate.*

2. P. lùcens, *L.* Leaves varying from lance-linear to oblong- and oval-lanceolate, acute, tapering to a petiole at base; spike rather long.
SHINING POTAMOGETON.

Stem 2 to 4 feet long, slender, somewhat branched. *Leaves* netted-nerved, membranaceous and shining,—the *upper* ones 3 or 4 inches long, on *petioles* about an inch in length,—the *lower* ones often imperfect. *Spike* 1 to 2 inches long,—the *flowers* somewhat distant, greenish-brown; *peduncle* of the spike 2 or 3 to 6 inches in length.
Hab. Flowing streams; Brandywine: frequent. *Fl.* Aug. *Fr.* Octo.

3. P. perfoliàtus, *L.* Leaves oblong-ovate, mostly obtuse, sessile, and clasping by a cordate base; spike short.
PERFOLIATE POTAMOGETON.

Stem 1 to 3 feet long, numerous from the root, branching somewhat dichotomously. *Leaves* about an inch long, sometimes rather acute, obscurely 5-nerved,

slightly wavy on the margin. *Spikes* oblong, few-flowered, about ⅓ of an inch in length, on lateral *peduncles* an inch long; *sepals* reddish-brown.
Hab. Flowing streams; Brandywine: frequent. *Fl.* Aug. *Fr.* Octo.

4. P. pauciflòrus, *Pursh.* Stem very slender, flattish; leaves narrowly linear and grass-like; spike capitate, few-flowered.
Few-flowered Potamogeton.

Stem 6 to 12 inches long, much branched, diffuse and suspended in the water.—*Leaves* 2 to 3 inches long, acute, somewhat keeled,—the *lower* ones alternate, the *uppermost* nearly opposite, or often subverticillate in fours. *Spike* about 4-flowered, on a subclavate *peduncle* about half an inch long, in the axil of the upper leaves; *sepals* greenish-brown.
Hab. Pools, and sluggish rivulets: not very common. *Fl.* May. *Fr.* July.

ORDER CIII. ALISMA'CEAE.

Marsh herbs; stems scape-like; *leaves* sheathing at base; *flowers* perfect, or monoicous, not on a *spadix*, furnishsd with both *calyx and corolla; sepals* and *petals* each 3, distinct; *stamens* 6, or many, hypogynous; *ovaries* 3, or many,—becoming as many 1- or 2-seeded *pods*, or *akenes; seeds* ascending, or erect, without *albumen.*

SUBORDER ALISME'AE.

Calyx green and persistent; *corolla* white and deciduous; *embryo* curved like a horse-shoe; *leaves* radical, mostly with a *lamina* or blade, and a long *petiole.*

412. ALIS'MA, *L.*

[Said to be named from the Celtic, *Alis*, water; its usual place of growth.]
Flowers perfect. *Petals* roundish, involute in the bud. *Stamens* 6; *anthers* introrse. *Ovaries* numerous, verticillate on a flattened receptacle, or *disk*, becoming angular coriaceous *akene-like carpels*, in fruit. Smooth *perennials: roots* fibrous; *leaves* several-nerved, with connecting cross-veinlets; *scape* with verticillate panicled branches; *flowers* rather small.

1. A. Plantàgo, *L.* Leaves lance-oblong, or oval, about 9-nerved, abruptly acuminate, often rounded, or subcordate, at base; carpels obtusely triangular.
Plantain Alisma. Water Plantain.

Leaves 4 to 6 inches long; *petioles* 6 to 9 inches in length. *Scape* 1 to 2 feet high, trigonous, fistular; *panicle* 12 to 15 inches long, pyramidal, with involucre-like *bracts* at the base of the verticillate branches; *pedicels* near an inch long, slender, mostly in terminal verticils of 3 or 4.
Hab. Muddy rivulets, and miry places: frequent. *Fl.* July. *Fr.* Sept.

Obs. This belongs to a notable tribe of inert medicinal plants, which—once in an age, or so—dabblers in quackery have the address to impose upon the credulous, as being endowed with marvellous virtues, in incurable or desperate stages of disease. Some years ago,—after *Anagallis*, and *Scutellaria*, had become rather obsolete, as *Newspaper cures* for that terrible malady, *Hydrophobia*,—the *Alisma* was proclaimed, through the Gazettes, as a *certain remedy;* and persons who ventured to express a doubt, were scarcely tolerated, by the editorial fraternity! This *specific*, however, soon shared the fate of its predecessors; and will probably be no more heard of, until a future race of Empirics, in the *cycle of "Progress,"* shall again bring it forward.

413. SAGITTA'RIA, *L.*

[Latin, *Sagitta*, an arrow; from the prevailing form of the leaves.]

Flowers monoicous,—the *staminate* ones above. *Petals* orbicular, imbricated in the bud. *Stamens* numerous; *anthers* extrorse.—*Ovaries* many, in depressed-globose *heads*,—becoming flatted winged *akenes*, in fruit. Smoothish *perennials; roots* often tuberiferous; *leaves* polymorphous, usually sagittate; *scape* simple; *flowers* in verticils of 3, pedicellate and bracteate.

1. S. variábilis, *Engelmann.* Leaves varying from broad-ovate, or linear, and sagittate, to narrow-lanceolate and not sagittate.
S. sagittifolia. *L. & Fl. Cestr. ed.* 2. *p.* 528.
Also, S. heterophylla. *Pursh. & Fl. Cestr. ed.* 2. *p.* 529.
VARIABLE SAGITTARIA. Arrow-head.

Tubers (or *rhizomas*) oval, 1 to 2 inches in diameter. *Leaves* 3 or 4 to 10 or 12 inches long, usually more or less ovate; *petioles* 4 to 12 or 15 inches in length, tapering upwards. *Scape* 9 to 18 inches high. *Verticils* of flowers numerous.—*Heads* of fruit ½ to ⅔ of an inch in diameter.
Hab. Swampy springs; ditches, &c.: frequent. *Fl.* July. *Fr.* Sept.

Obs. Hogs are fond of the *tubers* of this plant,—and soon disfigure a meadow, where they abound, by *rooting* for them. KALM says, the Indians and Swedes called the plant "*Katniss;*" and that the *tubers* were sometimes "as big as a man's fist:" that when roasted, they tasted well, but were rather dry. See *Travels. Vol.* 2, *p.* 96–7.

ORDER CIV. HYDROCHARIDÁCEAE.

Aquatic herbs; leaves sometimes verticillate, or opposite, usually radical; *flowers* polygamous, or dioicous, regular, often on scape-like peduncles from a kind of *spathe; floral envelopes* mostly double,—in the *pistillate* flowers coalesced into a *tube*, and adherent to the *ovary; stamens* 3 to 12, distinct, or monadelphous; *fruit* utricular, coriaceous, or fleshy, indehiscent; *seeds* ascending; *embryo* straight, without *albumen*.

414. UDO'RA, *Nuttall.*

[Gr. *Hydor*, or *Udor*, water; from its place of growth.]

Flowers polygamo-dioicous, solitary; from a sessile tubular bifid axillary *spathe*. STAM. FL. minute; *perianth* 6-parted (viz. *sepals* and *petals* each 3, oval, and nearly alike colored); *anthers* 9, oval, subsessile. PERFECT FL. *perianth* extended beyond the ovary into a long and very slender *tube*,—the *lobes* (or *sepals* and *petals*) obovate, spreading; *anthers* usually 3, oblong, opposite the outer lobes of the perianth. *Ovary* 1-celled, with 3 projecting *parietal placentae; style* capillary, coherent with the tube of the perianth; *stigmas* 3, large, 2-lobed, exserted. *Fruit* oblong, coriaceous, few-seeded.—*Annual?* smooth; *stem* filiform, dichotomously branched; *leaves* verticillate, or opposite, immersed and pellucid.

1. U. Canadénsis, *Nutt.* Leaves mostly verticillate in threes, ovate-oblong, or lance-linear, finely serrulate.
CANADIAN UDORA.

Stem 3 or 4 to 8 or 10 inches long (varying with the depth of water), diffusely branching. *Leaves* 2 to 6 lines long, nerveless, light green and shining,—the

verticils generally numerous, giving the plant the appearance of an aquatic moss. *Fertile flowers* emerging,—the *perianth* flesh-colored with a leaden tinge; *tube* ½ an inch to near an inch long, very slender and thread-like.
Hab. Sluggish rivulets: frequent. *Fl.* July. *Fr.*

Obs. I have not yet had occasion to observe the *staminate flowers*. Doctor GRAY says, they "break off, as in *Vallisneria*, and float on the surface, where they expand and shed their pollen to fertilize the stigmas, which are raised to the surface by the excessively prolonged calyx-tube."

415. VALLISNE'RIA, *Micheli.*

[Dedicated to *Antonio Vallisneri;* an Italian Botanist.]

Flowers strictly dioicous. STAM. FL. numerous, crowded on a conical receptacle, and included in a 3-valved *spathe*, which is on a very short *scape*. *Perianth* 3-parted. *Stamens* mostly 3, alternating with the perianth-lobes. PISTILLATE FL. solitary, in a tubular bifid *spathe*, which is on a very long slender flexuose *scape*. *Perianth-tube* not extended beyond the ovary; *border* 3-lobed,—with 3 small linear *petals* (or *staminodia?*) alternating with the oval lobes. *Ovary* 1-celled; *stigmas* 3, large, 2-lobed; *ovules* numerous on 3 *parietal placentae*. *Fruit* elongated, cylindrical, fleshy. Stemless *perennials; leaves* radical, dark-green, long, linear and grass-like.

1. V. spirà'lis, *L.* Leaves obtuse, thin and ribbon-like, obscurely serrulate, somewhat nerved and netted veined.
SPIRAL VALLISNERIA. Eel-grass. Tape-grass. Channel-grass.

Leaves 9 to 18 inches or 2 feet in length, and 1/6 to near ½ an inch wide, obscurely 3-nerved, striate, smooth. *Pistillate flowers* on interfoliaceous scape-like peduncles 9 to 18 inches, or more, in length (varying with the depth of water), a little thickened at summit, floating, with the flower at or near the surface. *Spathe* about ½ an inch long, membranaceous, embracing the ovary. *Perianth* whitish, with tinges of purple. *Ovary* about ¾ of an inch long, sublinear, somewhat compressed, ancipital, with keel-like margins.
Hab. Slow-flowing streams; Brandywine: frequent. *Fl.* Aug. *Fr.*

Obs. I have never met with the *staminate* plant. Dr. GRAY says, "the staminate clusters being confined to the bottom of the water by the shortness of the scape, the flower-buds themselves spontaneously break away from their short pedicels and float on the surface, where they expand and shed their pollen around the fertile flowers, which are raised to the surface at this time." The fertile scapes then "coil spirally and draw the ovary under water to ripen."—WILSON, in his Ornithology, says the *root* is a favorite food of the *Canvass-back Duck*,—to which the peculiarly delicate flavor of the flesh of that bird has been ascribed. The bunches of long dark-green *leaves*, which are usually procumbently floating, afford a hiding-place for *Eels*,—whence one of its common names. In reference to this plant, Dr. DARWIN indulges in the following imaginative strains:—

> "As dash the waves on India's breezy strand,
> Her flush'd cheek press'd upon her lily hand,
> VALLISNER sits, upturns her tearful eyes,
> Calls her lost lover, and upbraids the skies;
> For him she breathes the silent sigh, forlorn,
> Each setting day; for him each rising morn:—

Bright orbs, that light yon high ethereal plain,
Or bathe your radiant tresses in the main;
Pale moon, that silver'st o'er night's sable brow;
For ye were witness to his parting vow!
Ye shelving rocks, dark waves, and sounding shore,—
Ye echoed sweet the tender words he swore!—
Can stars or seas the sails of love retain?
O! guide my wanderer to my arms again!"

My excellent Friend, E. DURAND, has sent me the following Lines by a French Poet and Botanist, which may be appropriately annexed to the preceding:—

"Le Rhône impétueux, sous son onde écumante,
Durant six mois entiers nous dérobe une plante
Dont la tige s'allonge en la saison d'amour,
Monte au dessus des flots et brille aux yeux du jour.
Les mâles dans le fond jusqu'alors immobiles,
De leurs liens trop courts brisent les noeuds débiles,
Voguent vers leur amante, et libres dans leurs feux,
Lui forment sur le fleuve un cortége nombreux:
On dirait une fête où le dieu d'hyménée
Promène sur les flots sa pompe fortunée;
Mais les temps de Vénus une fois accomplis,
La tige se retire en rapprochant ses plis,
Et va mûrir sous l'eau sa semence féconde."—

ORDER CV. ORCHIDÀCEAE.

Perennial herbs; roots often bulb- or tuber-bearing,—sometimes fascicled, thickened and fleshy; *stems* or *scapes* mostly simple, often leafless or with mere sheaths; *leaves* alternate, parallel-nerved, entire, sheathing at base, often subradical and crowded; *flowers* perfect, irregular; *perianth* adherent below to the *ovary*,—the *border* of 6 divisions, in 2 sets; the 3 *outer* (*sepals*) of the same petal-like appearance as the 3 *inner* (*petals*),—of which inner set, the *upper*, or posterior one—but, by the *twisting* of the ovary, or peduncle, generally appearing to be the *lower*, or anterior one—differs more or less in shape or direction from the others, is often spurred or appendaged, and is called the *lip*; *stamens* normally 3, with but 1, or rarely 2, perfect, gynandrous (i. e. adherent to the *style*, and forming together the central *column*); *pollen* either in waxy masses, or in loose granular, or mealy clusters (*pollinia*); *ovary* 1-celled, with 3 *parietal placentae*; *fruit* a 3-valved *capsule*; *seeds* numerous, minute, resembling fine saw-dust, destitute of *albumen*.

An Order comprising many curious and beautiful plants,—the flowers often presenting the most fantastic forms. The fragrant *Vanilla*, of the shops, is the fleshy *fruit* of one or two West India species (*Vanilla aromatica*, and *V. claviculata*, of SWARTZ).

DIVISION I. Anther *single* (*the* 2 *lateral ones abortive*).

TRIBE I. MALAXID'EAE.

Pollen cohering in definite (usually 4) *waxy masses* (*pollinia*), without any *caudicle*, or tail-like prolongation.

§1. Plants *with leaves*, and *green*; sepals *spreading*; lip *flat*.

416. MICROS'TYLIS, *Nuttall.*

[Gr. *micros*, little, and *stylos*, a column; from its slender central column.]

Petals linear, filiform. *Lip* auriculate or hastate at base, not tuberculate. *Column* very small, terete, with 2 teeth, or auricles, at

summit. *Pollinia* 4, collateral, cohering by pairs at apex. *Bulb* solid; *scape* bearing 1 or 2 leaves; *flowers* in a terminal raceme, greenish.

1. M. ophioglossoides, *Nutt.* Leaf solitary near the middle of the scape, ovate, clasping; raceme short; pedicels longer than the flowers.

OPHIOGLOSSUM-LIKE MICROSTYLIS.

Plant yellowish-green. *Scape* 3 or 4 to 9 inches high, angular, smooth, sheathed at base. *Leaf* 1 to 2½ inches long, mostly rather acute. *Raceme* 1 to 2 inches in length, oblong, obtuse,—many of the flowers abortive; *pedicels* ¼ to ½ an inch long, rather crowded at the summit; *bracts* small, lance-ovate. *Lip* of the flower erect, obtusely auricled at base, 3-toothed at summit. *Capsule* about ¼ of an inch long, obovoid-oblong, on a slightly clavate angular pedicel.

Hab. Moist low grounds, and thickets: not very common. *Fl.* July. *Fr.* Oct.

417. LIP'ARIS, *Richard.*

[Gr. *Liparos*, fat, or shining; from the unctuous shining leaves.]

Petals sub-linear, narrow. *Lip* dilated, often bearing 2 *tubercles* above the base. *Column* elongated, incurved, margined. *Pollinia* 4, collateral. *Bulb* solid; *leaves* 2, radical, opposite; *scape* naked; *flowers* racemose, purplish, or yellowish-green.

1. L. liliifolia, *Rich.* Leaves elliptic-ovate, shorter than the scape; lip cuneate-obovate, abruptly acuminate, brownish-purple. LILY-LEAVED LIPARIS. Tway-blade.

Leaves 2 to 6 inches long, spreading. *Scape* 3 to 6 inches high, angular, the angles often margined. *Flowers* rather large, in a loose oblong terminal raceme; *lip* as long as the straw-colored perianth-lobes. *Capsule* oblong, angular, about ¾ of an inch in length.

Hab. Moist woodlands: frequent. *Fl.* June. *Fr.* Sept.

2. L. Lœsèlii, *Rich.* Leaves lance-oblong, as long as the scape; lip oblong, mucronate and incurved at apex, yellowish-green.

L. Correana. *Spreng. & Fl. Cestr. ed.* 2. *p.* 512.

LŒSELIUS'S LIPARIS.

Leaves 3 to 6 inches long, rather erect. *Scape* 3 to 6 inches high, sulcate-angled, with the angles often margined. *Flowers* rather small, erect, or almost appressed, in a terminal raceme; *lip* shorter than the perianth-lobes. *Capsule* elliptic-oblong, erect, about ½ an inch in length.

Hab. Moist meadows; East Goshen: rare. *Fl.* June. *Fr.* Sept.

§ 2. Plants *leafless, or with a single radical leaf, purplish-tawny;* sepals *and* petals *nearly alike, connivent and somewhat ringent.*

418. CORALLORHIZA, *Haller.*

[Gr. *Korallion*, coral, and *Rhiza*, root; from its coral-like roots.]

Lip recurved-spreading, 2-ridged, more or less produced at base into a *spur-like protuberance* which is adnate to the summit of the ovary. *Anther* terminal, opening transversely, 2-lipped; *pollinia* 4, obliquely incumbent. *Rhizoma* branching and coral-like; *scape* with *sheaths* instead of leaves; *flowers* racemose, small, brownish and white, with purple spots.

1. C. multiflòra, *Nutt.* Raceme many-flowered; lip cuneate-oval, 3-lobed; spur rather manifest; capsule elliptic-oblong.
MANY-FLOWERED CORALLORHIZA. Large Coral-root.

Scape 9 to 15 inches high, stoutish; *flowers* 15 to 30 in a terminal raceme, rather large; *bracts* small, often broad and very obtuse; *perianth-lobes* purplish-brown; *lip* whitish, tinged with purple, and spotted; *spur* tawny. Capsule often obovoid, ¾ of an inch long, smooth, reflexed.
Hab. Rich woods, about roots of trees: frequent. *Fl.* July, *Fr.* Oct.

2. C. innàta, *R. Br.* Raceme few-flowered; lip oblong, 2-toothed near the base; spur obsolete; capsule obovoid-oblong.
C. verna. *Nutt. & Fl. Cestr. ed.* 2. *p.* 510.
INNATE CORALLORHIZA. Early Coral-root.

Scape 6 to 12 inches high; *flowers* 5 to 10, rather small, and distant; *bracts* very small, acute; *lip* nearly white, mostly without spots, but with a small incised tooth on each margin near the base.
Hab. Rich, moist woodlands: not very common. *Fl.* May. *Fr.*

3. C. odontorhiza, *Nutt.* Raceme several-flowered; lip oval, or obovate, crenulate; capsule roundish-oval, or globose.
TOOTH-ROOTED CORALLORHIZA. Small late Coral-root.

Scape 4 to 8 or 10 inches high, slender; *flowers* 10 to 15, small, somewhat pendulous; *bracts* subulate; *lip* dilated, obtuse, white, spotted with purple; *spur* obsolete. *Capsule* small, nodding on a short pedicel.
Hab. Woodlands, about roots of trees: frequent. *Fl.* Aug. *Fr.* Oct.

Obs. There is much general resemblance in the aspect of these three species.

419. APLEC′TRUM, *Nuttall.*

[Gr. *a*, privative, *Plektron*, a spur, the lip not being spurred.]

Lip 3-ridged, with a short claw, and no trace of a *spur* at base.—*Anther* subterminal (i. e. slightly below the apex of the column); *pollinia* 4, oblique. *Rhizoma* a globular solid *bulb*, or *corm*, connected with an exhausted one; *scape* sheathed, with a solitary *leaf* inserted on the bulb; *flowers* racemose, dingy purplish-brown.

1. A. hyemàle, *Nutt.* Leaf elliptic, acute at each end, petiolate, green, sub-plicate, striate with many white nerves.
WINTER APLECTRUM. Adam and Eve Putty-root.

Bulbs half an inch to an inch, or more, in diameter, generally in pairs (sometimes 4 or 5,) connected by a coarse fleshy horizontal fibre. *Leaf* 3 to 6 inches long,—the white nerves converging at each end; *petiole* 2 to 3 inches in length, inserted on the bulb a little distant from the scape. *Scape* 9 to 15 inches high, purplish-brown, with about 3 loose striate *sheaths*,—the lowest one proceeding from the bulb. *Flowers* subsessile in a terminal bracteate raceme; *bracts* linear-lanceolate, small. *Capsule* ovoid-oblong, smooth, rather large.
Hab. Rich woodlands: not very common. *Fl.* May. *Fr.* Oct.

Obs. The arid silvery-nerved *leaf* lives through the winter,—and serves, at all times, to distinguish the plant, at a glance, from the *Corallorhizas*—to which, in its scape and inflorescence, it has much resemblance.

TRIBE 2. OPHRYD′EAE.

Pollen of numerous *waxy granules*, cohering by a cobweb-like tissue, and collect-

ed into 2 *masses*, which are affixed by slender *caudicles*, or tails, to the glands of the *stigma*. *Flowers* more or less *ringent; lip* with a *spur* at the base underneath.

420. OR'CHIS, *L.*

[An ancient Greek name of the plant.]

Sepals and *petals* nearly equal,—4 of them converging upwards, and arching over the *column*. *Lip* anterior, adnate to the base of the column, spurred below. *Anther-cells* vertical, contiguous and parallel; *pollinia* 2 (1 filling each anther-cell), attached by the *caudicles* to the 2 *glands* of the *stigma*,—which *glands* are contained in a little *pouch*, or hooded fold. *Roots* fascicled and fleshy; *leaves* radical, usually a single pair; *flowers* pale pink-purple, in a bracteate *spike*, on a 5-angled *scape*.

1. O. spectábilis, *L.* Leaves oblong, or roundish-obovate, petiolate, glabrous, bluish-green; spur clavate, obtuse, shorter than the ovary.

SHOWY ORCHIS. Priest in the Pulpit.

Leaves 3 to 5 inches long, somewhat fleshy; *petioles* short, embraced by 1 or 2 sheaths. *Scape* 4 to 6 or 8 inches high; *flowers* few (4 to 6 or 8); *bracts* large and foliaceous, oblong-lanceolate. *Capsules* elliptic, acuminate.

Hab. Rich woodlands: frequent. *Fl.* May. *Fr.* August.

Obs. This beautiful Genus is referred to, in the following lines of the *Botanic Garden*:—

> "With blushes bright as morn fair ORCHIS charms,
> And lulls her infant in her fondling arms;
> Soft plays *Affection* round her bosom's throne,
> And guards his life, forgetful of her own."

421. GYMNADE'NIA, *R. Br.*

[Gr. *Gymnos*, naked, and *Aden*, a gland; descriptive of the plant.]

Flowers nearly as in *Orchis*: *Anther-cells* parallel,—but the *approximate glands* of the stigma are *naked* (i. e. not contained in a pouch, or fold). *Roots* fascicled,—the fibres few and fleshy; *stem* slender, with 3 or 4 bract-like *leaves* above, and a single larger one at base.

1. G. tridentàta, *Lindley.* Principal leaf oblanceolate; lip cuneate-oblong, 3-toothed at apex; spur longer than the ovary; flowers yellowish-green.

Habenaria tridentata. *Hooker, & Fl. Cestr. ed.* 2. *p.* 507.

THREE-TOOTHED GYMNADENIA.

Stem 6 to 12 inches high, angular. *Lower leaf* 3 to 5 inches long, rather acute; *upper leaves* much smaller and bract-like. *Flowers* small, 6 to 12 or 15, in an oblong terminal rather compact *spike*, 1 to 2 inches in length; *bracts* ovate-lanceolate, about half as long as the ovary. *Capsule* ⅓ of an inch in length, ovoid-oblong, with a short acumination.

Hab. Moist thickets; on the slaty hills: not very common. *Fl.* July. *Fr.* Sept.

422. PLATANTHE'RA, *Richard.*

[Gr. *Platys*, wide, and *aner*, for anther; descriptive of the organ.]

Flowers nearly as in *Orchis*,—but the *anther-cells* diverging at base, and the 2 *naked glands* of the stigma *widely separated*. *Roots* fascicled and fleshy; *flowers* on a *scape* (with bract-like leaves), or *leafy stem*.

§1. Flowers *in a loose raceme, on a scape 2-leaved at base.*

1. P. orbiculàta, *Lindley.* Leaves roundish-oval, large, flat on the ground; lip entire; spur twice as long as the ovary; flowers greenish-white.

ORBICULAR PLATANTHERA.

Leaves 4 to 6 inches long, and 3 to 5 inches wide, fleshy, smooth, bluish-green, subsessile. *Scape* 9 to 18 inches high, somewhat angular, bearing about 3 small bract-like leaves. *Flowers* numerous, in a terminal bracteate *raceme* 4 to 6 inches in length: *bracts* lanceolate, nearly as long as the pedicel and ovary; *ovary* oblong, angular, spirally twisted.

Hab. Moist woodlands: rare. *Fl.* June. *Fr.*

§2. Flowers *in a terminal spike, on a leafy stem.*

†Lip *entire, or merely toothed;* bracts *mostly longer than the flowers.*

2. P. bracteàta, *Torrey.* Lower leaves obovate,—upper ones oblong, and lanceolate; lip 2- or 3-toothed at apex; spur short, saccate and somewhat 2-lobed.

Habenaria bracteata. *R. Br. & Fl. Cestr. ed.* 2. *p.* 506.

BRACTEATE PLATANTHERA.

Stem 6 to 9 inches high. *Leaves* about 3 in number, 1½ to near 3 inches in length. *Spike* 2 to 3 inches long; *bracts* linear-lanceolate,—the *lower* ones about twice as long as the flowers, the *upper* scarcely longer; *flowers* pale green, small.

Hab. Great Valley; near Brooke's Mill: rare. *Fl.* May. *Fr.*

3. P. flàva, *A. Gray.* Leaves lance-oblong, and linear-lanceolate; lip with a tooth on each side at base, and one on the palate; spur slender, clavate.

Habenaria herbiola. *R. Br. & Fl. Cestr. ed.* 2. *p.* 506.

YELLOW PLATANTHERA.

Stem 12 to 18 inches high, somewhat angular and flexuose. *Leaves* about 3 in number, 3 to 6 inches in length. *Spike* 3 to 6 or 8 inches long; *bracts* lanceolate, acuminate,—the *lower* ones 2 or 3 times as long as the flowers, the *upper* ones scarcely as long; *flowers* rather small, greenish-yellow.

Hab. Moist, or swampy thickets: frequent. *Fl.* June. *Fr.* Sept.

††Lip *fringed, but not lobed;* bracts *shorter than the flowers.*

4. P. ciliàris, *Lindley.* Leaves oblong-lanceolate; spike oblong, rather dense; lip lance-oblong, pinnatifidly lacerate-ciliate; spur filiform, longer than the ovary.

Habenaria ciliaris. *R. Br. & Fl. Cestr. ed.* 2. *p.* 507.

CILIATE PLATANTHERA.

Stem 1 to 2 feet high angular. *Leaves* several, 3 to 6 inches long,—usually 2 or 3 larger ones below, and some smaller bract-like ones above. *Spike* 2 to 4 inches long; *bracts* lanceolate, shorter than the ovary; *flowers* rather large, bright orange-yellow.

Hab. Swamps, among the slaty hills: not common. *Fl.* July. *Fr.* Sept.

Obs. This handsome species is well worthy of a place in the flower-garden, for the sake of its showy spikes.

††† Lip *deeply 3-parted,—the lobes more or less fringed.*

* Flowers *pale greenish-white.*

5. P. lácera, *A. Gray.* Leaves spatulate-oblanceolate, and lance-oblong; spike rather slender and loose; lobes of the lip narrow, deeply and lacerately fringed.
Habenaria psycodes. *Sprengel. & Fl. Cestr. ed.* 2. *p.* 509.
RAGGED PLATANTHERA.

Stem 18 inches to 2 feet high, angular. *Leaves* about 3 principal ones, and a few smaller bract-like ones above,—the larger ones 3 to 6 or 8 inches long, the smaller ones 1 to 2 inches in length. *Spike* 3 to 6 inches long; *bracts* lanceolate, about as long as the ovary; *flowers* medium size.
Hab. Moist woods, and thickets: not very common. *Fl.* June. *Fr.*

Obs. There has been sad confusion in the *synonymy* of this, and the following species, ever since the days of LINNAEUS; of which, see an interesting and lucid exposition, by Prof. A. GRAY, in SILLIMAN'S *Journal, Vol.* 38. *p.* 306.

** Flowers *purple;* lobes *of the lip broadly cuneate.*

6. P. psycòdes, *A. Gray.* Leaves oblong, and lanceolate; spike long, cylindrical, and densely flowered; petals cuneate-obovate, dentate above; lobes of the lip with a rather short fringe, or sometimes merely bifid and dentate.
Habenaria fimbriata, *R. Br. & Fl. Cestr. ed.* 2. *p.* 508.
Also? H. fissa. *Fl. Cestr. l. c.* not of *R. Br.*

Stem 2 to 3 feet high, rather stout, angular, fistular. *Leaves* 3 to 6 inches long, nerved, sessile and sheathing,—usually 3 or 4 large ones below, and several small lance-linear bract-like ones above. *Spike* 4 to 6 inches long, compact, an inch to an inch and a half in diameter; *flowers* medium size, bright-purple.
Hab. Along swampy rivulets: not very common. *Fl.* July. *Fr.*

Obs. This beautiful species—so long known as the *Orchis fimbriata,* of LINNAEUS—appears really to have been his *O. psycodes.*

7. P. fimbriàta, *Lindley.* Leaves oval, and lance oblong; spike oblong, rather loosely flowered; petals oblong, fringe-toothed down the sides; lobes of the lip with a deep capillary fringe.
Habenaria grandiflora. *Torr. & Fl. Cestr. ed.* 2. *p.* 509.
FRINGED PLATANTHERA.

Stem about 2 feet high, rather stout, angular and fistular. *Leaves* 3 to 6 inches long, broader than the preceding, sessile and sheathing,—usually 4 larger ones below, and 2 or 3 small ones above. *Spike* 3 to 5 or 6 inches long, rather open, or loose, 2 to 2½ inches in diameter; *flowers* large. pale purple.
Hab. Along rivulets, on the slaty hills: rare. *Fl.* June. *Fr.*

Obs. A superb plant,—nearly allied to the preceding; and *both* well entitled to a place in flower-gardens.

TRIBE 3. ARETHUSEAE.

Pollen pulverulent, of angular loosely cohering granules, forming 4 or 2 masses (*pollinia*); *anther* terminal, opening like a lid.

† Pollinia 4.

423. ARETHU'SA, *Gronovius.*

[Poetically named from *Arethusa*, a nymph of Diana.]

Flowers somewhat ringent,—the *sepals* and *petals* nearly alike, united below, ascending and arching, over the column. *Lip* dilated, recurved-spreading towards the summit, bearded inside. *Column* adherent to the lip below, dilated and petal-like at apex. *Anther* of 2 approximate cells; *pollinia* 2 in each cell. *Root* fibrous, bearing a *scape* with a solid globose *bulb* at base, and a single large purple *flower* at summit; *leaves* mostly none, but mere loose *sheaths*.

1. A. bulbo`sa, *L.* Upper sheath of the scape sometimes producing a spatulate-linear leaf.

BULBOUS ARETHUSA.

Scape 3 or 4 to 9 inches high, striate, bearing 3 or 4 loosely sheathing scales,—a *leaf* sometimes protruding from the upper sheath. *Flower* mostly solitary, an inch or more in length, with 2 unequal *bracts* at base.

Hab. Sphagnous swamps; Great Valley: rare. *Fl.* May. *Fr.*

Obs. This little Beauty is very rare, with us; but quite abundant in New Jersey,—especially at Quaker Bridge.

†† Pollinia 2.

424. POGO'NIA, *Jussieu.*

[Gr. *Pogon*, a beard; from the bearded lip of the original species.]

Sepals and *petals* distinct. *Lip* beard-crested, or 3-lobed and not bearded. *Column* free, elongated, clavate, not winged. *Anther* stipitate; *pollinia* 1 in each cell. *Root* fibrous, or sometimes tuberiferous; *scape*, or *stem*, 1- to 5-leaved; *flowers* pale purple, or dingy greenish-brown.

† Sepals *and* petals *nearly equal and alike—pale purple, or pink.*

1. P. ophioglossoides, *Nuttall.* Root coarsely fibrous; scape 1-flowered, with a lance-ovate leaf near the middle, and a bract near the flower; lip crested and fringed.

OPHIOGLOSSUM-LIKE POGONIA.

Scape 9 to 15 inches high, slender. *Leaf* 1 to 4 inches long,—sometimes, though rarely, a solitary oblanceolate leaf, 3 or 4 inches in length, at the *base* of the scape. *Flower* mostly solitary, rather large, pale purple, or pink. *Capsule* elliptic-oblong.

Hab. Swamps, among the slaty hills: not very common. *Fl.* June. *Fr.* Aug.

2. P. péndula, *Lindley.* Root bearing oblong tubers; stem mostly with 3 or 4 alternate ovate clasping leaves, and as many axillary pedunculate nodding flowers; lip not crested, 3-lobed.

Triphora pendula. *Nutt. & Fl. Cestr. ed.* 2. *p.* 504.

PENDULOUS POGONIA.

Tubers succulent, cylindric-oblong, often an inch in length, *Stem* 3 to 6 inches high, simple (frequently growing in clusters), slightly angled by the decurrent leaves, fleshy, generally purplish. *Leaves* 3 to 5 or 7 in number, and ¼ to ⅔ of an inch in length. *Flowers* few (1 to 3 or 4), generally pale violet-purple, with tinges of green—rarely milk-white; *lip* spatulate, a little rough, but not crested; *peduncles* ⅓ to ½ an inch long. *Column* spatulate. *Capsule* obovoid-oblong, acuminate.

Hab. Rich, rocky woodlands: frequent. *Fl.* Aug. *Fr.* Octo.

†† Sepals *greenish-brown, much longer than the petals, and unlike them.*

3. P. verticillàta, *Nuttall.* Root of fleshy fibres; scape with a verticil (mostly of 5) obovate-oblong sessile leaves at summit, 1-flowered; sepals sublinear, tapering to a point; lip short, 3-lobed. VERTICILLATE POGONIA.

Scape 9 to 15 inches high, terete, succulent, often of a dingy purple color and somewhat glaucous. *Leaves* alternate, but crowded into a verticil, 2 to 3 inches long, acute at each end, often with a short abrupt acumination. *Flower* mostly solitary, terminal, somewhat nodding (many scapes bear no flower); *sepals* 1 to 2½ inches in length, the margins involute toward the apex; *petals* oblanceolate, obtuse; *lip* papillosely crested along the middle. *Capsule* elliptic-oblong, erect, 1 to 1½ inches in length.

Hab. Moist woodlands: frequent. *Fl.* May. *Fr.* July.

Obs. The *whorled leaves* resemble those of *Medeola.* JOHN BARTRAM, in 1760, speaks of it as so like that plant, that he hardly knew the difference; yet there is no affinity whatever, in the *flower* and *fruit.* The long attenuated *sepals* remind one of the beards of a *cat-fish.*

425. CALOPO'GON, *R. Brown.*

[Gr. *Kalos,* beautiful, and *Pogon,* beard; alluding to the bearded lip.]

Sepals and *petals* distinct, spreading, nearly alike. *Lip* (the peduncle being *not twisted*) on the *upper side* of the flower! erect, unguiculate, bearded in front. *Column* free, declined, winged at summit.—*Anther* sessile; *pollinia* 1 in each cell. *Scape* from a solid *bulb,* with a single sub-radical *leaf,* and a *spike* of red fragrant *flowers.*

1. C. pulchéllus, *R. Br.* Leaf ensiform, or linear-lanceolate, striate-nerved; flowers bracteate, in a flexuose spike. HANDSOME CALOPOGON.

Scape 12 to 18 inches high. *Leaf* 6 to 9 inches long. *Flowers* 4 to 8 or 10; *bracts* ovate-lanceolate, shorter than the ovary. *Lip* bearded conspicuously with whitish and orange-colored clavate hairs.

Hab. Swamps, among the slaty hills: not very common. *Fl.* June. *Fr.* Aug.

Obs. This is a very elegant, as well as fragrant plant, when in flower.

TRIBE 4. NEOTTIE'AE.

Pollen as in the preceding *tribe; pollinia* 2, affixed to a common *gland; anther* erect, parallel with the *column.*

426. SPIRAN'THES, *Richard.*

[Gr. *Speira,* a twisted cord, and *anthos,* a flower; the flowers being spirally arranged.]

Flowers somewhat ringent; *lateral sepals* oblique at base, and nearly under or opposite the lip,—the *upper one* adhering to the *petals*—all rather erect. *Lip* oblong, concave, embracing the column below, with 2 callous processes near the base. *Column* arching; *stigma* ovate, with a short-pointed and finally 2-cleft beak. *Anther* dorsal; *pollinia* clavate. *Root* fasciculate, fleshy; *scape* naked, or leafy at base; *flowers* white, in a spirally twisted *spike,* or obliquely recurved.

† Scape *merely bracteate;* leaves (*if any*) *radical, and soon disappearing.*

1. S. grácilis, *Bigelow.* Leaves, when present, elliptic-lanceolate, petiolate; spike slender, smoothish; flowers unilateral, spirally twisted.

S. tortilis. *Rich? Fl. Cestr. ed.* 2. *p.* 501. and *var.* gracilis. *Ibid. l. c.* SLENDER SPIRANTHES. Ladies' Tresses.

Leaves 1 to 2 inches long, thinnish. *Scape* 9 to 15 inches high, slim, sheathed with acuminate scales. *Spike* 2 to 4 inches in length; *flowers* small; *bracts* elliptic, or ovate-oblong, acuminate. *Capsule* smooth.

Hab. Moist grounds; meadows, &c.: frequent. *Fl.* July. *Fr.* Sept.

†† Scape *leafy near the base.*

2. S. cérnua, *Rich.* Leaves linear-lanceolate, elongated, sessile; spike dense, pubescent; flowers not unilateral, obliquely cernuous. NODDING SPIRANTHES.

Leaves 3 to 10 or 12 inches long, somewhat fleshy. *Scape* 6 to 15 inches high, stouter than the preceding, bearing loosely sheathing *scales*, or sometimes *leafy.*—*Spike* 2 to 6 inches long; *flowers* rather large, crowded; *bracts* lance-ovate. *Capsule* pubescent.

Hab. Moist thickets, and low grounds: frequent. *Fl.* Aug. *Fr.* Octo.

Obs. The *flowers* vary from greenish-white to ochroleucous.

427. GOODYE'RA, *R. Brown.*

[Dedicated to *John Goodyer;* an English Botanist.]

Lateral sepals not oblique at base. *Lip* saccate at base, without callous processes,—the apex acuminate and channelled. *Column* straight. *Pollinia* of angular grains loosely cohering by a web.—*Rhizoma* somewhat creeping; *leaves* radical; *scape* bracteate; *flowers* spiked, greenish-white.

1. G. pubéscens, *R. Br.* Leaves spatulate-ovate, petiolate, reticulated with broad bluish-white veins; spike crowded, glandular-pubescent.

PUBESCENT GOODYERA. Rattle-snake Plantain.

Leaves 1 to 2 inches long, acute, mostly 5-nerved,—the upper surface dark green, whitish along the midrib and nerves, tapering at base to a flat *petiole* about an inch in length. *Scape* 6 to 12 inches high, terete, pubescent; *spike* 2 to 4 inches long; *bracts* ovate-lanceolate, pubescent and ciliate, a little longer than the ovaries; *flowers* small.

Hab. Woodlands, and shady thickets: frequent. *Fl.* July. *Fr.* Sept.

DIVISION II. Anthers 2 (*the middle or front one abortive*).

TRIBE 5. CYPRIPEDIE'AE.

Pollen pulpy-granular; *abortive anther* dilated and petal-like.

428. CYPRIPE'DIUM, *L.*

[Gr. *Kypris*, Venus, and *Podion*, a sock, or slipper; in allusion to the lip.]

Sepals spreading, the 2 anterior ones mostly united. *Petals* similar but usually narrower. *Lip* a large inflated *sac*, somewhat mocasin-shaped. *Column* short, 3-lobed,—the *lateral lobes* each bearing a 2-celled *anther* beneath,—the *middle* one (*abortive anther*) dilated, thickish, incurved. *Root* of many matted fibres; *leaves* many-

nerved and somewhat plicate; *flowers* few, or solitary, large and showy.

1. C. pubéscens, *Willd.* Stem leafy, 1- to 3-flowered; sepals and petals longer than the lip, stained with purplish-brown; lip pale yellow, convex and gibbous above; abortive anther triangular.
PUBESCENT CYPRIPEDIUM. Noah's Ark. Mocasin-flower.

Stem 1 to 2 feet high, simple, often flexuose, pubescent. *Leaves* 3 to 6 inches long, alternate, elliptic-lanceolate, acuminate, pubescent, sessile and sheathing.—*Flower* mostly solitary and terminal, with a foliaceous *bract* at base; *petals* wavy and curled; *lip* an inch to an inch and a half long, inflated and saccate. *Capsule* oblong, tapering at each end.

Hab. Rich, moist woodlands: formerly frequent. *Fl.* May. *Fr.* Aug.

2. C. acaùle, *Aiton.* Scape naked, 1-flowered, 2-leaved at base; sepals and petals shorter than the lip, greenish, stained and spotted; lip purple, drooping, obovoid, with a fissure in front; abortive anther rhomboid, acuminate.
STEMLESS CYPRIPEDIUM. Lady's Slipper.

Leaves 3 to 6 inches long, opposite, oval, mostly acute, at first rather erect, finally spreading. *Scape* 6 to 12 inches high; *flower* solitary and terminal, with a foliaceous ovate-lanceolate *bract* at base. *Lip* 1½ to 2 inches long. *Capsule* elliptic-oblong, an inch and half in length.

Hab. Woods; North Valley hills: not common. *Fl.* May. *Fr.* Aug.

Obs. Both these remarkable plants are beginning to be rather scarce, in this region.

ORDER CVI. AMARYLLIDÀCEAE.

Herbs,—with *roots* chiefly *bulbous,* and *scape*-bearing; *leaves* radical, flat and linear; *flowers* perfect, with a regular 6-parted *perianth,* not scurfy, nor woolly,—the *tube* adherent to the *ovary; stamens* 6; *anthers* introrse; *style* single; *stigmas* 3; *fruit* a 3-celled loculicidal *capsule; seeds* numerous; *embryo* straight, in the axis of fleshy *albumen.*

This order comprises some curious, and beautifully flowering plants. The famous *Pulque,* an intoxicating drink of the Mexicans, is the fermented juice of a species of *Agave.*

429. HYPOX'IS, *L.*

[Gr. *Hypo,* beneath, and *oxys,* sharp; the capsule being pointed at base.]

Perianth persistent, spreading,—the 3 outer lobes green externally. *Capsule* crowned with the withered perianth-lobes, not opening by valves. *Seeds* globular, laterally beaked. Stemless hairy *perennials,* with grass-like *leaves,* and yellow *flowers.*

1. H. erécta, *L.* Leaves longer than the umbellately 3- or 4-flowered scape.
ERECT HYPOXIS. Star of Bethlehem.

Root a solid bulb, with many coarse fibres. *Leaves* 9 to 15 inches long, keeled, tapering to a subulate point. *Scape* 4 to 10 inches high, slender; *pedicels* ½ an inch to an inch in length, silky-villous, with subulate *bracts* at base.

Hab. Open, grassy woodlands: common. *Fl.* May. *Fr.*

Obs. I think this plant rarely perfects its *fruit.* Common as it is,—and familiar as I have been with it, for more than half a century,—I have never observed a full-grown capsule.

ORDER CVII. HAEMODORÀCEAE.

Herbs,—with *fibrous-roots*; *leaves* sometimes lanceolate and stellate, often ensiform, distichous and equitant; *flowers* perfect and regular, scurfy, or woolly, outside,—the *tube* of the 5-lobed *perianth* either adherent to the lower part, only, or to the whole surface, of the *ovary*; *stamens* 6, or 3; *anthers* introrse; *stigmas* 3; *fruit* a 3-celled loculicidal 3- or many-seeded *capsule*, crowned or inclosed by the withering persistent *perianth*; *embryo* straight, in hard or fleshy *albumen*.

430. ALE'TRIS, *L.*

[Gr. *Aleiar*, meal; the flowers having a rough mealy appearance.]

Perianth tubular, rough externally with scurfy points,—the *tube* adherent to the *base*, only, of the *ovary*. *Stamens* 6, included, inserted at the base of the *lobes*. *Style* subulate, finally 3-parted. *Stemless* smooth *perennials*: *leaves* radical, stellately spreading; *scape* simple, tall; *flowers* racemose, white, or yellowish.

1. A. farinòsa, *L.* Leaves linear-lanceolate, acuminate, thin and arid; perianth whitish, ovoid-oblong, rugose-muricate and mealy-looking.

MEALY ALETRIS. Star-grass. Colic-root.

Leaves 3 to 6 inches long, pale yellowish-green. *Scape* 2 to 3 feet high, with a few small remote *bract-like* leaves; *raceme* 6 to 12 inches long; *pedicels* very short, with 1 or 2 subulate *bracts* at base. *Capsule* coated with the persistent *perianth*.

Hab. Open, moist, grassy woodlands: frequent. *Fl.* July. *Fr.* Septem.

ORDER CVIII. IRIDÀCEAE.

Herbs,—with creeping *rhizomas*, or merely *fibrous* roots; *leaves* distichous and equitant, ensiform, or grass-like; *flowers* perfect, regular (or sometimes irregular), with spathe-like *bracts*,—the *tube* of the corolla-like *perianth* adherent to the *ovary*; *stamens* 3, distinct, or monadelphous; *anthers* extrorse; *style* single; *stigmas* ; *fruit* a 3-celled loculicidal many-seeded *capsule*; *embryo* straight, in fleshy *albumen*. The *Orris-root*, and *Saffron*, of the shops, are afforded by plants of this order,—the *former* (i. e. *Orris* or *Iris root*), being the *rhizoma* of *Iris florentina*, *Willd.* and the *latter* the dried orange-colored *stigmas* of *Crocus sativus*, *L.*

431. IRIS, *L.*

[The varied *hues* of its flowers resembling those of the *Iris*, or rainbow.]

Perianth with the 3 *outer lobes* reflexed, and often bearded at base,—the 3 *inner* ones smaller and erect. *Stamens* distinct, inserted on the base of the outer perianth-lobes. *Stigmas* dilated and petal-like, arched over the stamens. *Capsule* coriaceous, 3- to 6-angled; *seeds* flat, margined. *Perennials*: *rhizoma* often large and fleshy; *leaves* mostly ensiform; *flowers* racemose, large, purplish-blue and variegated,—the *Chester County* species on leafy *stems*, and *not bearded*.

1. I. versicolor, *L.* Stem rather stout, angled on one side; leaves ensiform; ovary obtusely 3-angled, with flat sides; capsule oblong, turgid.

COLOR-CHANGING IRIS. Wild Flag.

Stem 2 to 3 feet high, rather taller than the *leaves*. *Flowers* 2 to 6 in a terminal raceme; *lobes* spatulate,—the outer ones variegated with yellow at base, inner ones paler.

Hab. Margins of ponds, and miry places: frequent. *Fl.* June. *Fr.*

2. I. Virginica, L. Stem slender, terete; leaves narrowly lance-linear; ovary with the sides 2-grooved; capsule acute at both ends.

VIRGINIAN IRIS. Slender blue Flag.

Stem 1 to 2 feet high, marked with a prominent line on opposite sides, but not ancipital. *Leaves* usually overtopping the stem. *Flowers* 3 to 6 or 8 in a terminal raceme, smaller and more yellow than the preceding.

Hab. Wet meadows; along Brandywine: rare. *Fl.* June. *Fr.*

Obs. Collected in 1838, by Mr. ALBERT TOWNSEND.

432. SISYRIN'CHIUM, *L.*

[Gr. *Sys*, a hog, and *Rhynchos*, a snout; hogs being supposed fond of rooting it up.]

Perianth with the 6 deeply-parted *lobes* alike, and spreading.—*Stamens* monadelphous. *Stigmas* involute-filiform, acute, alternating with the stamens. *Capsule* membranaceous, roundish-obovoid, slightly trigonous; *seeds* sub-globose. Grass-like *perennials: roots* fibrous; *stems* slender, cespitose, winged or ancipital; *leaves* chiefly radical; *flowers* blue, small, in umbellate clusters of 3 to 6, from 2 spathe-like *bracts*.

1. S. Bermudiàna, *L.* Stem winged, nearly leafless, often branched above; bracts shorter than the peduncles.

S. anceps. *Cavan. & Fl. Cestr. ed.* 2. *p.* 13.

BERMUDIAN SISYRINCHIUM. Blue-eyed Grass.

Stem 9 to 18 inches high, compressed, with a broad margin on each side, and a sheathing leaf at the base of the branches. *Leaves* 3 to 12 inches long, linear, ensiform, acute. *Bracts* nearly equal, lanceolate, 2- to 5-flowered.

Var. mucronàtum, *A. Gray.* Stem ancipital, simple, leafless; bracts unequal, colored,—the outer one cuspidate, longer than the peduncles.

S. mucronatum. *Mx.* and *Fl. Cestr. ed.* 2. *p.* 12.

Hab. Low grounds; meadows, and thickets: frequent. *Fl.* May, June. *Fr.* July.

Obs. The *S. mucronatum* of *Mx.* which is every way more slender and delicate than the other, is reduced to a *var.* by Prof. A. GRAY.

ORDER CIX. DIOSCOREA'CEAE.

Mostly *herbs*; *rhizomas* tuberous, or nodose; *stems* slender and twining; *leaves* chiefly alternate, ribbed, netted-veined, petiolate, without *stipules*; *flowers* dioicous, regular; *perianth* 6-cleft: STAM. FL. with 6 *stamens*, inserted on the base of the perianth-lobes; *anthers* introrse: PISTILL. FL. with the *perianth-tube* adherent to the 3-celled *ovary*; *styles* 3, distinct; *fruit* a membranaceous 3-winged few-seeded *capsule*—or sometimes *baccate*; *seeds* compressed and margined,—or subglobose; *embryo* in cartilaginous *albumen*.

433. DIOSCORE'A, *L.*

[Dedicated to the ancient Greek Naturalist, *Dioscorides*.]

Generic character nearly that of the *Order: Capsule* 3-celled, loculicidally 3-valved by splitting through the prominently winged angles. *Seeds* 1 or 2 in each cell, flat and margined. *Perennials*: *stem* volubile; *flowers* pale green, in axillary panicles and racemes.

1. D. villòsa, *L.* Herbaceous; leaves cordate, acuminate, pubes-

cent beneath,—the upper ones sometimes nearly opposite, or in verticils of four.

VILLOUS DIOSCOREA. Wild Yam.

Stem 6 to 12 feet long, slender, mostly simple, twining (W. S. E.), or clambering over bushes and fences. *Leaves* 2 to 4 inches long, 9- to 11-nerved; *petioles* 1½ to 2½ inches in length. *Capsules* about ¾ of an inch in length, and nearly as wide as long,—the angles dilated into 3 broad compressed semi-oval *wings*, which are greenish-tawny, with a narrow dark-brown margin. *Seeds* orbicular, with a thin white shining membranaceous margin.

Hab. Thickets; fence-rows, &c.: frequent. *Fl.* June. *Fr.* Octo.

Obs. I have observed, in the *pistillate* flowers, 6 abortive stamens, or *staminodia*; but do not know whether they are constant. The fine *tuberous rhizoma*, known as the *Yam*, in tropical countries, is afforded by a species of this genus (*D. sativa*, L.).

ORDER CX. SMILÀCEAE.

Herbs, or *climbing shrubby plants*; *leaves* alternate, or verticillate, ribbed and netted-veined,—sometimes with *tendrils* in place of *stipules*; *flowers* regular, dioicous, or perfect,—the *perianth* mostly 6-parted, free from the *ovary*; *stamens* as many as the perianth-lobes; *anthers* introrse; *ovary* 3- to 5-celled; *styles* or *stigmas* as many, and distinct; *fruit* a few- or many-seeded *berry*; *embryo* minute, in hard *albumen*.

SUBORDER I. TRUE SMILA'CEAE.

Chiefly *shrubby*; *leaves* alternate, cirrhose-stipulate; *flowers* mostly dioicous, axillary,—the *perianth* uniform; *stigmas* subsessile; *seeds* few.

434. SMILAX, *Tournef.*

[The ancient Greek name; meaning obscure.]

Perianth of 6 nearly distinct deciduous *sepals*. *Stamens* as many; *anthers* linear, fixed by the base. *Stigmas* 3, thick and spreading. *Berry* globular, bluish-black, 1- to 3-celled, 1- to 3-seeded; *seeds* globose. *Perennials:* often evergreen and prickly; climbing by *tendrils* on the petioles; *flowers* greenish-yellow, in axillary pedunculate simple *umbels*.

§1. Stem *shrubby and prickly*; leaves *thickish*; ovules *solitary*.

1. S. rotundifòlia, *L.* Leaves roundish-ovate, with a short acumination, subcordate at base, glaucous beneath.

ROUND-LEAVED SMILAX. Green-Brier. Rough Bind-weed.

Plant yellowish-green, smooth (as to pubescence). *Stem* 10 to 20 or 30 feet long, mostly terete, flexuose, somewhat branched, armed with straight sharp prickles. *Leaves* 2 to 8 inches long; *petioles* ⅓ to ¾ of an inch in length, margined at base, and with a simple filiform but strong *tendril*, on each side, at the summit of the margin. *Umbels* globose, on *peduncles* scarcely longer than the petioles. *Berries* with a glaucous bloom.

Var. Caduca, *A. Gray*. Stem somewhat angular, shorter and more slender, seldom climbing; leaves ovate, mucronate.

S. caduca. *L.* and *Fl. Cestr. ed.* 2. *p.* 566.

Hab. Thickets; moist woods; old fields: frequent. *Fl.* May, June. *Fr.* Octo.

Obs. Prof. GRAY has reduced the *S. caduca*, *L.* to a *variety*. It is chiefly found in old fields; while the other occurs in wet woods,

and thickets,—where its rugged vines are often a great annoyance to the wood-man.

§ 2. Stem *herbaceous, not prickly;* leaves *thin;* ovules in *pairs.*

2. S. herbàcea, *L.* Leaves oblong-cordate and lance-ovate, acuminate, pubescent beneath; flowers exceedingly fetid.
HERBACEOUS SMILAX. Carrion-flower.

Stem 2 to 4 or 6 feet long, erect, or leaning, often flaccid at summit and nodding, mostly simple, angular, frequently purplish. *Leaves* 2 to 3 inches long; *petioles* an inch or an inch and a half in length. *Umbels* globose, about an inch in diameter, on *peduncles* 3 to 5 inches long.
Hab. Meadows; fence-rows, &c.: frequent. *Fl.* May. *Fr.* Sept.

Obs. This plant is easily identified by the abominable foetor of its flowers,—which, however, is completely dissipated by drying.

SUBORDER II. TRILLIA'CEAE.

Herbs; leaves verticillate; *flowers* perfect, terminal,—the *perianth* often of dissimilar and nearly distinct parts (*sepals* and *petals*); *ovary* 3-celled; *styles* manifest; *ovules* several in each cell.

435. TRIL'LIUM, *L.*

[Latin, *Trilix*, triple; the parts of its structure being chiefly in *threes.*]

Sepals 3, lanceolate, spreading, green, persistent. *Petals* 3, larger, white, or purple, withering. *Anthers* linear, adnate, on short filaments. *Styles* subulate, recurved, *stigmatic* on the inner side. *Berry* trigonous-ovoid, purple, 3-celled; *seeds* obovoid, horizontal. *Perennials: rhizoma* short; *stem* simple, with 3 *leaves* in a verticil at summit; *flower* solitary, terminal, rather large.

1. T. pèndulum, *Muhl.* Leaves broadly rhomboid, acuminate, subsessile; flower pedunculate, pendulous; petals recurved, white. T. cernuum. *Ph. Bigel. A. Gray,* &c. not? of *L.*
PENDULOUS TRILLIUM. Three-leaved Night-shade.

Stem 9 to 15 inches high. *Leaves* 3 to 5 inches long, and 2 to 4 inches wide.—*Peduncle* half an inch to an inch in length. *Berry* ½ an inch to near an inch in diameter, fleshy, dark purple when mature.
Hab. Rich, moist, shaded grounds; thickets, &c.: frequent. *Fl.* May. *Fr.* Aug.

Obs. There seems still to be some confusion in the *synonymy* of this plant,—in consequence of PURSH having mistaken it for the *true T. cernuum,* of *Linn.* which is believed to be a *Southern* species, first made known by CATESBY (*T. Catesbaei, Ell. T. stylosum, Nutt.*). See Dr. BALDWIN'S *note, in Florul. Cestr. p.* 44.

436. MEDE'OLA, *Gronovius.*

[Named after *Medea*, the Sorceress; from its supposed virtues.]

Sepals and *petals* nearly alike, lance-oblong, revolute, deciduous.—*Anthers* linear-oblong, incumbent. *Styles* long, linear, recurved-diverging, *stigmatic* on the upper side, dark-purple, deciduous. *Berry* globose, dark purple, 3-celled, few-seeded. *Perennial: rhizoma* oblong, fleshy, white; *stem* simple, slender, loosely floccose-pubescent, with a verticil of 5 to 9 *leaves* near the middle, and another of 3 at summit; *flowers* pale greenish-yellow, subumbellate, nodding.

1. M. Virginica, *L.* Leaves obovate-lanceolate, and ovate, acuminate, sessile; peduncles 3 to 6 or 8, terminal, nodding in flower, erect in fruit.

Gyromia Virginica. *Nutt. & Fl. Cestr. ed.* 2. *p.* 234.

Virginian Medeola. Indian Cucumber. Cucumber-root.

Plant pale green. *Rhizoma* a horizontal oblong tuber, 1 to 2 inches long. *Stem* 1 to 2 feet high. *Leaves* of the *lower* verticil 3 or 4 inches long,—of the *upper* one, 1 to 2 inches in length, and often stained at base, when the plant is in fruit. *Hab.* Shaded, moist grounds; about springs: frequent. *Fl.* May. *Fr.* Sept.

Obs. The delicate white *tuber* has been thought to resemble the *cucumber*, in taste; and is reputed diuretic.

ORDER CXI. LILIÀCEAE.

Mostly *herbs; roots* often bulb-bearing; *leaves* sessile, or sheathing; *flowers* perfect, regular,—the *perianth* mostly with 6 (rarely 4) *lobes*, or *petal-like parts*, free from the *ovary; stamens* as many as the lobes, or parts, of the perianth; *anthers* introrse, erect, or incumbent; *styles* united; stigmas 3, sometimes united; *fruit* a 3-celled loculicidal *capsule*, or sometimes a *berry; seeds* few, or several; *embryo* in fleshy *albumen*. A large and interesting Order,—some of the genera vying with the *Rosaceae*, in beauty.

TRIBE 1. ASPARAGE'AE.

Root fleshy and fascicled, or fibrous; *fruit* a *berry*, 2- or 3-celled, and few-seeded.

† Stem *branching;* leaves *numerously fasciculate.*

437. ASPAR'AGUS, *L.*

[The ancient Greek name.]

Perianth deeply 6-parted; *lobes* linear-oblong, spreading at apex,—with the *filaments* partly adnate to their base; *anthers* peltate.—*Style* short; *stigmas* 3. *Berry* globose, red when mature. *Perennials:* unarmed, or aculeate; *rhizoma* much branched and matted; *flowers* axillary, or lateral.

1. A. officinàlis, L. Unarmed; bushy; leaves setaceous and flexible; peduncles mostly in pairs.

Officinal Asparagus. Asparagus (corruptly, "*Sparrow-grass*").

Plant smooth; *stem* 3 to 6 feet high, the *turions*, or young shoots, at first simple, stout and fleshy, with appressed *scales* instead of leaves—finally much branched. *Leaves* unequal, ⅓ of an inch to an inch, or more, in length, in fascicles of 3 to 10 or 12 (often 6). *Peduncles* about ½ an inch long, articulated above the middle, lateral (not axillary), at the base of the alternate branches; *flowers* pale greenish yellow. *Hab.* Gardens, &c. Nat. of Europe. *Fl.* June. *Fr.* Sept.

Obs. Generally cultivated, for the young *Turions*,—which afford a favorite Vegetable dish, in the vernal season.

†† Stem *simple;* leaves *solitary, alternate.*

438. POLYGONA'TUM, *Tournef.*

[Gr. *Polys*, many, and *Gonu*, a knee; from its many-jointed rhizoma and stem.]

Perianth tubular, cylindrical, 6-lobed at summit. *Stamens* included. *Style* slender; *stigma* capitate. *Berry* globose, bluish-black when

mature; *cells* 1- or 2-seeded. *Perennials: rhizoma* stout, creeping; *stem* leaning, or curved; *leaves* somewhat clasping; *flowers* axillary, pendulous, greenish-white.

1. P. canaliculàtum, *Pursh.* Leaves ovate-oblong, many-nerved, smooth and green on both sides; peduncles 2- to 6-flowered. P. multiflorum. *Desf. & Fl. Cestr. ed.* 2. *p.* 220.

CHANNELLED POLYGONATUM. Greater Solomon's Seal.

Rhizoma rather large, fleshy, horizontal, with the *scars* of former stems on its upper side. *Stem* 2 to 4 feet high, somewhat angular and channelled. *Leaves* 3 to 5 inches long. *Peduncles* 1 to 2 inches long; *flowers* often in pendulous fascicles; *perianth* about ¾ of an inch long,—the *lobes* a little spreading, tipt with green.
Hab. Rich soils; along streams, fence-rows, &c.: frequent. *Fl.* June. *Fr.* Sept.

2. P. pubéscens, *Pursh.* Leaves lance-oblong, 3- to 5-nerved, pubescent and glaucous beneath; peduncles 1- or 2-flowered.

PUBESCENT POLYGONATUM. Smaller Solomon's Seal.

Plant every way smaller than the preceding. *Stem* 1 to 2 feet high, terete, or grooved on one side. *Leaves* 2 to 3 inches long. *Peduncles* ½ an inch to near an inch long; *flowers* often solitary, rarely more than 2 together.
Hab. Woodlands, and rocky banks: frequent. *Fl.* May. *Fr.* Aug.

Obs. This is the plant referred to, in *Fl. Cestrica*, as a *variety* of the preceding. Prof. A. GRAY regards it as specifically distinct.—The *scars* left on the elongating *rhizomas*, by the old stems, have been imagined to resemble the impressions of a *Seal*,—whence the *common name* of these plants.

439. SMILACINA, *Desfontaines.*

[Diminutive of *Smilax;* from a fancied resemblance to that genus.]

Perianth 6- or 4-parted, spreading, deciduous. *Ovary* 2- or 3-celled; *style* short and thick; *stigma* 2- or 3-lobed. *Berry* globular, 1- or 2-seeded, usually speckled with purple spots when mature. *Perennials: rhizoma* thickish, creeping; *leaves* nerved; *flowers* in a terminal compound, or simple *raceme*, yellowish, or white.

† Perianth-lobes *and* stamens 6; leaves *several.*

1. S. racemòsa, *Desf.* Leaves oblong-oval, acuminate, subsessile; raceme compound, paniculate; ovary 3-celled.

RACEMOSE SMILACINA. Wild Spikenard.

Stem 1 to 2 feet high, somewhat angular and flexuose, slightly pubescent above. *Leaves* 4 to 6 inches long, contracted at base to a short margined *petiole.*—*Raceme* 2 to 3 inches in length; *pedicels* short; *flowers* yellowish.
Hab. Moist grounds; ditch banks, &c.: frequent. *Fl.* May. *Fr.* Sept.

2. S. stellàta, *Desf.* Leaves oblong-lanceolate, acute, clasping; raceme simple, few-flowered; ovary 2-celled.

STELLATE SMILACINA.

Stem 9 to 12 inches high, nearly terete, smooth. *Leaves* 3 to 5 inches long, acuminately tapering toward the apex. *Raceme* 1 to 1½ inches in length; *flowers* white.
Hab. Meadows; along rivulets; Downingtown: rare. *Fl.* May. *Fr.*

†† Perianth-lobes *and* stamens 4; leaves *mostly* 2.

3. S. bifòlia, *Ker.* Stem low, with 2 (rarely 3) leaves near the summit, which are cordate-oblong, acute and subsessile; raceme simple, rather crowded.

TWO-LEAVED SMILACINA.

Stem 3 to 6 inches high. *Leaves* about 2 inches long. *Raceme* oblong, about an inch in length; *pedicels* mostly in pairs, ¼ of an inch long; *flowers* white. *Berry* small, globose, mucronate.

Hab. Shaded rivulets, on the slaty hills: rare. *Fl.* May. *Fr.* Aug.

TRIBE 2. ASPHODE'LEAE.

Roots fascicled, or bulb-bearing; *perianth-lobes* more or less united below; *fruit* a 3-celled loculicidal *capsule*, mostly few-seeded.

† Roots *fascicled;* perianth-lobes *united into a tube below.*

440. HEMEROCAL'LIS, *L.*

[Gr. *Hemera*, a day and *Kallos*, beauty; the flower lasting but a day.]

Perianth funnel-form,—the short *tube* including the *ovary*,—the 6-parted *border* spreading and lily-like, withering at the close of the day. *Stamens* inserted in the throat; *filaments* and *style* long and slender, declined and ascending. *Capsule* trigonous, rather fleshy; *seeds* several, subglobose, black. Smooth showy *perennials: leaves* radical, long, linear and keeled; *flowers* large, somewhat *corymbose*, on a leafy *scape.*

1. H. *fúlva, L.* Perianth copper-colored or orange-tawny,—the inner lobes obtuse, wavy on the margin.

TAWNY HEMEROCALLIS. Day Lily.

Leaves about two feet long, and an inch wide, acute. *Scape* 3 to 4 feet high, corymbosely branched at summit, the branches *bracteate* at base. *Perianth* about 4 inches long,—the *tube* contracted, about an inch in length.

Hab. About houses. Nat. of China. *Fl.* July. *Fr.* Sept.

Obs. This has strayed from gardens, and become naturalized in many places. The *H. flàva, L.* a yellow flowered species, of smaller growth, is often seen in gardens.

†† Roots *bulb-bearing;* perianth-lobes *slightly united below.*

441. ORNITHOG'ALUM, *Tournef.*

[Gr. *Ornis, ornithos*, a bird, and *gala*, milk; an ancient whimsical name.]

Perianth-lobes almost distinct, partly colored (white), spreading, several-nerved. *Filaments* dilated, subulate. *Style* triquetrous; *stigma* obtuse. *Capsule* membranous, obtusely trigonous; *seeds* few, subglobose. *Perennials? bulbs* coated; *leaves* linear, channelled; *flowers* racemose, or corymbose, on a naked *scape.*

1. *O. umbellàtum,* L. Racemes corymbose; peduncles longer than the bracts; perianth-lobes white within, green outside, with white margins; filaments simple.

UMBELLATE ORNITHOGALUM. Ten o'clock.

Bulbs small, white. *Leaves* 6 to 12 inches long, numerous, very smooth. *Scape* 6 to 9 inches high, terete; *peduncles* 1 to 2 inches long, alternate and rather corymbose than umbellate, each with a skinny acuminate *bract* at base.

Hab. Pastures, &c. Nat. of Europe. *Fl.* May. *Fr.* July.

Obs. This foreigner has escaped from the gardens, in many places,—and although it perfects but few seeds, it multiplies its bulbs so rapidly, as to be a great annoyance to the tidy farmer. The *bulbs* of this species are said to be much used for food, in the *Levant;* and LINNAEUS imagined them to be the "*Dove's Dung,*" which was sold so dear at the siege of *Samaria,* as mentioned in the 2nd book of Kings, *Chap. VI.* (See HOOKER & ARNOTT'S *British Flora*). Some of our Agriculturists could furnish almost any quantity,—and, I imagine, would gladly part with them, at a very low price!

442. AL'LIUM, *L.*

[The ancient Latin name of Garlic.]

Perianth-lobes entirely colored, 1-nerved, becoming dry, more or less persistent. *Filaments* subulate, dilated below,—the inner or alternate ones sometimes with a slender *cusp,* or short *tooth,* on each side. *Style* filiform; *stigma* simple, or trifid. *Capsule* membranaceous, trigonous, or somewhat 3-lobed; *seeds* few, roundish, black, rough-dotted. *Perennials?* strong-scented; *scape* and *leaves* from a coated *bulb; leaves* flat, or terete and fistular, distichously arranged; *flowers* in a dense terminal *umbel,* or *head* (sometimes the flowers changed to *bulblets*), embraced by a membranaceous 1- or 2-valved *spathe.*

§ 1. Umbel *often densely bulb-bearing, with or without flowers.*

† Leaves *flat.* * Inner filaments *with long lateral cusps.*

1. A. SATI'VUM, L. Scape leafy to the middle; leaves lance-linear, somewhat channelled; spathe 1-valved, with a long acumination, caducous.

CULTIVATED ALLIUM. English Garlic.

Growing in bunches. *Radical bulbs* compound, consisting of small bulbous offsets, called *cloves. Scape* 1 to 2 feet high. *Leaves* 9 to 15 inches long. *Umbel* bearing numerous small ovoid-oblong *bulblets,* each with a thin membranous covering. *Perianth* pale purple.

Hab. Gardens. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. Often cultivated,—as a domestic remedy for *worms,* in children. I suppose it to be the species so much esteemed by the "garlic-eating Peasantry" of *Spain.* I incline to think these *bulbous* herbs are all properly *biennials,* rather than perennials.

* * Filaments *all simple.*

2. A. Canadénse, *Kalm.* Scape leafy at base only; leaves linear, obtuse, a little convex beneath; spathe 2-valved.

CANADIAN ALLIUM. Meadow Garlic.

Bulb ovoid, small. *Scape* 12 to 18 inches high. *Leaves* 6 to 12 inches long.—*Umbel* bearing both *bulblets* and *flowers,*—the latter on *pedicels,* or rays, ½ an inch to 1½ inches long. *Perianth* pale purple.

Hab. Moist meadows, and flats: frequent. *Fl.* May. *Fr.* August.

†† Leaves *terete and fistular.* * Inner filaments *with lateral cusps.*

3. *A. vineàle,* L. Scape slender and subcylindric, sparingly leafy

to the middle; leaves cylindrical, with a narrow channel on the upper side; spathe 1-valved, acuminate.

VINE (or VINEYARD) ALLIUM. Field Garlic. Crow Garlic.

Bulbs small. *Scape* 2 to 3 feet high. *Leaves* 8 to 15 inches long. *Umbel* globose, about an inch in diameter (smaller and densely capitate, when bearing *bulblets*,—these often vegetating while in the heads). *Perianth* deep purple, tinged with green.

Hab. Fields, and meadows. Nat. of Europe. *Fl.* June. *Fr.* Aug.

Obs. Tradition says, this species was brought by the first Welsh Immigrants to Pennsylvania, for the purpose of supplying an *early spring pasture.* It is now completely naturalized,—and, in some districts, so abundant as to be quite a nuisance. It not only imparts a disgusting flavor to *milk*, *butter*, &c., but, when the *bulblets* are abundant among wheat, they seriously injure the *flour*, and render the manufacture of it difficult.

** Inner filaments *obtusely toothed on each side.*

4. A. CÈPA, L. Scape stout, and ventricose below the middle, leafy at base only; leaves somewhat ventricose; spathe 1- or finally 2-valved, with a short acumination.

HEAD ALLIUM. Onion. Garden Onion.

Bulb depressed or turnep-shaped, large (often 2 to 3 inches in horizontal diameter). *Scape* 2 to 3 feet high, fistular, somewhat glaucous. *Leaves* 6 to 12 inches long. *Umbel* globose, 2 to 3 inches in diameter, rarely bearing *bulblets*. *Perianth-lobes* white, with a green keel.

Hab. Gardens, &c. Nat. country unknown. *Fl.* July. *Fr.* Sept.

Obs. Universally known, and cultivated, as a culinary vegetable. The expressed *juice* is a popular remedy for the *croup*, in children. Its stimulating quality is thus playfully referred to, by SHAKSPEARE:—

> "And if the boy have not a woman's gift,
> To rain a shower of commanded tears,
> An *Onion* will do well for such a shift;
> Which in a napkin being close conveyed,
> Shall in despite enforce a watery eye."—*Taming of the Shrew.*

§ 2. Umbel *bearing only flowers and capsules.*

† Leaves *flat.* * Inner filaments *with lateral cusps.*

5. A. PÓRRUM, L. Scape leafy to the middle; leaves broadish, sublinear, acute; spathe 1-valved, long-acuminate.

LEEK ALLIUM. Leek. Garden Leek.

Bulb middle sized. *Scape* 2 to 3 feet high, stout and solid. *Leaves* 6 to 12 inches long, and about an inch wide. *Umbel* globose, rather dense, 2 inches, or more, in diameter. *Spathe* with an acumination 4 or 5 inches long. *Perianth* pale violet purple. *Filaments* white.

Hab. Gardens. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. Occasionally cultivated, in the Kitchen gardens, as an ingredient in soups, &c. It seems to be regarded as a sort of national Emblem, by the *Welsh*; and is thus noticed by the Poet, GAY:—

> "*Leek to the Welsh*, to Dutchmen butter's dear,
> Of Irish swains Potato is the cheer;
> Oats for their feasts the Scottish shepherds grind."

** Filaments *all simple.*

6. A. tricóccum, *Ait.* Scape naked; leaves broad, elliptic, or lance-oblong, disappearing early; spathe 2-valved.
THREE-BERRIED (or LOBED) ALLIUM. Wild Leek.

Bulbs oblong-ovoid, acuminate. *Scape* 9 to 12 inches high. *Leaves* 5 to 8 inches long, and 1½ to 3 inches wide, acute, contracted to a *petiole* at base, membranaceous when dried. *Umbel* globose, 1 to 2 in diameter. *Perianth* white.
Hab. Moist, shaded grounds; Brandywine: not common. *Fl.* June. *Fr.* Aug.

†† Leaves *terete, fistular;* filaments *all simple.*

7. A. SCHŒNOPRÀSUM, L. Scape naked, or few-leaved at base, about as long as the filiform leaves; spathe 2-valved.
RUSH-LEEK ALLIUM. Chives.

Growing in bunches. *Bulbs* small. *Scape* 6 to 9 inches high. *Leaves* erect.—*Umbel* subglobose, about an inch in diameter. *Spathe* nerved, purplish. *Perianth* purple, with a violet tinge.
Hab. Gardens. Nat. of Europe. *Fl.* July. *Fr.* Sept.

Obs. Used as a culinary herb; and also as a kind of medicinal food for young poultry.

TRIBE 3. TULIPA'CEAE.

Roots bulb-bearing; *perianth-lobes* quite distinct, and *petal-like; fruit* a 3-celled loculicidal many-seeded *capsule.*

443. LIL'IUM, *L.*

[The Classical Latin name,—from the Greek, *Leirion*, a Lily.]

Perianth mostly campanulate,—the *petals*, or *petaloid lobes*, either clawed, or sessile, often recurved or revolute, with a central *groove* inside near the base, deciduous. *Anthers* linear, versatile. *Style* longer than the stamens, somewhat clavate; *stigma* 3-lobed. *Capsule* oblong, trigonous, with the angles grooved; *seeds* flat, margined. *Perennials? bulbs* scaly; *stems* simple, leafy; *leaves* sessile, alternate, or subverticillate; *flowers* subcorymbose, large.

† Flowers *erect,—the petaloid lobes narrowed into claws at base.*

1. L. Philadélphicum, *L.* Leaves linear-lanceolate, smooth, —the upper ones usually verticillate.
PHILADELPHIAN LILIUM.

Stem 2 to 3 feet high. *Leaves* 2 to 3 inches long,—the upper ones in verticils of 6 or 8. *Flower* mostly solitary (sometimes 2 or 3); *peduncle* terminal, 1 to 3 inches in length. *Perianth* reddish-orange color, with tawney or purplish spots within; *lobes* about 3 inches long,—the *claws* ⅓ their length.
Hab. Clearings and borders of thickets: frequent. *Fl.* June. *Fr.* Sept.

†† Flowers *nodding,—the lobes sessile, recurved* (MARTAGONS).

2. L. Canadénse, *L.* Leaves generally and remotely verticillate, lanceolate, nerves and margins roughish-pubescent.
CANADIAN LILIUM.

Stem 2 to 3 feet high. *Leaves* 2 to 3 inches long, in rather distant verticils of 4 to 6. *Flowers* usually 3, sometimes 5, 7, or even 10 (rarely solitary), all nodding

on *peduncles* 3 to 6 inches in length. *Perianth* yellow (sometimes reddish-orange), with numerous dark-purple spots inside; *lobes* 2 to 3 inches long, recurved from near the middle.

Hab. Meadows, and borders of woods: frequent. *Fl.* June. *Fr.* Sept.

3. L. superbum, *L.* Leaves linear-lanceolate, acuminate, smooth,—the lower ones verticillate; flowers often numerous, in a pyramidal raceme.

SUPERB LILIUM. Turk's-cap Lily.

Stem 3 to 5 (under culture 7 or 8) feet high. *Leaves* 2 to 4 inches long, distinctly 3-nerved, narrowed at base,—the lower ones in verticils of 6 or 8, upper ones scattered and lance-ovate. *Flowers* 2 or 3 to 10, 20, or more,—when numerous, arranged pyramidally on graduated peduncles. *Perianth* bright reddish-orange, with numerous roundish dark-purple spots inside; *lobes* about 3 inches long, tapering to the apex, mostly revolute.

Hab. Moist grounds; Brandywine, near Delaware State: rare. *Fl.* July. *Fr.* Sept.

Obs. This species, under proper culture, is truly *superb*,—and deserves a place in every flower-garden. All those *Lilies*, with the *lobes revolute*, are known among Florists by the name of *Martagons*.

444. ERYTHRO'NIUM, *L.*

[Gr. *Erythros*, red; perhaps from the purple stains on the leaves.]

Perianth-lobes lanceolate, recurved-spreading,—the 3 inner ones usually with a callous *tooth* on each side, near the base, and *grooved* in the middle. *Anthers* oblong, erect. *Style* about as long as the stamens, clavate; *stigma* somewhat 3-lobed. *Capsule* trigonous-obovoid; *seeds* ovoid, acuminate. *Perennial: bulb* solid-scaly; *leaves* a single pair, subradical, sheathing the 1-flowered *scape*.

1. E. Americànum, *Smith.* Leaves elliptic-lanceolate, pale green with purple blotches; perianth yellow; stigma scarcely lobed.

AMERICAN ERYTHRONIUM. Dog's-tooth Violet.

Bulb ovoid, rather deep in the ground. *Leaves* 3 to 6 inches long, the apex abruptly acuminate, involute and thickened. *Scape* 6 to 9 inches high, bearing a terminal nodding flower. *Perianth* purplish externally; *lobes* an inch to an inch and a half long,—the outer ones recurved.

Hab. Moist, low grounds; thickets, &c.: common. *Fl.* April. *Fr.* June.

ORDER CXII. MELANTHA'CEAE.

Herbs; leaves alternate; *flowers* regular, perfect, or polygamous,—the *perianth* of 6 similar parts, free from the *ovary; stamens* usually 6; *anthers* mostly extrorse; *styles* united, or distinct; *fruit* mostly a *capsule*, 3-celled, or of 3 united *carpels; seeds* several; *embryo* small, in copious *albumen*.

SUBORDER I. UVULARIE'AE.

Flowers perfect; *perianth* early deciduous,—the *lobes* distinct and petal-like; *styles* more or less united; *fruit* a few-seeded loculicidal *capsule* (sometimes a berry).

445. UVULA'RIA, *L.*

[Perhaps from the flower hanging like the *uvula* of the palate.]

Perianth campanulate-oblong,—the *lobes* spatulate-lanceolate, twice as long as the stamens. *Anthers* long, linear, adnate. *Style* 3-cleft,—the divisions *stigmatic* along the inner side. *Capsule* trigonous,

3-valved from the apex; *seeds* obovoid. Smooth *perennials: rhizoma* creeping; *flowers* subterminal, mostly solitary, pendulous, pale yellow.

1. U. perfoliàta, *L.* Leaves clasping-perfoliate, lance-oblong; perianth granular-roughened within; capsule truncate at apex.
PERFOLIATE UVULARIA. Bell-wort.

Stem 9 to 15 inches high, forked near the summit. *Leaves* 2 to 3 inches long, varying from ovate to elliptic and oblong-lanceolate, generally rather acute. *Perianth* about an inch long.
Hab. Moist woods, and meadows: frequent. *Fl.* May. *Fr.* Aug.

2. U. sessilifòlia, *L.* Leaves oval-lanceolate, sessile; perianth smooth within; capsule acute at each end.
SESSILE-LEAVED UVULARIA.

Stem 9 to 12 inches high, slender, bifid at summit, mostly with a single flower on one of the branches. *Leaves* 1 to 2 inches long, acute at each end,—the 2 lower leaves on the flower-bearing branch nearly opposite, with the *peduncle* opposite the lower one, and immediately beneath the other. *Perianth* ¾ of an inch in length.
Hab. Rich woodlands: frequent. *Fl.* May. *Fr.* August.

SUBORDER II. MELANTHIE'AE.

Flowers often polygamous, or dioicous; *perianth* mostly persistent, or withering,—the *lobes* nearly distinct; *anthers* reniform-cordate, often becoming 1-celled and peltate; *styles* distinct; *fruit capsular,* usually septicidal (composed of 3 separable *carpels*).

446. MELAN'THIUM, *Gronovius.*

[Gr. *Melas,* black, and *Anthos,* flower; the flowers becoming dark-colored.]

Flowers monoicously polygamous; *perianth* rotate,—the *lobes* clawed, roundish-ovate, with 2 *glands* at base. *Filaments* adherent to the claws. *Styles* subulate, diverging, persistent. *Capsule* trigonous-ovoid, formed of 3 connate separable *carpels; seeds* flat, membranaceously margined. Tall *perennials: stem* simple, leafy; *leaves* long and narrow; *flowers* in a terminal pyramidal racemose *panicle,* pale greenish-yellow, finally brown.

1. M. Virginicum, *L.* Leaves lance-linear; perianth-lobes at first orbicular, finally hastate-ovate, or oblong, flat,—the glands distinct.
VIRGINIAN MELANTHIUM.

Stem 3 to 4 feet high, scape-like, terete, pubescent. *Leaves* 9 to 15 inches long, sessile, narrowed at base,—the lower ones sheathing. *Panicle* 12 to 15 inches long; *branches* 2 to 6 inches long, simple, alternate, roughish-pubescent; *flowers* racemose on the branches: *pedicels* ⅛ to ¾ of an inch in length, with ovate *bracts* at base. *Capsule* about half an inch long.
Hab. Wet meadows; margins of swamps: frequent. *Fl.* July. *Fr.* Sept.

447. VERA'TRUM, *Tournef.*

[Latin, *Veràtrum,* truly black; perhaps from the dark-colored root.]

Flowers monoicously polygamous; *perianth* spreading,—the *lobes* sessile, lance-oblong, without *glands* at base. *Filaments* free from, and shorter than the lobes, recurved. *Fruit,* and *seeds,* nearly as in *Melanthium. Perennials: stem* simple, clothed with large, elliptic, plicate and many-nerved leaves; *flowers* yellowish-green, in a terminal bracteate racemose *panicle.*

1. V. viride, *Aiton.* Leaves broad-oval, acuminate, sheath-clasping; panicle pyramidal, with conspicuous foliaceous bracts at the base of the branches.

GREEN-VERATRUM. White Hellebore. Indian Poke.

Stem 2 to 4 feet high, pubescent. *Leaves* 5 to 10 inches long and 3 to 5 inches wide, almost acute at base,—the upper ones narrower and lanceolate. *Panicle* 8 to 12 inches long; *branches* 1 to 3 or 4 inches long, compound; *pedicels* ¼ of an inch in length. *Capsule* about an inch long.

Hab. Swamps, and borders of damp thickets: frequent. *Fl.* May. *Fr.* July.

Obs. The *nerves*, in the broad elliptic leaves, remind one of the meridian lines in a map of the globe. The *root* is said to possess active properties.

448. AMIAN'THIUM, *A. Gray.*

[Gr. *Amiantos*, pure, & *anthos*, flower; the perianth being without gland, or spot.]

Flowers perfect: *perianth* spreading,—the *lobes* sessile, oval, without *glands*. *Filaments* rather longer than the lobes; *anthers* white, becoming 1-celled and peltate. *Styles* filiform. *Fruit* nearly as in *Melanthium; seeds* ovoid-oblong, not margined, but with a loose *coat*. Smooth *perennials: stem* scape-like, few-leaved; *leaves* chiefly radical, linear, keeled; *flowers* greenish-white, in a dense terminal *raceme*.

1. A. muscaetóxicum, *A. Gray.* Leaves broadly linear, elongated; raceme simple; carpels turgid, abruptly pointed; seeds with a fleshy red coat.

Helonias erythrosperma. *Mx. & Fl. Cestr. ed.* 2. *p.* 234.

FLY-POISON AMIANTHIUM.

Radical leaves 12 to 18 inches long,—those on the scape shorter and more grass-like. *Scape* 1½ to 2 feet high, obtusely angular; *raceme* 2 or 3 to 6, and sometimes 9, inches long; *pedicels* ½ an inch to an inch in length, with lance-ovate *bracts* at base. *Capsule* reddish-brown; *seeds* few, rather large, inclosed in a pulpy *coat* which is purple at maturity.

Hab. Swamps, in the slaty hills: rare. *Fl.* June. *Fr.* Aug.

Obs. Mr. ELLIOTT says, the bulbous *root* is used, at the South, for destroying flies. "The bulbs are triturated and mixed with molasses, or honey, and the preparation is spread upon plates. The flies are soon attracted, and the poison takes effect while they are sipping it." But, it seems they will revive, in the course of 24 hours, if not swept into a fire or otherwise destroyed.

449. CHAMAELIR'IUM, *Willd.*

[Gr. *Chamai*, on the ground, and *Leirion*, a lily; the application not obvious.]

Flowers dioicously polygamous: *perianth-lobes* spatulate linear, withering-persistent. *Anthers* roundish-oval, yellow. *Pistillate* flowers with rudiments of stamens; *styles* linear-clavate, *stigmatic* along the inner side. *Capsule* obovoid-oblong, not lobed, loculicidally 3-valved from the apex; *seeds* numerous, linear-oblong, winged at each end. Smooth *perennial: rhizoma* thickish and truncate; *stem* scape-like and leafy; *flowers* in a simple virgate spiked *raceme*,—the staminate yellowish, the pistillate greenish-white.

1. C. lùteum, *A. Gray.* Leaves lanceolate,—the radical ones oblanceolate; fertile stems taller and more leafy; pedicels without bracts.

Helonias dioica. *Pursh. & Fl. Cestr. ed. 2. p.* 233.

YELLOW CHAMAELIRIUM. Blazing Star. Devil's-bit.

Plant yellowish green. *Stem* 1 to 2 (the *pistillate* ones near 3) feet high, sulcate-striate. *Radical leaves* 3 to 6 or 8 inches long; *stem-leaves* gradually smaller.—*Raceme* 6 to 12 inches in length,—the *staminate* one slender, flaccid, and mostly nodding at apex,—the *pistillate* one stouter, and erect; *ovaries* greenish. *Capsules* about ½ an inch long.

Hab. Woodlands, and moist meadows: frequent. *Fl.* May. *Fr.* Sept.

Obs. The *rhizoma* is bitter,—and was much used as a popular tonic, when alcoholic medicines were in vogue.

ORDER CXIII. JUNCA'CEAE.

Herbs; *stems* (or *culms*) nodose; *leaves* alternate, grass-like, or terete; *flowers* regular, mostly perfect,—the *perianth* of 6 similar dry glumaceous persistent *lobes* (or *sepals*), free from the *ovary*, with 2 *bracts* at base; *stamens* usually 6,—sometimes 3, opposite the outer lobes; *anthers* introrse; *style* simple; *stigmas* 3; *fruit* a *capsule*, 1- to 3-celled, 3-valved, loculicidal, 3- or many-seeded; *seeds* erect; *embryo* inclosed at the base of hard *albumen*. An order remarkable for lack of beauty, and value.

450. LU'ZULA, *DC.*

[Italian, *Lucciola*, a glow-worm; from its glittering spikelets, when wet with dew.]

Stamens 6. *Capsule* 1-celled, 3-seeded. *Perennials: stems* slender, pithy; *leaves* grass-like, hairy; *flowers* in terminal subpaniculate clusters or spikelets, tawny or chestnut-brown.

1. L. campéstris, *DC.* Leaves lance-linear, ciliate with long loose hairs; spikelets 4 to 12, oblong-ovoid, subumbellate.

FIELD LUZULA. Field Rush.

Stem 4 to 12 or 18 inches high, often cespitose. *Leaves* 2 to 6 inches long.—*Peduncles* unequal, half an inch to 2 or 3 inches in length; *involucre* of 2 or 3 unequal leaves, usually shorter than the longest peduncles.

Hab. Fields, and open woodlands: common. *Fl.* April. *Fr.* June.

Obs. This is common to both hemispheres,—if really indigenous here.

451. JUN'CUS, *L.*

[Latin, *jungo*, to join; the culms being used as bands.]

Stamens 6, or often 3. *Capsule* 3-celled,—sometimes imperfectly so, at maturity; *seeds* numerous, oblong, sometimes with an acumination, or *tail*, at each end. Chiefly *perennials: stems* mostly simple, scape-like, often cespitose, and filled with pith; *leaves* terete, flat, or channelled; *flowers* cymose, paniculate, or clustered in heads, greenish-brown.

‡1. Stems *naked, often sterile (resembling terete leaves)*; panicle *lateral*; stamens 3.

1. J. effùsus, *L.* Stem finely striate, soft and pliant, filled with spongy pith, furnished with leafless sheaths at base; panicle contracted, much branched.

EFFUSED JUNCUS. Common Rush. Soft Rush.

Rhizomas matted. *Stems* 2 to 3 feet high, simple, acute at summit, cespitose, forming *tussocks*. *Panicle* cymose, bursting from a fissure in the side of the stem, above the middle, sessile, often proliferous; *bracts* lance-oblong, acuminate, scarious.

Hab. Moist low grounds: common. *Fl.* June. *Fr.* August.

Obs. This species, if neglected, is apt to prevail to a pernicious extent, in wet meadows, and low grounds,—forming unsightly and unprofitable bunches, called *Tussocks*.

§ 2. Stems *leafy;* panicle *terminal.* † Flowers *in heads.*

* Leaves *subterete, nodose;* stamens *mostly* 3.

2. J. paradóxus, *E. Meyer.* Stem rather stout; heads globose, 8- to 15-flowered; seeds conspicuously tailed at both ends.

J. polycephalus. *Fl. Cestr. ed.* 2. *p.* 228. not of *Mx.*

PARADOXICAL JUNCUS. Button Rush.

Stem 1 to 2 feet high, fistular, about 2-leaved. *Leaves* 3 to 6 inches long, often compressed and ensiform. *Panicle* with 1 or 2 elongated branches. *Heads* 3 to 12 or 15 (usually 5 to 9), about ⅓ of an inch in diameter, densely flowered, pedunculate, or sessile, with lanceolate acuminate *bracts* at base.

Hab. Low, swampy grounds: frequent. *Fl.* July. *Fr.* Septem.

Obs. I am doubtful about the *J. subverticillatus*, of the 2nd edition; and therefore think it best to omit it.

3. J. acuminàtus, *Mx.* Stem rather slender, terete, pliable; panicle subcorymbose; heads 3- to 6-flowered; seeds with a short tail at each end.

ACUMINATE JUNCUS.

Stem 12 to 18 inches high, fistular, cespitose. *Leaves* 2 to 6 or 8 inches long, terete, tapering to a point, fistular, indistinctly nodose-articulate. *Panicle* rather erect, generally with one principal branch overtopping the rest. *Heads* chesnut-colored. *Capsules* triquetrous-oblong, with a short acumination.

Hab. Meadows, and moist low grounds: frequent. *Fl.* June. *Fr.* Aug.

Obs. The *heads* of this species are subject to a kind of monstrosity, or disease, which gives them the appearance of being *proliferous.*

** Leaves *flat and grass-like;* stamens 3.

4. J. marginàtus, *Rostkow.* Stem compressed, nodose; heads 3- to 6-flowered; inner perianth-lobes obtuse, margined; seeds acute at each end.

MARGINED JUNCUS.

Stem 1 to 2 or 3 feet high, filled with pith. *Leaves* 4 to 12 or 15 inches long,—the radical ones mostly shorter than those on the stem. *Panicle* often proliferous and elongated (2 to 5 inches in length), mostly longer than the erect *involucre* at base. *Heads* pedunculate, or subsessile in the forks of the branches. *Capsule* obtusely trigonous-obovoid, often dark purple.

Hab. Moist, low grounds; borders of woods: frequent. *Fl.* June. *Fr.* Aug.

†† Flowers *separate;* leaves *narrow, channelled, or involute;* stamens 6.

5. J. ténuis, *Willd.* Stem slender and wiry, leafy only near the base; two of the involucral leaves longer than the cyme.

SLENDER JUNCUS.

Stem 6 to 12 or 18 inches high, remarkably tough and wiry. *Leaves* 3 to 6 or 9 inches long, keeled. *Panicle* cymose, mostly with 2 principal branches, and several shorter ones between; *flowers* solitary,—1 or 2 subsessile in the forks of the branches, and 2 or 3 unilateral on the branches. *Capsule* subglobose.
Hab. Moist, low grounds; fields, &c.: common. *Fl.* June. *Fr.* Aug.

Obs. This tough, homely little species, is apt to be abundant along foot-paths, in moist open woodlands, and through clearings, &c.

6. J. bufònius, *L.* Annual; stem low and leafy; one of the involucral leaves longer than the dichotomous panicle.
TOAD JUNCUS.

Stem 2 to 6 or 8 inches high, often branched from the base, dichotomously paniculate above. *Leaves* shorter than the stem, dilated membranaceous and sheathing at base. *Panicle* few-flowered, usually with a solitary subsessile flower in the forks of the branches. *Capsule* ovoid-oblong, yellowish.
Hab. Wet, low grounds; margins of ponds: frequent. *Fl.* July. *Fr.* Sept.

ORDER CXIV. PONTEDERIA'CEAE.

Aquatic herbs; leaves mostly with *sheathing petioles*, often reduced to *phyllodia; flowers* perfect, more or less irregular (sometimes nearly regular), often spathaceous; *perianth* corolla-like, tubular, free from the *ovary*,—the *border* 6-lobed, imbricated in 2 rows in the bud, withering; *stamens* 6, or 3,—mostly unequal, or dissimilar; *anthers* introrse; *style* 1; *stigma* 3-lobed; *fruit* a 1-seeded *utricle*,—or a *capsule*, which is 1- or imperfectly 3-celled, and several-seeded; *embryo* in densely farinaceous *albumen*.

452. PONTEDE'RIA, *L.*

[Dedicated to *Julius Pontedera*, Professor of Botany at Padua.]

Perianth recurved, bilabiate; upper lip flat, 3-lobed, lower lip 3-parted; under side of the *tube* with 3 slits,—the persistent base inclosing the fruit. *Stamens* 6, unequal,—3 inserted near the summit, and 3 near the base, of the tube; *anthers* oval, blue. *Ovary* 3-celled,—2 of the cells empty, the other with a single suspended *ovule; style* subulate, shorter than the stamens. *Utricle* 1-celled, filled with the single *seed*. *Perennials: rhizoma* thick, creeping; *leaves* chiefly radical; *flowers* violet-blue, *spiked*, on a 1-leafed *scape*.

1. P. cordàta, *L.* Leaves sagittate-cordate, petiolate; spike dense, from a spathe-like bract.

CORDATE PONTEDERIA. Pickerel-weed.

Leaves 4 to 8 inches long, tapering to the apex but rather obtuse, smooth; thickish and somewhat fleshy; *petioles* 2 to 4 inches long. *Scape* 1 to 2 feet high, *spathe* oblong, sheathing the stout pubescent peduncle; *flowers* sessile, aggregated by twos or threes in a terminal *spike* about 3 inches in length.
Hab. Margin of the Schuylkill: rare. *Fl.* July. *Fr.* Sept.

453. HETERANTHE'RA, *Ruiz & Pavon.*

[Gr. *Heteros*, different, and *Aner*, for anther; the anthers being dissimilar.]

Perianth with the *border* nearly equally 6-parted, withering-fugaci-

ous. *Stamens* 3, dissimilar,—the 2 upper ones short, with oval yellow *anthers*,—the other longer, with a larger oblong greenish *anther*. *Capsule* oblong, somewhat trigonous, incompletely 3-celled, several-seeded. *Perennials: stem* creeping; *leaves* alternate, long-petioled; *flowers* white, or blue, in a slender few-flowered *spike*, from a lateral *spathe*.

1. H. renifórmis, *R. & P.* Leaves roundish-reniform; spathe involute, acuminate, 3- to 5-flowered; flowers white, fugacious. RENIFORM HETERANTHERA. Mud Plantain.

Stem 4 to 12 or 18 inches long, prostrate, radicating, branching from the base.—*Leaves* ¾ of an inch to an inch and half in length, and wider than long, with semicircular nerves; *petioles* 1 to 2 or 3 inches in length. *Spikes* of flowers bursting from the sheathing base, or side, of the petioles; *perianth* imperfectly expanding.

Hab. Muddy margins of rivulets: frequent. *Fl.* July. *Fr.* Sept.

454. SCHOLLE'RA, *Schreber.*

[Dedicated to *Frederick Adam Scholler*, a German Botanist.]

Perianth salver-form,—with 6 equal lance-linear *lobes* on a long and very slender *tube*. *Stamens* 3, all similar and nearly equal (rarely a fourth abortive one); *anthers* linear-oblong, sagittate. *Style* filiform. *Capsule* oblong, invested by the withered perianth, 1-celled with 3 projecting parietal placentae, several-seeded. *Perennials: stems* submersed, swimming; *leaves* narrow and grass-like, sessile; *flowers* yellow, floating, solitary, from subterminal axillary *spathes*.

1. S. graminea, *Willd.* Stems cespitose, slender, dichotomously branching; leaves long, linear, translucent. GRASS-LIKE SCHOLLERA. Water Star-grass.

Stems 1 to 2 feet long, radicating at the lower nodes. *Leaves* 3 to 12 inches long, membranaceous and somewhat sheathing at base. *Spathe* short, lanceolate.—*Perianth-tube* about an inch in length, slightly curved.

Hab. Slow-flowing waters; Brandywine; Schuylkill: frequent. *Fl.* July. *Fr.* Sept.

ORDER CXV. COMMELYNA'CEAE.

Herbs; stems nodose, leafy, often branching; *leaves* alternate, sheathing at base; *flowers* chiefly perfect, often irregular; *perianth* free from the *ovary*, consisting of distinct *calyx* and *corolla; sepals* 3, persistent; *petals* 3, ephemeral, withering, or deciduous; *stamens* 6, with introrse *anthers*,—2 or 3 of them sometimes modified and abortive; *style* 1; *stigma* undivided; *fruit* a 2- or 3-celled loculicidal *capsule*, 3- or several-seeded; *embryo* small, at the apex of densely fleshy *albumen*.

455. COMMELY'NA, *Dillenius.*

[Dedicated to *John* and *Gaspard Commelyn*; early Dutch Botanists.]

Flowers irregular: *Sepals* somewhat colored, unequal,—the 2 lateral ones partly united. *Petals* unequal,—the 2 lateral ones rounded, or reniform, on long claws,—the other smaller and subsessile.—*Stamens* unequal,—3 or 4 of them abortive and smaller, with imperfect cross-shaped *anthers; filaments* naked. *Capsule* 3-celled,—2 of the cells 2-seeded, the other 1-seeded, or abortive. *Stems* branching, geniculate, often procumbent, and radicating at the nodes; *leaves* flattish; *flowers* mostly blue, fascicled in the folded, cordate, spathe-like *bract*,—opening in succession, for a single morning, and then shrivelling.

1. *C. angustifòlia?* Mx. Stem usually decumbent; leaves lanceolate, acute, or acuminate, contracted at base into sheathing membranous petioles; peduncles mostly 2 within the bract,—one usually more slender, rather erect, longer and 1-flowered, or sterile,—the other commonly 3-flowered; odd petal colorless, ovate-lanceolate, about as long as the lateral sepals.

NARROW-LEAVED COMMELYNA. Day-flower.

Plant nearly glabrous, *annual? Stem* about a foot long (3 or 4 feet when supported, in hedges, &c.), terete. *Leaves* 2 to 4 or 5 inches long, and half an inch to an inch wide; *sheathing petioles* about ½ an inch long, striate with green nerves, pubescent along the margins. *Peduncles* half an inch to an inch in length, inclosed in the recurved conduplicate *bract*, both before and after flowering.

Hab. Gardens; hedges, &c., W. Chester. Nat. of Southern States. *Fl.* Aug. *Fr.* Sept.

Obs. I have specimens of *C. angustifolia*, from the South, with really *narrow* lance-linear leaves; yet ours, with its *lanceolate* leaves, seems to be referred to the same species. Three of the *anthers* are completely abortive and *cross-shaped*,—and a *fourth* one is partially so modified, or in process of metamorphosis to that state. The authorities all appear to concur in calling the plant a *perennial:* but I am much mistaken if the one with us is not an *annual*. It was accidentally introduced to this Borough, about thirty years since, from the Garden of the late JOHN JACKSON, of London Grove; and is gradually extending itself. Miss ABBY KIMBER informs me, that it has also been found at *Kimberton*, in this County.

456. TRADESCAN'TIA, *L.*

[Dedicated to *John Tradescant*,—Gardener to Charles 1, of England.]

Flowers regular: *Sepals* herbaceous. *Petals* equal and alike, ovate, sessile. *Stamens* all perfect; *filaments* bearded. *Capsule* 2- or 3-celled; *cells* 1- or 2-seeded. *Perennials: stems* nearly simple, leafy, replete with mucilage; *leaves* keeled; *flowers* in terminal or axillary *umbelled clusters*.

1. T. Virginica, *L.* Leaves lance-linear, elongated; umbel terminal, sessile, with an involucre of 2 or 3 long leaves; flowers purplish-blue, conspicuous.

VIRGINIAN TRADESCANTIA. Spider-wort.

Stems 12 to 18 inches high, smooth,—often in bunches. *Leaves* 12 to 18 inches long. *Pedicels* ½ an inch to an inch long, slender, pubescent,—after flowering, parted into 2 ranks, and deflected on each side, over the base of the involucre; *sepals* lance-ovate, hairy. *Filaments* densely clothed with blue hairs, which appear like beautiful necklaces, or strings of beads, under a lens.

Hab. Moist, low grounds; meadows, &c.: frequent. *Fl.* May. *Fr.*

Obs. I think this plant rarely perfects its fruit; for, in an acquaintance of fifty years with it, I have never observed a full-grown capsule.

ORDER CXVI. XYRIDA'CEAE.

Rush-like herbs; leaves equitant, sheathing the base of a naked *scape*, which is terminated by a scaly-bracted *head*, or spike of *perfect flowers; stamens* 3; *anthers* extrorse; *calyx* partly glumaceous; *corolla* regular, free from the *ovary; fruit* a 1-celled 3-valved loculicidal *capsule; seeds* numerous; *embryo* minute, at the apex of fleshy *albumen*.

457. XY'RIS. *L.*

[Gr. *Xyros*, a razor; an ancient name of a plant with 2-edged leaves.]

Flowers single, in the axils of coriaceous *scale-like bracts*, which are densely imbricated in an ovoid *spike*. *Sepals* 3,—the 2 *lateral* ones boat-shaped, glume-like, persistent,—the *anterior* one larger, membranaceous, inwrapping the corolla in the bud, and deciduous with it. *Petals* 3, with long claws, slightly connected. *Stamens* 3 perfect, inserted on the claws of the petals,—alternating with 3 sterile *filaments*, which are cleft and plumose at apex. *Capsule* oblong, 1-celled, with 3 parietal placentae. *Perennials: leaves* more or less ensiform; *flowers* yellow.

1. X. bulbòsa, *Kunth.* Scape bulbous at base, slender, angular, usually twisted and flexuose, ancipital at summit; leaves narrowly linear.

X. Caroliniana. *Fl. Cestr. ed.* 2. *p.* 12. not of *Walter.*

BULBOUS XYRIS. Yellow-flowering Rush.

Scape 10 to 15 inches high, often several from the root. *Leaves* shorter than the scape, flat, or sometimes twisted. *Bracts* chesnut-brown, orbicular-ovate, convex externally, scale-like and closely imbricated. *Lateral sepals* finely ciliate on the keel. *Claws* of the *petals* nearly as long as the bracts.

Hab. Sandy swamps, and margins of rivulets: frequent. *Fl.* Aug. *Fr.* Sept.

ORDER CXVII. CYPERA'CEAE.

Rush-like, or *grass-like herbs;* often cespitose; *rhizomas* creeping and fibrous, sometimes tuberiferous; *stems* (or *culms*) solid with pith, sparingly nodose, often angular; *leaves* distichously alternate, grass-like, sessile,—the *petioles* being dilated, and closed round the *culm* so as to form an *entire sheath*,—sometimes the *lamina*, or blade, wholly wanting; *flowers* perfect, or monoicous (rarely dioicous), in little bracteate clusters (called *spikelets*),—usually one flower in the axil of each of the glume-like imbricated *bracts*, or *scales; perianth* (in this Order, for convenience, termed a *perigynium*,) none,—except in some *pistillate* diclinous flowers (as *Carex*), where it is a membranous or glumaceous *sac*,—or sometimes, in *perfect* flowers, the perianth seems to be substituted by some minute *scales*, or by a verticil of hypogynous *bristles*,* or soft *hairs; stamens* usually 3; *ovary* 1-celled, with a single erect *ovule*,—in *fruit* becoming an *akene*, or *caryopsis*, which is *lenticular*, or *triquetrous*, according as the *style* is bifid, or trifid; *embryo* minute, inclosed in the base of copious farinaceous *albumen*. An Order comprising some 50 genera,—remarkable for their little value to the Agriculturist; and also for their prevalence being an indication of swampy, neglected, or unpromising soil.

TRIBE 1. CYPERE'AE.

Flowers perfect; *spikelets* usually many-flowered, with the *bracts* (or *scales*) distichously imbricated; *perigynium* mostly none,—sometimes consisting of retrorsely hispid *bristles; styles* rarely bulbous at base.

458. CYPE'RUS, *L.*

[An ancient Greek name; of obscure meaning.]

Spikelets usually compressed, variously aggregated and arranged.—*Scales* often decurrent at base. *Perigynium* entirely wanting.—

*The distinguished Authors of the *British Flora* (*ed.* 6.) allege, that "those *bristles* cannot be a *perianth*, because they are situated *between* the anther-bearing stamens and the ovary."

Stamens sometimes 2, or 1. *Culms* cespitose, triquetrous, leafy at base, and with an unequal foliaceous *involucre* at summit; *peduncles* (or *rays*) unequal, sheathed at base.

§1. Spikelets *compressed, linear- or lance-oblong, many-flowered.*

†Style *bifid;* stamens 2.

1. C. diándrus, *Torrey.* Spikelets loosely fascicled; scales oblong, rather obtuse, brown-margined; akene obovate, dusky.

DIANDROUS CYPERUS.

Perennial; culms 6 to 12 inches long, decumbent or reclining. *Leaves* few, shorter than the culm. Longest leaves of the *involucre* often 6 or 8 inches in length. *Umbel* sometimes without *rays*,—generally 1- to 3- and occasionally 5- or 6-rayed; *spikelets* ⅓ to ⅔ of an inch long, much compressed, 12- to 24-flowered; *akene* minutely rugose.

Hab. Moist, low grounds; along rivulets: common. *Fl.* Aug. *Fr.* Sept.

††Style *trifid.* *Stamen 1.

2. C. infléxus, *Muhl.* Spikelets in 2 or 3 ovoid heads; scales yellowish, ovate, acuminate, with the point recurved.

INFLEXED CYPERUS.

Annual? *Culms* 2 to 4 inches high, setaceously slender. *Leaves* as long as the culm. *Heads* 1 to 3,—one sessile, the others pedunculate,—each head consisting of 10 to 20 spikelets densely conglomerated. One leaf of the *involucre* 3 times as long as the umbel; *spikelets* 8- to 12-flowered; *akene* triquetrous.

Hab. Moist places, on Serpentine rock: not common. *Fl.* Aug. *Fr.* Sept.

Obs. This little species gives out an odor, while drying, which has been compared to that of *Melilot.*

**Stamens 3.

3. C. strigòsus, *L.* Spikelets subulate-linear, spreading all round in loose oblong pedunculate spikes; sheaths of the peduncles bifid, 2-bristled; involucre about 6-leaved.

STRIGOSE CYPERUS. Bristle-spiked Galingale.

Perennial; culms 1 to 2 or 3 feet high, rather stout, tuberous at base. *Leaves* nearly as long as the culm, keeled. *Umbel* 3- to 6- or 9-rayed; *rays* unequal, 1 or 2 to 4 or 6 inches in length,—the *central* one suppressed (i. e. the spike sessile).—*Spikes* 1 to 2 inches long, often compound, yellowish; *spikelets* numerous (20 to 60 or 80), about ¾ of an inch in length, 8- to 10-flowered, spreading on all sides, finally a little reflexed; *akene* triquetrous, oblong, roughish-dotted.

Hab. Wet meadows, and low swampy grounds: common. *Fl.* Aug. *Fr.* Sept.

4. *C. rèpens,* Elliott. Rhizomas fibrous, creeping, tuberiferous at the extremities; spikelets linear, obtuse, rather crowded in somewhat distichous spikes; involucre 3- or 4-leaved.

CREEPING CYPERUS.

Perennial; tubers of the rhizoma about the size of a pea. *Culms* 1 to 2 feet high, glabrous. *Leaves* 9 to 18 or 24 inches long, keeled. *Umbel* 4- to 6-rayed; *rays* 1 to 2 or 3 inches in length. *Spikes* 1 to 2 inches long; *spikelets* ½ an inch to ¾ in length, 10 to 14 in each spike, somewhat spreading, each 12- to 20-flowered; *akene* triquetrous, minutely punctate.

Hab. Fields, and streets; West-town; West Chester: not common. *Fl.* Aug. *Fr.* Sept.

Obs. This is a great pest, where it gets possession of the soil,—and requires prompt attention, for it multiplies rapidly. It is, however, not quite so bad as the *C. Hydra*, of the South. Although prevalent North and South of us, I think this *C. repens* is a doubtful *native*, of our *County*,—as I never observed it, until within a few years. It is now becoming rather alarmingly abundant, in some localities.

5. C. filicúlmis, *Vahl.* Culms slender and wiry; spikelets subterete, clustered in a dense head.

C. mariscoides. *Ell. & Fl. Cestr. ed.* 2. *p.* 16.

THREAD-CULMED CYPERUS.

Perennial; culms 6 to 12 inches long, reclining, tuberous at base. *Leaves* shorter than the culm, keeled. *Heads* of spikelets 1 to 4,—one sessile, the others on peduncles, or *rays*, 1 to 2 inches long; *spikelets* 3- to 7- or 8-flowered.

Hab. Old fields; slaty hills: frequent. *Fl.* Aug. *Fr.* Sept.

§ 2. Spikelets *terete, linear, few-flowered*; styles *trifid;* stamens 3.

6. C. ovulàris, *Torrey.* Spikelets thickish, in a globose or oval head, spreading,—the lower ones finally reflexed; sheaths of the peduncles obtuse.

Mariscus ovularis. *Vahl. & Fl. Cestr. ed.* 2. *p.* 16.

EGG-SHAPED CYPERUS.

Perennial. Culms 6 to 18 inches high, acutely triquetrous. *Leaves* shorter than the culm. *Heads* 3 to 5 (sometimes but 1), about an inch in diameter,—the middle one sessile, the rest on peduncles ¼ of an inch to 3 inches in length; *spikelets* numerous, 2- to 4-flowered, often perfecting but 1 akene.

Hab. Dry, slaty or rocky hills: not common. *Fl.* Aug. *Fr.* Sept.

7. C. retrofráctus, *Torrey.* Spikelets slender, in an obovoid-oblong head,—all becoming reflexed; sheaths of the peduncles bicuspidate.

Mariscus retrofractus. *Vahl. & Fl. Cestr. ed.* 2. *p.* 592.

BACKWARD-BENT CYPERUS.

Perennial. Culms 1 to 2 feet high, obtusely triquetrous. *Leaves* about half the length of the culm. *Heads* several, ¼ an inch to near an inch long, on peduncles 1 to 3 or 4 inches in length; *spikelets* numerous, subulate, 1- or 2-flowered in the middle,—the uppermost ones usually spreading, the others more or less reflexed.

Hab. Hills, near Pugh-town: rare. *Fl.* Aug. *Fr.* Sept.

459. DULICH'IUM, *Richard.*

[Derivation of the name not ascertained.]

Spikelets compressed, linear, sessile, distichously arranged in axillary pedunculate *spikes* emerging from the sheaths of the leaves. *Perigynium* of 6 to 9 retrorsely hispid *bristles*. *Style* long, bifid. *Akene* linear-oblong, compressed. *Perennial: culm* simple, terete, nodose and leafy to the summit.

1. D. spathàceum, *Pers.* Leaves lance-linear, flat, short, nearly equal, pointing in three directions; spikelets 5- to 9-flowered, spreading.

SPATHACEOUS DULICHIUM. Sheathed Galingale.

Culm 1 to 2 feet high. *Leaves* 2 to 3 inches long, spreading almost horizontally. *Spikes* 1 to 1½ inches in length; *spikelets* ¾ of an inch long, alternate, on a *common peduncle* which is about as long as the internodes of the culm, and twice as long as the sheaths. *Bristles* about 6, longer than the *akene*.
Hab. Swamps, and margins of ponds: common. *Fl.* July. *Fr.* Sept.

TRIBE 2. SCIR'PEAE.

Flowers perfect; *spikelets* mostly many-flowered, with the *bracts* (or *scales*) imbricated on all sides; *perigynium* consisting of rigid *bristles*, or long soft and flexuose *hairs*,—or sometimes wholly wanting; *style* often dilated or bulbous at base, forming a *tubercle* which is articulated with the apex of the *akene*.

DIVISION I. Perigynium *of hypogynous bristles, or slender wavy hairs.*

460. ELEO'CHARIS, *R. Brown.*

Gr. *Eleos*, a marsh, and *chairo*, to delight in; alluding to their place of growth.]

Spikelets single, terminating the naked culm. *Perigynium* of 3 to 6 retrorsely hispid or rough rigid *bristles*. *Style* 2- or 3-cleft, dilated at base. *Akene* crowned with the persistent bulbous base of the style. Chiefly *perennials: rhizomas* matted, or creeping; *culms* cespitose, leafless, sheathed at base,—sometimes sterile.

† Akene *lenticular, shorter than the bristles.*

1. E. obtùsa, *Schultes.* Culm sulcate; spikelet roundish-ovoid, or oblong, obtuse; akene smooth and shining; bristles 6.
Scirpus obtusus. *Willd. & Fl. Cestr. ed.* 2. *p.* 19.

OBTUSE ELEOCHARIS. Club-rush.

Culms 4 to 18 inches high, subterete, somewhat attenuated below the spikelet, with about 2 mucronate *sheaths* at base. *Scales* of the spikelets ovate, very obtuse, dark brown. *Akene* brown, compressed, with a marginal ridge on each side; *tubercle* broad at base, acute.
Hab. Swamps, and margins of ponds: frequent. *Fl.* June. *Fr.* July.

2. E. palústris, *R. Brown.* Culm evenly smooth, striate; spikelet oblong-lanceolate, acute; akene somewhat punctate-rugose; bristles 3 or 4.
Scirpus palustris. *L. & Fl. Cestr. ed.* 2. *p.* 19.

MARSH ELEOCHARIS.

Culms 1 to 3 feet high, subterete, not sulcate, embraced by a long *sheath* near the base. *Scales* ovate-oblong, reddish-brown. *Akene* yellowish; *tubercle* conical.
Hab. Swampy meadows; near Pughtown: rare. *Fl.* June. *Fr.* July.

†† Akene *more or less triquetrous, mostly longer than the bristles.*

3. E. ténuis, *Schultes.* Culm slender, 4-angled with the sides grooved; spikelet elliptic; akene transversely rugose-dotted; bristles mostly 2 or 3, sometimes wanting.
Scirpus tenuis. *Willd. & Fl. Cestr. ed.* 2. *p.* 20.

SLENDER ELEOCHARIS.

Culms 10 to 20 inches high, with a long purple truncate *sheath* at base. *Spikelets* at first rather obtuse, finally acute at each end; *scales* ovate, obtuse, dark-brown. *Akene* light brown, rough-dotted; *tubercle* depressed-triangular.
Hab. Swamps, and margins of ponds: frequent. *Fl.* June. *Fr.* July.

4. E. acicularis, *R. Brown.* Culm setaceously slender, 4-angled; spikelet ovoid-oblong, few-flowered; akene many-ribbed, and transversely striate; bristles 3 or 4, or wanting.
Scirpus acicularis. *L. & Fl. Cestr. ed.* 2. *p.* 20.
NEEDLE-LIKE ELEOCHARIS.

Culms 2 or 3 to 6 or 8 inches high, bristle-like, glabrous, purple at base, and closely embraced by a truncate obtuse *sheath*. *Spikelet* often perfecting but 1 or 2 akenes; *scales* ovate-oblong, greenish with purple sides. *Akene* obovoid, yellowish; *tubercle* conical-triangular.

Hab. Margins of ponds, and miry places: not common. *Fl.* July. *Fr.* Aug.

Obs. If I am not mistaken, the *bristles* are sometimes *longer* than the akene.

461. SCIR'PUS, *L.*

[The ancient Latin name of the Bull-rush.]

Spikelets sometimes single, more commonly numerous and clustered, or cymose-paniculate, lateral, or terminal. *Perigynium* of 3 to 6 rigid rough *bristles*, or 6 slender smooth wavy or curly *hairs*. *Styles* 2- or 3-cleft, not bulbous at base. *Akene* sometimes mucronate with the slender base of the style. Chiefly *perennials: culm* triangular, or terete, naked, or leafy; *spikelets* green, or brown, solitary, clustered, or corymbose.

§1. SCIRPUS *proper:* Perigynium *of rigid—mostly retrorsely hispid, or pubescent—* bristles.

a. Spikelets *single and terminal;* style *trifid, and* akene *triquetrous;* culm *leafy at base, triangular.*

1. S. planifolius, *Muhl.* Culms loosely cespitose; leaves linear, flat and grass-like, equalling the culm; bristles 4 to 6, antrorsely hispid.
FLAT-LEAVED SCIRPUS.

Culms 6 to 12 inches long, finely serrulate on the angles. *Leaves* subradical,—the lower ones short, broader and mucronate. *Spikelet* about 6-flowered; *scales* yellowish, with green keels and points,—the 2 lowest longish and bract-like.—*Akene* triquetrous, reddish-brown.

Hab. Rich, moist woodlands: frequent. *Fl.* May. *Fr.* July.

b. Spikelets *numerous, subterminal, or lateral;* culm *scarcely nodose above, and therefore naked,—a few leaf-bearing sheaths below.*

☞ Style *bifid, and* akene *plano-convex.* *Culm *triangular.*

2. S. pungens, *Vahl.* Culm with 2 concave sides; spikelets 1 to 5 or 6, ovoid, in a dense sessile cluster; akene longer than the bristles.
S. triqueter, *Mx. & Fl. Cestr. ed.* 2. *p.* 593. not of *Linn.*
SHARP-POINTED SCIRPUS. Chair-maker's Rush.

Culms 2 to 4 or 5 feet high, cuspidate at summit, naked and smooth, *sheathed* at base,—the sheaths often bearing a few short *leaves*. *Scales* of the spikelets orbicular-ovate, often emarginate and mucronate, russet-brown on the sides. *Akene* dark brown, smooth; *bristles* 3 to 6, retrorsely scabrous, brittle.

Hab. Margin of the Schuylkill: rare. *Fl.* July. *Fr.* Sept.

Obs. This is the plant generally used, in the U. States, in making the seats of rush-bottomed chairs. It grows abundantly along brackish tide-water: but is rare, and of smaller size, in this County.

**Culm *terete.*

3. S. lacústris, *L.* Culm large, tapering above, even and smooth; spikelets numerous, cymose-panicled.
LAKE SCIRPUS. Bull-rush.

Culms 4 to 6 or 8 feet high, naked, glaucous, terminating in a cusp of 1 to 2 inches in length above the panicle; *sheaths* at base bearing short *leaves.* *Spikelets* often clustered in threes at the ends of the branches, with one or more sessile, in the centre; *scales* brown, slightly pubescent, the margins ciliate. *Akene* pale greenish-white, mucronate; *bristles* usually 4, retrorsely hispid, a little longer than the akene.
Hab. Margins of ponds, and ditches: frequent. *Fl.* June. *Fr.* Aug.

4. S. débilis, *Pursh.* Culm slender, deeply striate; spikelets few, in a sessile cluster.
WEAK SCIRPUS.

Culms 9 to 18 inches high, naked, glabrous, loosely sheathed at base. *Spikelets* 1 to 6 or 8—generally 3—turgid, in a lateral cluster 2 or 3 inches from the summit of the culm; *scales* pale green, membranous. *Akene* black, shining, punctate, mucronate; *bristles* 6, retrorsely hispid, a little longer than the akene.
Hab. Wet, sandy low grounds: frequent. *Fl.* Aug. *Fr.* Sept.

c. Spikelets *numerous, manifestly terminal, in a decompound cymose umbel:* culm *obviously nodose and leafy, rigid, triangular;* style *trifid, and* akene *trigonous;* bristles *retrorsely pubescent.*

5. S. atróvirens, *Muhl.* Spikelets densely clustered in heads of 8 or 10 to 20, dark green; bristles the length of the akene.
DARK-GREEN SCIRPUS.

Culms 2 to 4 or 5 feet high. *Leaves* broadly linear, shorter than the culm.—*Involucre* foliaceous, usually of 3 leaves, longer than the cymose umbel. *Heads* of spikelets roundish-ovoid; *scales* acute, with a distinct point, finally becoming brownish. *Akene* whitish, smooth, mucronate; *bristles* usually 4 or 5, sometimes 6, nearly straight, not hispid, but with a minute retrorse pubescence.
Hab. Swamps, and wet meadows: frequent. *Fl.* July. *Fr.* Aug.

Obs. The spikelets range from 8 to 20, or more, in a head,—and are sometimes *viviparous.*

6. S. polyphyl'lus, *Vahl.* Spikelets clustered in heads of 3 to 6 or 8, yellowish-brown; bristles twice the length of the akene.
S. brunneus. *Muhl. & Fl. Cestr. ed.* 2. *p.* 22.
MANY-LEAVED SCIRPUS.

Culms 2 to 4 feet high, obtusely triangular. *Leaves* rather numerous, loosely sheathing, broadish, longer than the culm. *Involucre* of 4 or 5 leaves. *Spikelets* rather larger than in the preceding species, commonly in clusters of 3 to 6, sometimes more; *scales* rather obtuse, but slightly mucronate, at first yellowish-green, finally reddish-brown. *Akene* yellowish, smooth, short-beaked; *bristles* 4 to 6, a little tortuous, or crisped, minutely and retrorsely hispidulous.
Hab. Wet, low grounds; thickets, &c.: rather frequent. *Fl.* July. *Fr.* Aug.

§ 2. TRICHO'PHORUM: Perigynium *of soft, smooth, tortuous or crisped* hairs; culm *nodose and leafy;* style *trifid, and* akene *trigonous.*

7. S. lineàtus, *Mx.* Spikelets cylindric-oblong, solitary and pendulous on the long filiform peduncles; involucre of 1 to 3 short leaves; hairs a little longer than the scales.
LINED SCIRPUS.

Culm 1½ to 3 feet high, triangular. *Leaves* numerous, shorter than the culm; *sheaths* open at throat. *Umbels* terminal and axillary, loosely cymose-panicled, drooping; *scales* ferruginous, with a green *central-line*, or keel, the apex pointed and subsquarrose. *Akene* acuminate, minutely papillose, pale-brown; *hairs* 5 or 6, very slender, and somewhat crisped, a little exserted from the scales.

Hab. Swamps; near West-town School: rare. *Fl.* July. *Fr.* Aug.

Obs. This was collected, in 1840, by Mr. JOSEPH WALTON.

S. S. Eriόphorum, *Mx.* Spikelets ovoid, subsolitary on the peduncles; involucre of 4 or 5 long leaves; hairs much longer than the scales, curly and russet-colored.

WOOL-BEARING SCIRPUS. Brown Cotton-grass.

Culm 3 to 5 feet high, obtusely triangular. *Leaves* about 2 feet long. *Umbel* terminal, decompound, cymose-panicled, the upper part drooping; *scales* lance-oblong, membranaceous, the sides brown. *Akene* white; *hairs* 6, five to eight times as long as the akene, crisped and entangled,—giving the spikelets a woolly appearance.

Hab. Swamps, and wet places: frequent. *Fl.* July. *Fr.* August.

462. ERIOPH'ORUM, *L.*

[Gr. *Erion*, wool, or cotton, and *phora*, bearing; from its cottony perigynium.]

Spikelets ovoid, mostly aggregated in a terminal *head*, or cymose cluster of heads. *Perigynium* usually of numerous, soft, flat, elongating *hairs*, much exceeding the scales, persistent, and becoming a silky or cottony tuft, in fruit. *Stamens* mostly 3. *Styles* trifid, and the *akene* trigonous. *Perennials: culms* generally leafy; *cottony heads* usually white (rarely russet).

1. E. Virginicum, *L.* Culm sub-terete, rather rigid; leaves flat, elongated; spikelets subsessile, in a dense cluster, or head; cotton russet-colored.

VIRGINIAN ERIOPHORUM. Cotton-grass.

Culms 2 to 3 or 4 feet high. *Leaves* 12 to 18 inches long, lance-linear. *Involucre* generally of 2 narrow leaves, 4 to 6 inches in length, and 1 or 2 smaller ones, distinctly serrulate on the margins. *Heads* 3 or 4, cymose or subumbellate, on short peduncles; *cottony hairs* about 3 times as long as the scales. *Stamens* 1.—*Akene* brown, trigonous-obovoid, acuminate.

Hab. Swamps, among the slaty hills: frequent. *Fl.* July. *Fr.* Sept.

2. E. grácile, *Koch.* Culms rather triangular, slender; leaves triquetrous, channelled, short; spikelets pedunculate, finally nodding; cotton white.

E. angustifolium. *Fl. Cestr. ed.* 2. *p.* 24. not of *Roth.*

SLENDER ERIOPHORUM.

Culms 12 to 18 inches high. *Radical leaves* dying early; those on the culm 1 to 3 inches in length. *Involucre* of 1 leaf, generally shorter than the spikelets. *Spikelets* 2 to 4—usually 3—on peduncles sometimes near an inch long; *cottony hairs* ½ an inch to ¾ in length. *Akene* linear-oblong.

Hab. Wet meadows; northern parts of the county: frequent. *Fl.* May. *Fr.* June.

DIVISION II. Perigynium (*viz.* bristles, *or* hairs) *wholly wanting.*

463. FIMBRIS'TYLIS, *Vahl.*

[Latin, *Fimbria*, a fringe, and *Stylus*; the style being often fringed.]

Spikelets ovoid, acute, in a small terminal cymose *umbel*. *Stamens* 1 to 3. *Style* 2- or 3-cleft, often ciliate, bulbous at base,—the

bulb mostly deciduous. *Culms* cespitose, compressed, or triangular, leafy at base; *umbel* involucrate; *spikelets* ferruginous.

† Style *bifid, and* akene *lenticular.*

1. F. láxa, *Vahl.* Culm somewhat compressed, grooved; stamen single; akene ribbed, and transversely striate.
Scirpus Baldwinianus. *Schultes. & Fl. Cestr. ed.* 2. *p.* 18.
LOOSE FIMBRISTYLIS.

Annual. Culms 4 to 12 inches high. *Leaves* about as long as the culm (sometimes much shorter), narrow-linear, striate, finely serrulate; *sheaths* pubescent at throat. *Involucre* about 3-leaved,—one of the leaves longer than the umbel. *Umbel* mostly simple; *rays* few, about ¾ of an inch long, sometimes divided. *Akene* plano-convex, obovate, whitish.
Hab. Moist places; Serpentine rocks: frequent. *Fl.* Aug. *Fr.* Sept.

†† Style *trifid, and* akene *triquetrous.*

2. F. autumnàlis, *Rœmer & Schultes.* Culm much compressed; leaves grass-like; stamens 2, or 3; akene smooth, or minutely verrucose.
Scirpus autumnalis. *L. & Fl. Cestr. ed.* 2. *p.* 19.
AUTUMNAL FIMBRISTYLIS.

Perennial? Culms 2 or 3 to 12 inches long, spreading, flat and two-edged.—*Leaves* shorter than the culm, serrulate near the apex. *Involucre* of 2 or 3 unequal leaves,—the longest about the length of the umbel. *Umbel* usually decompound, or subpaniculate,—the *spikelets* somewhat 4-sided; often in threes at the and of the branches, or *rays. Akene* trigonous-obovoid, whitish.
Hab. Sandy swamps, and low grounds: frequent. *Fl.* July. *Fr.* Sept.

3. F. capillàris, *A. Gray.* Culm sulcate-angular, setaceously slender; leaves setaceous; stamens 2; akene transversely rugose.
Scirpus capillaris. *L. & Fl. Cestr. ed.* 2. *p.* 18.
HAIR-LIKE FIMBRISTYLIS.

Annual. Culms 4 to 8 or 10 inches high, 3- or 4-angled, densely cespitose. *Leaves* much shorter than the culm; *sheaths* hairy at throat. *Involucre* of 1 or 2 setaceous leaves,—one of them often longer than the umbel. *Umbel* of 2 or 3 *rays*, which are about half an inch in length, and 1 or 2 sessile *spikelets. Akene* triquetrous, white.
Hab. Sterile soils; slaty hills: not common. *Fl.* July. *Fr.* Aug.

TRIBE 3. RHYNCHOSPOREÆ.

Flowers perfect, or polygamous; *spikelets* mostly few-flowered, with the *bracts* (or *scales*) irregularly imbricated,—the *lower scales* empty, and the *upper* ones often sterile; *perigynium* consisting of hypogynous *bristles* (or sometimes wanting); *akene* corrugated, *beaked* with the base of the style, or crowned with an articulated *tubercle.*

464. RHYNCHOSPORA, *Vahl.*

[Gr. *Rhynchos*, a beak, and *Spora*, seed; alluding to the beaked akene.]

Spikelets lance-ovoid, few- or several-flowered,—the upper scales usually with imperfect flowers. *Perigynium* mostly of 6 (sometimes more) bristles. *Stamens* mostly 3. *Style* bifid. *Akene* lenticular, crowned with the dilated (tubercular) persistent base of the style. *Perennials: culms* more or less triangular, nodose and leafy; *spikelets* in terminal and axillary cymose *clusters*, or heads.

† Akene *tranversely rugose;* bristles *antrorsely hispid.*

1. R. cymòsa, *Nutt.* Leaves flat and grass-like; spikelets brown, clustered in corymbose cymes; akene twice the length of the bristles.

CYMOSE RHYNCHOSPORA. Bog-rush.

Culms 12 to 18 inches high, acutely triangular. *Radical leaves* somewhat crowded; *upper cauline* ones often overtopping the culm. *Spikelets* aggregated in cymose clusters of 3 to 5, at the ends of the peduncles. *Akene* pale brown; *tubercle* depressed-conic, whitish, about ⅓ the length of the akene.
Hab. Moist grounds; clearings: not very common. *Fl.* July. *Fr.* Aug.

†† Akene *smooth;* bristles *retrorsely hispid.*

2. R. álba, *Vahl.* Leaves setaceous; spikelets whitish, corymbose-clustered; bristles about 10, as long as the akene and tubercle.
WHITE RHYNCHOSPORA. White Bog-rush.

Culms 1 to 2 feet high, triangular above. *Leaves* shorter than the culm. *Fascicles* of spikelets terminal and axillary. *Scales* white, finally brownish. *Stamens* 1 to 3—usually 2. *Tubercle* compressed, half as long as the akene.
Hab. Swamps, among the slaty hills: not common. *Fl.* July. *Fr.* Sept.

3. R. glomeràta, *Vahl.* Leaves linear, flat, somewhat keeled; spikelets dark brown, in small distant clusters, which are often in pairs.
CLUSTERED RHYNCHOSPORA. Brown Bog-rush.

Culms about 2 feet high, obtusely triangular. *Leaves* shorter than the culm.—*Spikelets* in corymbose or subcapitate fascicles, on included or somewhat exserted peduncles, terminal and lateral, often 2, or more, from the same sheath. *Akene* brownish, shining; *tubercle* compressed, subulate, as long as the akene; *bristles* nearly as long as both.
Hab. Swamps, and bog meadows: common. *Fl.* June. *Fr.* Aug.

TRIBE 4. SCLERIE'AE.

Flowers monoicous; *perigynium* a lobed or ring-like disk, often obscure; *pistillate spikelets* 1-flowered, *staminate* several-flowered; *akene* with a bony shell.

465. SCLE'RIA, *L.*

[Gr. *Skleria*, hardness; from its bony or crustaceous fruit.

Staminate and *pistillate spikelets* in the same clusters; *scales* loosely imbricated,—the lower ones empty. *Stamens* 1 to 3. *Style* 3-cleft. *Akene* globular, white, bony or enamel-like, seated in a ring-like, or shallow saucer-shaped *disk*. *Perennials: culms* triangular, nodose and leafy.

1. S. triglomeràta, *Mx.* Leaves broadly-linear; fascicles of spikelets few, in triple clusters, terminal and axillary, the lower one pedunculate; akene smooth and shining.
THREE-CLUSTERED SCLERIA. Whip-grass.

Culm 2 to 3 or 4 feet long, nearly erect, acutely triquetrous, with the angles almost winged. *Leaves* 6 to 12 or 15 inches in length, 2 to 4 lines wide. *Terminal fascicle* consisting of 3 distinct clusters of spikelets, each with a foliaceous *bract* at base. *Perigynium* annular, or obtusely triangular. *Akene* bluish when young.
Hab. Moist ravines, on Serpentine ridge: not common. *Fl.* June. *Fr.* July.

2. S. pauciflòra, *Muhl.* Leaves narrow-linear; spikelets in pairs, in 2 or 3 clusters; akene tuberculate-rugose.
FEW-FLOWERED SCLERIA.

Culm 9 to 18 inches high, erect. *Leaves* 3 to 6 or 8 inches in length; *sheaths* pubescent. *Fascicles* few-flowered,—the *lateral* ones usually 2 in number, on long slender peduncles,—the *lower* from a sheath near the base of the culm. *Bracts* ciliate. *Perigynium* a wavy *ring*, supporting 6 rounded *tubercles*.
Hab. Serpentine Banks; West Chester: not common. *Fl.* June. *Fr.* July.

TRIBE 5. CARI'CEAE.

Flowers usually *monoicous*—either in the *same spikelet* (when they are termed *androgynous*)—or in *separate spikelets*,—rarely *dioicous; proper perianth* none; *perigynium* (or envelope of the ovary) mostly a membranous or glumaceous *sac*, formed of 2 united scales.

466. CA'REX, *L.* Sedge.

[A classical name,—of obscure etmology.]

Spikelets several- or many-flowered,—the *staminate* and *pistillate florets* either in *distinct spikelets* on the *same plant* (rarely on *different* plants)—or in *different portions* of the *same spikelets* (i. e. *androgynous*). *Scales* of the spikelets 1-flowered, imbricated on all sides. *Stamens* mostly 3. *Ovary* included in a membranous (often urceolate, beaked, and inflated) *sac*, or *perigynium; stigmas* 2, or 3, long, exserted from the orifice of the perigynium. *Akene* lenticular, or triquetrous (according as the *stigmas* are 2, or 3), more or less beaked with the base of the *style*. *Perennials: culms* usually cespitose, triangular, often nodose and leafy; *spikelets* terminal and axillary, mostly *bracteate* at base. *

A. Spikelet *solitary, androgynous, staminate at summit:* stigmas 3; bracts *small, scale-like, colored.*

1. C. polytrichoides, *Muhl.* Culm capillary; spikelet very small; perigynia oblong, compressed-triangular, obtuse, twice the length of the ovate scale.
POLYTRICHUM-LIKE CAREX.

Culms 9 to 18 inches high, naked above, longer than the leaves. *Leaves* mostly subradical, very narrow, becoming convolute when dry. *Spikelet* linear-oblong; *staminate florets* 4 to 8; *pistillate florets* about 5; *perigynia* green.
Hab. Open woodlands, and low grounds: frequent. *Fl.* May. *Fr.* June.

B. Spikelets *several, subpaniculate, mostly androgynous, sessile;* stigmas 2.

‡1. Spikelets *approximated;* staminate *and* pistillate florets *variously situated.*

2. C. bromoides, *Schkuhr.* Spikelets 4 to 6, lance-oblong, some of the middle ones wholly pistillate; perigynia erect, acuminate, longer than the lanceolate scale.
BROMUS-LIKE CAREX.

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*It may be well to caution the inexperienced Herborizer, that the *Carices*—like the *Umbelliferae*—should be gathered for examination, and for the Herbarium, when the *fruit is full grown*; but not so old as to be easily detached, or shattered off. They cannot be always determined—and never so well—while in *flower*.

Culms 1 to 2 feet high, slender, rough above, leafy toward the base. *Leaves* narrow, linear,—at first longer, finally shorter than the culm. *Spikelets* 2 to 6, usually 4,—the lower ones somewhat distant, the upper ones a little crowded; *perigynia* somewhat distichously and loosely arranged; *bract* at the base of the lowest spikelet glume-like, lanceolate, terminating in a scabrous awn.
Hab. Swamps, and low grounds: frequent. *Fl.* May. *Fr.* July.

§ 2. Spikelets *staminate at summit.*

† Perigynia *small, with a short 2-toothed beak.*

3. C. Vulpinoidea, *Mx.* Spikelets 8 to 12, clustered in an oblong interrupted compound spike; perigynia broadly ovate, abruptly acuminate, finally diverging, rather shorter than the ovate cuspidate scale.
C. multiflora. *Muhl. & Fl. Cestr. ed.* 2. *p.* 29.
VULPINA-LIKE CAREX.

Culms about 2 feet high, leafy. *Leaves* lance-linear, channelled,—the upper ones taller than the culm; *sheaths* tranversely rugose opposite the leaves. *Spike* 2 to 3 inches long; *spikelets* crowded into clusters a little separated from each other; *bracts* under the *spike*, and principal *clusters*, often long, and leaf-like,—those at the base of the *spikelets*, short and setaceous.
Hab. Swamps, and low grounds: frequent. *Fl.* May. *Fr.* July.

†† Perigynium *on short pedicels, not margined, with a long tapering 2-toothed beak, yellow at maturity.*

4. C. stipàta, *Muhl.* Spikelets 6 to 12 or 15, aggregated,—the lower ones often distinct; perigynia tapering from a truncate base, much longer than the ovate scale.
CROWDED CAREX.

Culms 1 to 3 feet high, rather stout and succulent, leafy. *Leaves* about as long as the culm (longer while young), broadish lance-linear; *sheaths* striate, somewhat loose. *Spike* 1 to 2½ inches long, densely compound. *Spikelets* sessile, with a subulate *bract* at the base of each,—all shorter than the spikelets, except the lower one.
Hab. Swamps, and low grounds: frequent. *Fl.* April. *Fr.* June.

††† Perigynia *sessile, more or less margined, with a short 2-toothed beak, greenish at maturity.*

5. C. sparganioides, *Muhl.* Spikelets 6 to 10, ovoid,—the upper ones crowded, the lower distinct and more or less distant; perigynia ovate, acuminate, nerveless, about twice as long as the ovate mucronate scale.
SPARGANIUM-LIKE CAREX.

Culms about 2 feet high, leafy toward the base. *Leaves* about as long as the culm,—those at base short; *sheaths* loose, often whitish. *Spike* 1½ to 3 inches long. *Bracts* lance-linear, sometimes longer than the spikelets.
Hab. Swampy low grounds: frequent. *Fl.* May. *Fr.* July.

6. C. cephalóphora, *Muhl.* Spikelets 3 to 6, densely crowded in a short ovoid head; perigynia ovate, somewhat nerved outside, scarcely longer than the ovate subaristate scale.
HEAD-BEARING CAREX.

Culms 1 to 2 feet high, naked above, leafy near the base. *Leaves* often very long, channelled, with a rounded and prominent midrib. *Spike* ½ an inch to ¾ in length, somewhat 3-lobed at base. *Bracts*, at the base of the *spike*, 2, subulate, or filiform, scarcely equalling it in length, generally spreading or recurved.
Hab. Hilly, grassy woodlands: frequent. *Fl.* May. *Fr.* July.

7. C. Muhlenbérgii, *Schk.* Spikelets 5 to 7, roundish-oval, closely approximated in an oblong head; perigynia orbicular-ovate, nerved on both sides, rather shorter than the ovate mucronate scale.
MUHLENBERG'S CAREX.

Culms 1 to 2 feet high, leafy below. *Leaves* about as long as the culm,—the lowest ones short; *sheaths* scarious, and often transversely rugose, opposite the leaves. *Spike* about an inch long. *Spikelets* rather clustered,—the uppermost often almost entirely *staminate;* the others with each an ovate-lanceolate *bract* at base, ending in a scabrous awn longer than the spikelet.
Hab. Hill sides; foot of Serpentine ridge: not common. *Fl.* May. *Fr.* July.

8. C. rósea, *Schk.* Spikelets 3 to 6,—the 2 uppermost approximated, the others mostly remote; perigynia few (8 or 10), oblong-ovate, at length widely and rosaceously diverging, nearly twice as long as the broadly ovate obtuse scale.
ROSE-LIKE CAREX.

Culms 9 to 18 inches high, slender, leafy near the base. *Leaves* narrow-linear, often as long, or longer than the culm,—the lower *sheaths* often without *laminae*, or with very short ones. *Lower spikelets* nearly an inch apart,—the lowest one with a setaceous *bract* often overtopping the culm; perigynia with acute margins, which are somewhat incurved.
Hab. Moist woodlands, and low grounds: frequent. *Fl.* May. *Fr.* July.

§ 3. Spikelets *pistillate at summit.*

† Spikelets *small;* perigynia *with rigid narrow margins.*

9. C. stellulàta, *Gooden.* Spikelets 3 to 5, distinct, obovoid; perigynia ovate, subcordate at base, finally diverging, longer than the ovate acute scale.
STAR-LIKE CAREX.

Culms 6 to 12 and 18 inches high, leafy toward the base. *Leaves* generally longer than the culm, linear and erect,—the lower ones short. *Uppermost spikelets* staminate at base, so as to give it a turbinate, or clubshaped appearance,—the *lowest* one *bracteate* at base.
Hab. Woodlands, and meadows: frequent. *Fl.* May. *Fr.* July.

†† Spikelets *rather large, mostly straw-colored;* perigynia *with broadish membranaceous margins.*

10. C. scopària, *Schk.* Spikelets 5 to 8 or 10, obovoid, finally ovoid, crowded in a dense subclavate head; perigynia lanceolate, tapering to a long beak, longer than the lanceolate acuminate scale.
BESOM-LIKE CAREX.

Culms 1 to 2 feet high, leafy below. *Leaves* narrow, shorter than the culm.—*Spike* (or cluster) 1 to 1½ inches long, somewhat nodding, brownish straw-colored at maturity. *Lowest spikelet* with a deciduous *bract* as long as the spike,—the others with glume-like bracts, terminating in long setaceous points.
Hab. Swamps, and wet meadows: frequent. *Fl.* May. *Fr.* July.

11. C. lagopodioides, *Schk.* Spikelets 10 to 15 or 20, oval, approximated in an oblong spike; perigynia ovate-lanceolate, nearly twice as long as the ovate-oblong rather obtuse scale.

HARESFOOT-LIKE CAREX.

Culm about 2 feet high, sulcate-striate, leafy to half its height. *Leaves* mostly longer than the culm, pale green. *Spike* 1 to 2 inches long. *Spikelets* sometimes clustered into an ovoid head,—under the lowest a foliaceous deciduous *bract*, which often overtops the spike; *perigynia* with somewhat diverging points, and rather narrow ciliate-serrulate margins.

Hab. Swamps, and low grounds: frequent. *Fl.* May. *Fr.* July.

Obs. This has been sometimes reduced to a *var.* of the preceding. Indeed, there is a strong family resemblance among the whole four species, of this subdivision,—from number 10 to 13, inclusive.

12. C. festucàcea, *Schk.* Spikelets 5 to 8, obovoid, or clavate, —the lower ones distinct; perigynia ovate, acuminate, rather narrow-margined, longer than the lance-ovate acute scale.

FESTUCA-LIKE CAREX.

Culms 2 to 3 (and sometimes 4) feet long, often decumbent, smooth, sulcate-striate, leafy. *Leaves* shorter than the culm. *Spike* 1 to 2 or 3 inches long. *Spikelets* sometimes rather distant,—at first oval, then obovoid from being staminate at base, and finally subglobose. *Bracts* lanceolate, shorter than the spikelets. *Perigynia* striate,—the margins serrulate.

Hab. Meadows, and open woodlands: frequent. *Fl.* May. *Fr.* July.

13. C. straminea, *Schk.* Spikelets 3 to 6 (usually 5), roundish-ovoid, approximated; perigynia orbicular-ovate, abruptly acuminate, broadly margined, a little longer than the lanceolate slightly mucronate scale.

STRAW-LIKE CAREX.

Culms 1 to 2 feet high, roughish, leafy. *Leaves* shorter than the culm,—the lower ones abbreviated. *Spike* 1 to 1½ inches long. *Spikelets* each with an ovate cuspidate *bract* at base,—the setaceous points of the two lower bracts sometimes longer than the spikelets. *Akene* much smaller than its envelope.

Hab. Moist, low grounds: frequent. *Fl.* May. *Fr.* July.

C. Spikelets *more or less stalked, wholly staminate and pistillate (or occasionally somewhat androgynous), separate on the same culm,—the staminate ones constantly above:* stigmas *mostly* 3.

a. Perigynia *with a minute, or short point,—not prolonged into a beak.*

‡1. Perigynia *not (or but slightly) inflated;* staminate spikelets 1 *to* 3,—*or the terminal one androgynous.*

14. C. stricta, *Lam.* Pistillate spikelets 2 to 4, cylindric, slender, —the upper ones sessile, often staminate at summit; perigynia ovate, acute, about as long as the lanceolate scale.

C. acuta. *Muhl. & Fl. Cestr. ed.* 2. *p.* 41. not of *L.*

UPRIGHT CAREX. Tussock Sedge.

Culms 1 to 2 feet high, rather slender, deeply striate, very acute and scabrous on the angles, leafy at base, remarkably cespitose. *Leaves* linear, keeled, often longer than the culm,—radical ones very numerous; *sheaths* striate, sometimes filamentous. *Stam. spikelets* 2 or 3 (often solitary), ½ an inch to near 2 inches in length. *Pistillate spikelets* ¾ to 1½ inches long,—the lowest on a very short peduncle; *scales* reddish brown, with a green keel, variable in length and acuteness.

Hab. Swamps, and low grounds: common. *Fl.* April. *Fr.* June.

Obs. This is the species so remarkable, and well known, for forming large dense tufts, or *tussocks*, in neglected swamps.

15. C. crinita, *Lam.* Pistillate spikelets about 4, cylindrical, long, pendulous on exserted peduncles, often staminate at apex; perigynia somewhat inflated, keeled on each side, much shorter than the lance-linear roughly-awned scale.
HAIRED, OR CHAFFY CAREX.

Culms 2 to 4 feet high, rather stout, leafy below. *Leaves* lance-linear,—the lower ones shorter than the culm, with loose, striate *sheaths*,—the upper ones, or *bracts*, surpassing the culm, without sheaths. *Stam. spikelets* mostly 2, linear, 1 to 2 inches long, sometimes pistillate at summit. *Pistillate spikelets* 2 to 3 inches long, on shortish peduncles,—the lower ones gradually longer.
Hab. Swampy margins of rivulets: frequent. *Fl.* May. *Fr.* July.

§ 2. Perigynia *slightly inflated, nerved, scarcely beaked, smooth.*

† Upper pistillate spikelets *subsessile;* staminate one *solitary and subsessile.*

16. C. granulàris, *Muhl.* Pistillate spikelets 3 or 4, cylindrical, densely flowered,—the lowest on a long stalk, remote or low down the culm; perigynia roundish-ovoid, longer than the ovate acuminate scale,—the beak very short, and bent or recurved.
GRANULAR CAREX.

Culms 9 to 15 inches high, slender, leafy. *Leaves* erect, rather glaucous,—the lower ones shorter than the culm,—the upper ones, or *bracts*, surpassing the culm; *sheaths* membranaceous and white opposite the leaves. *Stam. spikelets* ½ an inch to an inch long, sometimes pedunculate. *Pistillate spikelet* ½ an inch to an inch in length,—the 2 upper ones (when there are 4) approximated and sessile.
Hab. Wet meadows: frequent. *Fl.* May. *Fr.* July.

17. C. grisea, *Wahl.* Pistillate spikelets 3 to 5, often 4, oblong, loosely flowered,—the lowest distant; perigynia ovoid-oblong, rather longer than the ovate cuspidate scale.
C. laxiflora. *Fl. Cestr. ed.* 2. *p.* 38. not of *Lam.*
GRIZZLY CAREX.

Plant glaucous. *Culms* 12 to 18 inches high, leafy. *Leaves* flat,—the upper ones, or *bracts*, surpassing the culm; *sheaths* membranaceous and white opposite he leaves. *Stam. spikelets* about an inch in length, inconspicuous. *Pistillate spikelets* ½ an inch to near an inch long, rather few-flowered,—the 2 upper approximated, with the staminate one between them, the lower ones distant, the lowest on a long peduncle.
Hab. Shaded swamps, and wet meadows: frequent. *Fl.* May. *Fr.* July.

†† Spikelets *all on exserted filiform stalks,—the upper one staminate at base; the rest all pistillate.*

18. C. Davisii, *Schw. & Torrey.* Spikelets mostly 4, oblong-cylindric; perigynia ovoid-oblong, rather acute at each end, about as long as the oblong conspicuously awned scale.
C. Torreyana. *Dewey, & Fl. Cestr. ed.* 2. *p.* 33.
DAVIS'S CAREX.

Culms 1 to 2 feet high, leafy. *Leaves* flat, striate, slightly pubescent,—the upper ones a little longer than the culm; *sheaths* pubescent. *Spikelets* 1 to 1½ inches long, rather loose-flowered, the *rachis* somewhat flexuose.
Hab. Low grounds; along Brandywine: frequent. *Fl.* May. *Fr.* July.

19. C. gracillima, *Schw.* Spikelets about 4, slender and linear, nodding; perigynia oblong, obtuse and slightly oblique at apex, longer than the oblong mucronate scale.

VERY SLENDER CAREX.

Culms 18 inches to 2 feet high, slender but mostly erect, leafy. *Upper leaves* equalling the culm; *lower* ones abbreviated, and often with purple *sheaths*. *Spikelets* ¾ of an inch to 2 inches long, generally 4 near the summit, and sometimes an additional lateral one,—about ⅔ of the terminal one staminate below.

Hab. Moist meadows, and woodlands: frequent. *Fl.* May. *Fr.* July.

§3. Perigynia *slightly inflated, ribbed, not beaked, often hairy,—the upper spikelet androgynous, and clavate by being staminate below; the rest all pistillate.*

20. C. aestivàlis, *Curtis.* Spikelets 3 to 5, very slender, loose-flowered, somewhat erect,—the lower and uppermost one pedunculate, the intermediate ones subsessile; lower bracts foliaceous, the upper ones setaceous; perigynia trigonous-ovoid, acutish at base and apex, obsoletely nerved, smooth, twice as long as the ovate obtuse (or sometimes mucronate) scale; sheaths of the lower leaves pubescent.

SUMMER CAREX.

Culms 12 to 18 inches high, very slender, triquetrous, striate, smooth. *Leaves* 6 to 12 or 15 inches long, sometimes overtopping the culm, narrow, striate, scabrous on the margin. *Spikelets* 1 to 2 inches long, the lower florets distant; *peduncle* of the lower, and upper one, half an inch to an inch in length.

Hab. Slaty hills, near West Chester: not common. *Fl.* June. *Fr.* July.

Obs. Specimens of this were collected, June 17, 1828, by DAVID TOWNSEND, Esq. and myself, during an herborizing excursion on Pokono mountain, in this State,—we supposing them, at the time, to be a *variety* of *C. gracillima.* I gave some to the late Rev. Mr. SCHWEINITZ—who placed them in his Herbarium, under the name of *C. Darlingtonii,*—as I learn from my friend, Dr. PICKERING.—The species was afterwards found, by D. TOWNSEND, on the slaty hills, near West Chester; and also by the Rev. M. A. CURTIS, and Dr. GRAY, on the mountains of North Carolina. The last named gentleman published a description of it in SILLIMAN'S *Journal of Science, Vol.* 42. *p.* 28.

21. C. viréscens, *Muhl.* Spikelets 2 to 4, mostly 3, oblong, erect, on short peduncles; perigynia ovoid, roughly pubescent, rather longer than the ovate mucronate scale.

GREENISH CAREX.

Culms 1 to 2 feet high, rather slender, leafy. *Leaves* tapering to a filiform point, erect, overtopping the culm, pubescent; *sheaths* villous, those at the base of the culm often dark purple. *Spikelets* ½ of an inch to near an inch in length, all approximated,—all except the terminal one entirely pistillate, nearly sessile, with each a lance-linear foliaceous *bract* at base.

Hab. Borders of woods, and hill sides: frequent. *Fl.* May. *Fr.* July.

22. C. triceps, *Mx.* Spikelets mostly 3, rarely 4, ovoid-oblong, approximated; perigynia roundish-ovoid, obtuse, smooth, about as long as the ovate abruptly acuminate scale.

C. hirsuta. *Willd. & Fl. Cestr. ed.* 2. *p.* 32.

THREE-HEADED CAREX.

Culms 12 to 18 inches high, leafy. *Leaves* about as long as the culm, the upper one often overtopping it, mostly hairy; *sheaths* thickly clothed with strigose pubescence,—the lower ones purple. *Spikelets* ⅓ to ⅔ of an inch long,—the lower ones on short peduncles, and each with a lance-linear foliaceous *bract* at base.
Hab. Moist meadows, and borders of woods: frequent. *Fl.* May. *Fr.* July.

§ 4. Perigynia *not inflated, smooth*; staminate spikelet *solitary, pedunculate.*

† Pistillate spikelets *all on filiform exserted peduncles.*

23. C. platyphyl'la, *Carey.* Pistillate spikelets 3, loosely 3- or 4-flowered; perigynia small, longer than the oval acute scale.
C. oligocarpa, *var.* latifolia. *A. Gr. & Fl. Cestr. ed.* 2. *p.* 38.
BROAD-LEAVED CAREX.

Culms 9 to 18 inches long, very slender, and naked above. *Leaves* pale whitish or glaucous green, about half an inch wide, and 6 to 12 inches in length. *Stam. spikelet* ¾ of an inch long. *Pistillate spikelets* about ½ an inch in length,—the lower one on a long peduncle; *bracts* green,—the upper one about equalling the spikelets, the lower rather exceeding them.
Hab. Hilly woodlands: frequent. *Fl.* May. *Fr.* July.

24. C. digitàlis, *Willd.* Pistillate spikelets about 3, loosely 5- to 9-flowered,—the lower ones on long peduncles; perigynia triquetrous, striate, longer than the ovate acute scale.
C. oligocarpa. *Schw. & Torr. & Fl. Cestr. ed. p.* 37. not of *Schkuhr.*
FINGER-LENGTH CAREX.

Culms 6 to 12 inches long, slender, somewhat decumbent, leafy. *Leaves* thin, narrow, dark green,—upper ones (or *bracts*) surpassing the culm, the lower ones abbreviated. *Stam. spikelets* ½ an inch to ¾ in length, from the same sheath with the upper pistillate one. *Pistillate spikelets* ½ to ¾ of an inch long,—the lowest often on a subradical peduncle; *bracts* long, sheathing, resembling leaves.
Hab. Hilly woodlands: frequent. *Fl.* May. *Fr.* July.

†† Upper pistillate spikelet *on an included peduncle.*

25. C. ánceps, *Willd.* Pistillate spikelets 2 or 3, distant, loosely flowered, with a flexuose rachis; perigynia ovoid, rather longer than the ovate cuspidate scale.
TWO-EDGED CAREX.

Culms 9 to 18 inches high, acutely triangular with the sides of unequal width, sometimes nearly ancipital above, leafy. *Leaves* variable,—*radical* ones lanceolate, 4 to 9 or 12 inches long, and some of them nearly an inch wide, glaucous, living through the winter; those on the culm much narrower, with thin white *sheaths*. *Stam. spikelets* ½ an inch to ¾ in length, with a compressed peduncle, from the same sheath with the upper pistillate one. *Pistillate spikelets* 2 to 5, usually 2, ⅓ of an inch to an inch long,—the upper one nearly sessile, the others on ancipital peduncles, supported by the sheaths of leaf-like *bracts.*
Hab. Hilly rich woodlands: frequent. *Fl.* April. *Fr.* July.

b. Perigynia *with a distinct beak.*

§ 5. Perigynia *not inflated, hairy*; staminate spikelet *solitary*; bracts *short*; leaves *all radical.*

26. C. Pennsylvánica, *Lam.* Staminate spikelet usually pedunculate; pistillate spikelets 1 to 3, mostly 2, approximated,

ovoid-oblong, closely 4- to 8-flowered; perigynia roughish, roundish-ovoid, with a short abrupt beak, about as long as the ovate acuminate reddish-brown scale.

PENNSYLVANIAN CAREX.

Culms 4 to 12 inches high, slender, with a few short narrow leaves at base.—*Radical leaves* annual, linear, about as long as the culm. *Stam. spikelets* ½ an inch to near an inch long, erect, on a peduncle ⅛ to ½ an inch in length, inserted at the base of the upper pistillate one. *Pistillate spikelets* ¼ to ⅓ of an inch long,—the lower one often with a linear or setaceous *bract* at base, longer than the spikelet.

Hab. Dry, hilly woodlands: common. *Fl.* April. *Fr.* June.

Obs. The *C. Varia, Muhl.*—with "wider, shorter, and more rigid glaucous leaves,"—is so nearly allied to this, that I have not distinguished it sufficiently to be warranted in giving it a place in our *Chester County Flora.*

27. C. pubéscens, *Muhl.* Staminate spikelet subsessile; pistillate spikelets about 3, oblong, or cylindric, erect, rather loose-flowered; perigynia densely pubescent, trigonous-ovoid, with an abrupt slender beak, about as long as the ovate-oblong mucronate white scale.

PUBESCENT CAREX.

Culms 12 to 20 inches high, erect or sub-decumbent, pubescent, leafy below.—*Leaves* shorter than the culm, lance-linear, flat, and, with the *sheaths*, softly pubescent. *Stam. spikelets* ½ an inch to an inch long. *Pistillate spikelets* ⅓ to ¾ of an inch in length,—the *upper ones* approximated, nearly sessile, each with a short lanceolate *bract*,—the *lower one* rather distant, on a short peduncle, with a foliaceous *bract* nearly equalling the culm.

Hab. Woodlands; along Brandywine: frequent. *Fl.* May. *Fr.* June.

§ 6. Perigynia *slightly inflated;* bracts *long and leaf-like*; culms *tall and leafy.*

28. C. miliàcea, *Muhl.* Staminate spikelet sub-clavate, pedunculate, often pistillate at summit; pistillate spikelets mostly 3, long, slender, nodding on filiform peduncles; perigynia smooth and thin, rather longer than the oval, obtuse or emarginate, mucronate, white scale.

MILLET-LIKE CAREX.

Culms 1 to 2 feet high, slender, leafy. *Leaves* nearly as long as the culm, narrowish. *Stam. spikelet* about an inch long. *Pistillate spikelets* 1 to 2 inches long, somewhat approximated, rather loose-flowered,—occasionally solitary; *bracts* surpassing the culm, with short or nearly obsolete sheaths.

Hab. Moist meadows, and low grounds: frequent. *Fl.* May. *Fr.* July.

29. C. scabràta, *Schw.* Staminate spikelet on a rigid scabrous peduncle; pistillate spikelets 3 to 5, often 4,—the lowest one distant and long—pedunculate; perigynia oblong-ovoid, scabrous and thickish, rather longer than the ovate-lanceolate brown scale.

ROUGH CAREX.

Whole plant scabrous. *Culms* 1 to 2½ feet high, rather stout, striate, leafy.—*Leaves* 1 to 2½ feet long, and often ½ an inch wide. *Stam. spikelet* 1 to 1½ inches long, on a *peduncle* ¾ of an inch to 2 inches in length. *Pistillate spikelets* 1 to 2 inches long, rather dense-flowered,—the upper one nearly sessile, the others pedunculate; *bracts* very long, nearly without *sheaths.*

Hab. Shaded swamps; Birmingham: not common. *Fl.* May. *Fr.* July.

Obs. I have only met with this in a swamp, near a cold shaded spring, in the meadow of the farm where I was born; in which locality it is abundant, and of luxuriant growth.

§ 7. Perigynia *slightly inflated, smooth and shining*; staminate spikelet *solitary*; pistillate spikelets *all pendulous on slender peduncles.*

30. C. débilis, *Mx.* Staminate spikelet narrow-linear, on a short filiform peduncle; pistillate spikelets 3 to 5, often 4, loose-flowered, with a flexuose rachis; perigynia oblong, tapering at each end, about twice as long as the ovate-lanceolate mucronate scale,—the beak slender, bifid.

C. flexuosa. *Muhl. & Fl. Cestr. ed.* 2. *p.* 39.

WEAK CAREX.

Culms 1 to 2 feet long, slender, weak, and often procumbent in age, leafy. *Leaves* narrow,—the upper ones, or *bracts*, equalling the culm, the lower ones shorter.—*Stam. spikelet* 1 to 1½ inches long, rarely with a few pistillate florets at summit.—*Pistillate spikelets* 1½ to near 3 inches in length,—usually 3 somewhat approximated near the summit, and 1 or 2 distant below.

Hab. Moist woods, and low ground; frequent. *Fl.* June. *Fr.* Aug.

§ 8. Perigynia *slightly inflated, rough, or woolly*; staminate spikelets *usually 2, or more.*

31. C. lanuginòsa, *Mx.* Pistillate spikelets 2 or 3, cylindric-oblong, rather distant, the upper ones sessile; perigynia ovoid, abruptly beaked, densely roughish-pubescent, about as long as the lance-ovate cuspidate scale.

C. pellita. *Muhl. & Fl. Cestr. ed.* 2. *p.* 41.

WOOLLY CAREX.

Culms 1½ to 2 feet high, striate, leafy. *Leaves* rather narrow, nearly flat, erect, long-acuminate, about as long as the culm. *Stam. spikelets* 2 or 3 (rarely 1), ¾ to an inch and a half long,—the upper one pedunculate. *Pistillate spikelets* 1 to near 2 inches in length, erect,—the upper one sessile, the lowest on a short—or sometimes rather elongated—peduncle; *bracts* foliaceous, surpassing the culm. *Beaks* of the perigynia short, bicuspidate at apex.

Hab. Moist grounds; Serpentine bank: not common. *Fl.* May. *Fr.* July.

§ 9. Perigynia *usually inflated, smooth, with a long tapering beak*; staminate spikelet *solitary.*

† Bracts *foliaceous, with short, or obsolete sheaths.*

32. C. hystricina, *Willd.* Pistillate spikelets 2 or 3, cylindric-oblong, dense-flowered, the upper one on a short peduncle,—the lower ones finally nodding on long slender peduncles; perigynia ovoid-oblong, spreading, twice as long as the oblong emarginate awned scale,—the beak with smooth teeth.

PORCUPINE-LIKE CAREX.

Plant pale or yellowish green. *Culm* 1½ to 2 feet high, leafy. *Leaves* lance-linear,—the upper ones, or *bracts*, surpassing the culm. *Stam. spikelet* about an inch and half long, with a subulate-linear *bract* at base, and a *peduncle* 1 to 2 or 3 inches in length. *Pistillate spikelets* 1 to 2 inches long, and half an inch in diameter,—the lowest on a peduncle 2 to 4 inches long.

Hab. Wet meadows, and low grounds: frequent. *Fl.* May. *Fr.* July.

33. C. tentaculàta, *Muhl.* Pistillate spikelets 2 or 3, cylindric-oval, or oblong, dense-flowered,—the upper ones approximated, sessile,—the lowest a little distant, on a short scarcely exserted peduncle; perigynia ovoid, ventricose, spreading, about twice as long as the linear-oblong awned scale,—the beak with minutely serrulate teeth.

TENTACULATE, OR MANY-BEAKED CAREX.

Plant yellowish green. *Culms* 12 to 18 inches high, leafy. *Leaves* lance-linear,—the upper ones, or *bracts*, very long. *Stam. spikelet* ¾ to an inch and a half long, with a filiform or lance-linear *bract* at base, and on a *peduncle* ½ an inch to ¾ in length. *Pistillate spikelets* 1 to 1½ inches long, diverging somewhat horizontally. *Hab.* Swamps, and wet low grounds: common. *Fl.* June. *Fr.* Aug.

Obs. This, and the preceding species, have much general resemblance; but the pedunculate, nodding spikelets, of the former, will readily distinguish it from this one.

34. C. intumescens, *Rudge.* Pistillate spikelets 1 or 2, subglobose, loosely few-flowered,—when 2, closely approximated, the upper one sessile, the lower on a short peduncle; perigynia conic-ovoid, much inflated, erect-spreading, about twice as long as the lance-ovate cuspidate scale.

SWELLING, OR INFLATED CAREX.

Culms 1 to 2 feet high, rather slender, leafy. *Leaves* lance-linear,—the upper ones, or *bracts*, much surpassing the culm. *Stam. spikelet* 1½ inches long, slender, on a *peduncle* 1 to 2 inches in length. *Pistillate spikelets* ¾ of an inch long, and as much in diameter, 5- to 8-flowered; *perigynia* about ½ an inch long.
Hab. Wet, miry places: frequent. *Fl.* June. *Fr.* Aug.

†† Bracts *conspicuously sheathing.*

35. C. subulàta, *Mx.* Pistillate spikelets 3 to 5, distant, on included peduncles, loosely few-flowered, often staminate at summit; perigynia subulate, finally reflexed, about 3 times as long as the lanceolate acute scale.
C. Collinsii. *Nutt. & Fl. Cestr. ed.* 2. *p.* 36.

SUBULATE CAREX.

Culms usually about 1 foot high (sometimes 2 or 3 feet, and then very slender, and flaccid), smooth. *Leaves* flat, much shorter than the culm. *Stam. spikelet* about ½ an inch long, terminal, on a short peduncle. *Pistillate spikelets* usually 4, 2- or 3- to 6- or 8-flowered, the *perigynia* half an inch long,—the upper spikelet subsessile at the foot of the staminate one, with a lanceolate, awned, scabrous *bract* at base, as long as the spikelet,—the others lateral, on more or less exserted peduncles. *Beaks* of the perigynia bicuspidate, with the slender points abruptly reflexed, or barbed.
Hab. Swamps, among the slaty hills: rare. *Fl.* June. *Fr.* July.

36. C. lupulina, *Muhl.* Pistillate spikelets 2 to 5, ovoid-oblong,—the upper ones approximated, on short peduncles,—the lower ones on exserted peduncles; perigynia ovoid, much inflated at base, acuminate, about 3 times as long as the lance-ovate acuminate scale.

HOP-LIKE CAREX.

Culms 2 to 3 feet high, leafy to the top (including the very long foliaceous *bracts*). *Leaves* much longer than the culm, broad and flat, with loose striate *sheaths*. *Stam. spikelet* 1 to 2 inches long, with a lance-linear *bract* longer than itself, and sometimes with a smaller sessile spikelet at its base; *peduncle* 1 to 2 inches in length. *Pistillate spikelets* usually 3 or 4, an inch to an inch and a half long, and 3/4 of an inch in diameter, nearly cylindric.

Hab. Swamps, and miry places: frequent. *Fl.* June. *Fr.* Aug.

§10. Perigynia *much inflated, obconic with an abrupt long beak;* spikelets *androgynous, staminate at base, often solitary.*

37. C. squarròsa, *L.* Spikelets solitary and terminal (sometimes 2, rarely 3), oval, or ovoid-oblong, densely flowered, rigidly erect; perigynia turbinate, acuminate, finally horizontal, longer than the lance-oblong acute scale.

SQUARROSE CAREX.

Culms about 2 feet high, rather slender, leafy. *Leaves* lance-linear, nerved, 3 or 4 of the upper ones surpassing the culm. *Spikelet* about an inch long, and half an inch in diameter, very obtuse or rounded at summit, slender at base, where the staminate florets are; when more than one spikelet, the additional ones are smaller, erect, and axillary on short peduncles near the summit.

Hab. Moist, low grounds: frequent. *Fl.* May. *Fr.* July.

Obs. This pretty and rather remarkable species, was at one time so rare, in European collections, that many applications were made to Dr. MUHLENBERG for specimens,—which, he not being able to furnish, led to the conclusion, with some, that no such plant existed. It is, however, quite abundant in some localities in this County.

§11. Perigynia *much inflated, with a tapering beak;* staminate spikelets 2 *or* 3.

38. C. Monile, *Tuckerman.* Staminate spikelets mostly 3; pistillate, 2 or 3 (rarely solitary), long-cylindrical, loosely flowered, distant,—the lowest pedunculate and often nodding; perigynia ovoid, acuminate, longer than the narrow-lanceolate scale.

NECK-LACE CAREX.

Culms 1½ to 2 feet high, rather slender, leafy. *Leaves* surpassing the culm.—*Stam. spikelets* usually 3,—the upper one about 2 inches long, the two lower about an inch in length,—all on a common *peduncle* 1 to 3 inches long. *Pistillate spikelets* 1½ to 3 inches long, bright straw color,—the upper one often staminate at summit.

Hab. Wet grounds; Brandywine; New Garden: not common. *Fl.* May. *Fr.* July.

Obs. Collected by Mr. JOSHUA HOOPES, in 1838; and again by Dr. E. MICHENER, in 1850.

ORDER CXVIII. GRAMIN'EAE.

TRUE GRASSES: chiefly *herbaceous;* often cespitose; *rhizomas* slender, creeping, ramifying, with filiform *radicles; culms* terete, nodose and leafy, mostly hollow between the nodes; *leaves* entire, with parallel nerves, distichously alternate, apparently sessile,—the *petioles* being dilated, and sheathing the culm, but slit on the side opposite the *lamina*, or blade, down to their origin at the nodes (i. e. their margins are not united, as in the *Cyperaceae*); *stipules* axillary, adnate to the petiole, with the scarious summit often free, and known as the *ligule; flowers* perfect, polygamous, or monoicous (rarely dioicous), in little spikelets at the ends

of the branches, and these spikelets disposed in loose panicles, or condensed into racemes, or spikes; *spikelets* 1- 2- or many-flowered, formed of distichously imbricated chaffy *bracts* (stunted or modified *sheaths* of abortive leaves)*,—of which the outer, or lower ones, are called *glumes*, and the two that immediately inclose each floret are termed *paleae* (the inner, or *upper palea* usually 2-ribbed, and supposed to consist of 2 united paleae); *proper perianth* none; *stamens* 1 to 6, or more—usually 3; *anthers* versatile; *ovary* 1-celled, 1-ovuled,—usually with 2 minute fleshy *scales* at base, somewhat analogous to the bristles or hairs (*perigynium*), in the *Cyperaceae; styles* or *stigmas* 2, plumose, or pencil-form, mostly with simple hairs; *fruit* a seed-like *grain* (called a *caryopsis*), free, or sometimes adherent to the paleae,—the *pericarp* thin, and for the most part closely adnate to the seed; *embryo* at the base, and on the outside, of copious farinaceous *albumen*.

This vast Order is probably the most generally diffused, and the most important to Man, of all the families of plants. The *seeds*, and *herbage*, furnish a principal portion of the food of the human race, and of the more valuable domestic animals: Or, as it is expressed in the terse and classical Latinity of ENDLICHER—"*Gramina* ubique terrarum sociatim vigent, laeta praebent pecudibus pascua et humano generi annonam."

DIVISION I. POA'CEAE.

Spikelets 1- to many-flowered; the *florets* all alike and *perfect*,—or the *uppermost one* abortive or rudimentary; sometimes *monoicous*.

TRIBE 1. ORY'ZEAE.

Spikelets 1-flowered, sometimes *monoicous; glumes* often wanting, or obsolete; *inner palea* 3-nerved; *stamens* 1 to 6; hypogynous *scales* 2.

467. LEERS'IA, *Solander.*

[Dedicated to *John Daniel Leers;* a German Botanist.]

Flowers perfect; *spikelets* compressed, disposed in one-sided racemose panicles, articulated with the short pedicels. *Glumes* wanting. *Paleae* chartaceous, compressed-carinate, awnless, bristly-ciliate on the keels,—the *lower* one much broader, and boat-shaped, inclosing the flat grain. *Stamens* 1 to 6—usually 2 or 3. *Scales* membranaceous. *Stigmas* plumose,—the *hairs* branching. *Perennials: culms* and *sheaths* retrorsely scabrous.

1. L. oryzoides, *Swartz.* Panicle diffusely branched, often partly sheathed; spikelets rather spreading, elliptic-oblong, whitish; stamens 3.

RICE-LIKE LEERSIA. Cut-grass. Wild Rice.

Culm 3 to 5 feet high. *Leaves* 6 to 12 inches long, ciliate on the margin; *sheaths* sulcate-striate, with retrorse prickles in the grooves. *Paleae* pectinate-ciliate on the keel.

Hab. Swamps, and along sluggish rivulets: common. *Fl.* Aug. *Fr.* Sept.

Obs. A very rough, white-panicled grass,—common along sluggish streams; rather a nuisance, than otherwise.

*The *glumes* and *paleae* (or what is called *Chaff*) of the Grasses are the crowded vestiges of the *sheaths of leaves*. The *awns*, often found on the paleae, are the *midribs*, or slender remains of the *laminae*, or blades of the leaves; and when these awns are apparently inserted more or less distant from the apex of the paleae (or *dorsal*, as it is termed), it is probably owing to the extension and persistency of the *ligule* of the sheath,—which ligule thus becomes a portion of the paleae.

2. L. Virginica, *Willd.* Panicle simple, slender, exserted; spikelets appressed, somewhat imbricated, greenish; stamens 2.

VIRGINIAN LEERSIA.

Culms 2 to 3 feet long, slender and leaning, branched, smoothish. *Leaves* 3 to 6 inches long. *Panicle* somewhat secund; branches few and solitary. *Lower palea* remarkably keeled and boatshaped, sparingly ciliate.

Hab. Moist woodlands: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. A remarkably slender-panicled, delicate-looking grass; but of no agricultural value.

468. ZIZAN'IA, *Gronovius.*

[The ancient Greek name of some plant now doubtful.]

Flowers monoicous,—the *staminate* and *pistillate spikelets* in the same panicle. *Glumes* wanting,—or, in the pistillate spikelets, rudimentary and cup-shaped. *Paleae* herbaceous, convex,—awnless in the *staminate florets*, but in the *pistillate* ones the lower palea is tipt with a straight awn. *Stamens* 6. *Stigmas* pencil-form. Stout aquatic grasses.

1. Z. aquática, *L.* Panicle pyramidal; lower branches spreading, and staminate,—upper ones erect, pistillate; pedicels clavate; awns long.

AQUATIC ZIZANIA. Water-Oats. Reed. Indian Rice.

Perennial? *Culm* 4 to 8 or 10 feet high, smooth. *Leaves* 1 to 2 or 3 feet long, serrulate on the margin; *sheaths* smooth, striate; *ligule* rather large. *Panicle* 1 to 2 feet long; branches verticillate. *Pistillate spikelets* about an inch in length, needle-like, racemose on the branches; *awn* as long as the spikelet.

Hab. Swampy rivulets; along Brandywine: rare. *Fl.* Aug. *Fr.* Sept.

Obs. This stout grass is rare, here; but is abundant along tide-water,—and well known as the favorite resort of the delicious *Ortolan*, or *Reed-bird* (*Emberiza Oryzivora, L.*), in autumn.

TRIBE 2. AGROSTID'EAE.

Spikelets 1-flowered, perfect (sometime with the abortive rudiment of a second floret above), *panicled*, or sometimes in a dense *spike; stamens* not more than 3; *stigmas* usually plumose.

A. PHLEOI'DEAE: Inflorescence *densely spiked;* glumes *equal, strongly keeled.*

469. PHLE'UM, *L.*

[An ancient Greek name; meaning obscure.]

Paleae 2, membranaceous, shorter than the mucronate or awned glumes,—the lower palea truncate, usually awnless,—the upper one 2-keeled. *Stamens* 3. *Styles* distinct. *Culms* somewhat wiry; *spike* very dense, and rather harsh.

1. P. PRATÉNSE, L. Spike cylindric, elongated; glumes truncate, tipt with a short awn; keel ciliate; anthers bluish purple; stigmas white.

MEADOW PHLEUM. Timothy. Cat's-tail Grass.

Perennial. *Culm* 2 to 4 feet high, smooth, often a little bulbous at base. *Leaves* 6 to 12 or 15 inches long, roughish, glaucous. *Spike* 3 to 6 or 8 inches in length, green. *Paleae* concealed in the glumes.

Hab. Fields, and meadows. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. This valuable grass is now extensively naturalized; but it is also diligently cultivated, by every thrifty Farmer. In New York, and throughout New England, it is known by the name of *Herd's Grass*,—a name which, in Pennsylvania, is applied exclusively to *Agrostis vulgaris, L.*

B. TRUE AGROSTID'EAE: Inflorescence *not strictly spiked, often loosely panicled;* spikelets *usually small;* glumes *often unequal.*

†Glumes *and* paleae, *neither awned nor mucronate;* florets *naked at base.*

470. VIL'FA, *Adanson.*

[One of the arbitrary names, coined by *Adanson*,—probably without meaning.]

Spikelets in a contracted spike-form panicle. *Glumes* 1-nerved, or nerveless,—the *lower* one smaller. *Paleae* usually longer than the glumes, and of similar texture. *Stamens* mostly 3. *Culms* wiry; *leaves* involute,—the *sheaths* often inclosing the lateral panicles.

1. V. vaginaeflòra, *Torrey.* Culms ascending, geniculate; paleae about the length of the glumes.

Agrostis Virginica. *Muhl. & Fl. Cestr. ed.* 2. *p.* 57. not of *L.*

SHEATH-FLOWERING VILFA.

Annual? *Culms* 6 to 12 or 15 inches long, nearly simple, cespitose, spreading.—*Leaves* 2 to 3 inches long, subulate at apex; *sheaths* smooth, hairy at throat, often loose, and tumid with the inclosed panicles. *Stamens* often wanting, in the lateral panicles.

Hab. Dry banks; road sides, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

††Glumes, *or the* lower palea, *usually awned, or mucronate;* florets *often hairy at base.*

471. AGROS'TIS, *L.*

[Gr. *Agros*, a field; its usual place of growth.]

Spikelets in an open panicle. *Glumes* nearly equal, often longer the paleae, pointless. *Paleae* very thin, pointless, naked at base,—the *lower* one sometimes awned on the back,—the *upper* one often minute, or wanting. *Stamens* usually 3. Chiefly *perennials: culms* slender, cespitose.

§1. TRICHODIUM: upper palea *obsolete, or wanting.*

1. A. perénnans, *A. Gray.* Culms geniculate, decumbent at base; panicle pale green,—the spikelets rather scattered on the shortish branches.

Trichodium scabrum. *Muhl. & Fl. Cestr. ed.* 2. *p.* 54.

ENDURING AGROSTIS.

Culm 1 to 2 feet high. *Leaves* 4 to 6 inches long; *sheaths* generally closed, smooth. *Spikelets* not clustered; *glumes* with scarious margins; *palea* generally awnless,—sometimes with a conspicuous awn on the back.

Hab. Dry, open woodlands: common. *Fl.* July. *Fr.* Sept.

2. A. scàbra, *Willd.* Culm erect, very slender; panicle purplish,—the spikelets clustered at the ends of the long capillary branches.
Trichodium laxiflorum. *Mx. & Fl. Cestr. ed.* 2. *p.* 54.
ROUGH AGROSTIS. Hair-Grass.

Culm 1 to 2 feet high. *Lower leaves* 3 to 6 inches long, becoming involute and almost filiform; *upper* ones, 1 to 3 inches long, flat, scabrous; *sheaths* rather open, roughish. *Panicle* very loose; *branches* verticillate,—the *lower* ones in fives or sixes, the *upper* in threes,—sharply scabrous, long, and hair-like; *palea* awnless. *Hab.* Old fields; Serpentine ridge: frequent. *Fl.* June. *Fr.* Aug.

§ 2. AGROSTIS proper: Upper palea *manifestly present.*

3. *A. vulgàris,* With. Culms mostly erect; panicle ovoid-oblong in its outline, usually purple; ligule truncate, very short.
COMMON AGROSTIS. Herd's-Grass (of *Pennsylvania*). Red-top.

Culms 6 inches to 2 feet high, slender, cespitose. *Leaves* 3 to 6 or 8 inches long, roughish. *Panicle* with the branches alternatingly semi-verticillate, spreading, finally divaricate. *Paleae* awnless,—the *lower* one twice the size of the upper. *Hab.* Moist meadows, and pastures. Nat. of Europe. *Fl.* July. *Fr.* Aug.

Obs. This was formerly cultivated, here; but it was not much esteemed,—and is now generally neglected. It is, however, very thoroughly naturalized. It should be borne in mind, by dealers in Seeds, that this is *not* the "Herd's-Grass" of *New York*, and *New England.* The *Phleum pratense* is so called, in those States; and the confusion has sometimes led to mistakes, and litigation. I am not quite satisfied that we have the *A. alba* here,—and therefore omit it from our *Flora,* for the present.

472. CIN'NA, *L.*

[A name of uncertain derivation.]

Spikelets compressed, crowded in a large flaccid panicle. *Glumes* lanceolate, acute, with scarious margins, and hispid-serrulate keel, —the *lower* one rather smaller. *Florets stipitate,* smooth, naked at base; *lower palea* longer than the upper, short-awned on the back. *Stamen* 1, opposite the 1-nerved upper palea! *Perennial,* and rather stout, woodland grasses: *culms* simple; *panicle* terminal, compound.

1. C. arundinàcea, *L.* Panicle spreading below, contracted or tapering at summit; lower glume one fourth shorter than the lower palea.
REED-LIKE CINNA.

Culm 2 to 4 or 5 feet high, erect, smooth. *Leaves* a foot or more in length; *sheaths* smooth, striate; *ligule* membranaceous, elongated, lacerate. *Panicle* 6 to 12 inches long, somewhat nodding,—the branches somewhat in fours; *spikelets* glaucous-green, or sometimes purplish.
Hab. Moist woodlands and thickets: frequent. *Fl.* Aug. *Fr.* Sept.

473. MUHLENBERG'IA, *Schreber.*

[Dedicated to Rev. *Henry Muhlenberg,* D. D.; a distinguished American Botanist.]

Spikelets mostly in contracted panicles. *Glumes* acute, or bristle-pointed, persistent,—the *lower* one rather smaller, sometimes very

minute. *Florets* subsessile, usually hairy at base; *paleae* often equal, deciduous with the inclosed grain,—the *lower* one 3-nerved, mucronate, or awned at apex. *Stamens* 3. Chiefly *perennials: rhizomas* creeping; *culms* often much branched, sometimes erect and rigid; *leaves* rather short.

* Lower palea *barely mucronate, or sharp-pointed.*

1. M. sobolifera, *A. Gray.* Culm rather erect, sparingly branched; panicle simple and very slender; glumes nearly equal.
Agrostis sobolifera. *Muhl. & Fl. Cestr. ed.* 2. *p.* 56.
SOBOLIFEROUS MUHLENBERGIA.

Culm about 2 feet high, slender; *nodes* not swelling; *branches* erect and filiform. *Leaves* 4 to 6 inches long, narrowish, rough; *sheaths* open, smooth. *Panicles* resembling very slender spikes,—the branches alternate, or in pairs, appressed; *spikelets* crowded.
Hab. Open, rocky woodlands: frequent. *Fl.* Aug. *Fr.* Sept.

2. M. glomeràta, *Trin.* Culms upright, sparingly branched or simple; panicle oblong-linear, contracted into an interrupted glomerate spike, long peduncled, the branches sessile; glumes awn-pointed, nearly equal, and (with the bristle-like awn) often twice the length of the unequal very acute paleae.
GLOMERATE MUHLENBERGIA.

Culms 1 to 2 feet high, compressed, smooth, rigid,—often branching from the lower nodes, and somewhat geniculate. *Leaves* 3 to 5 inches long, narrow, erect and rather rigid, scabrous; *sheaths* closed, striate, smooth; *ligule* very short.—*Panicle* terminal, 2 to 3 inches long, interrupted below,—the spikelets, crowded in dense, oblong, subsessile, and often purplish *clusters*, which are about ½ an inch in length, and appressed into a spike-form panicle; *glumes* terminating in scabrous bristles, which vary in length.
Hab. Slaty hills: not common. *Fl.* Aug. *Fr.* Octo.

Obs. Collected by JOSHUA HOOPES, September, 1852. The dense terminal panicles of this species (which has been hitherto overlooked,) have much resemblance to those of the following.

3. M. Mexicàna, *Trinius.* Culms ascending, much branched; panicles terminal and lateral, contracted, dense-flowered; glumes unequal.
Agrostis lateriflora. *Mx. & Fl. Cestr. ed.* 2. *p.* 56.
MEXICAN MUHLENBERGIA.

Culms 18 inches to 3 feet long, with numerous swelling *nodes*, much branched and leafy above, often naked below. *Leaves* 2 to 5 inches long; *sheaths* compressed, smooth, and but partially embracing the culm. *Panicles* numerous,—the lateral ones partly sheathed at base; *lower palea* sometimes terminating in an awn.
Hab. Moist grounds; fence-rows, &c.: common. *Fl.* Aug. *Fr.* Sept.

** Lower palea *bristle-awned from the tip.*

4. M. sylvática, *Torr. & Gray.* Culms ascending, diffusely branched; panicles contracted, densely many-flowered; glumes nearly as long as the lower palea.
Agrostis sylvatica. *Torrey. & Fl. Cestr. ed.* 2. *p.* 57.
WOOD MUHLENBERGIA.

Culms 2 to 3 feet long, smooth; *nodes* swelling. *Leaves* 4 to 6 inches long; *sheaths* smooth, open. *Panicles* slender, with the *spikelets* often densely clustered on the branches; *glumes* with a slender acumination, nearly equal; *lower palea* ending in an *awn*, which is often purple, and 4 or 5 times as long as the spikelet. *Hab.* Borders of woods; clearings, &c.: frequent. *Fl.* Sept. *Fr.* Octo.

5. M. Willdenòvii, *Trinius.* Culm erect, nearly simple; panicle slender, loosely-flowered; glumes about half as long as the lower palea.

Agrostis tenuiflora. *Willd. & Fl. Cestr. ed.* 2. *p.* 57.

Willdenow's Muhlenbergia.

Culm about 3 feet high, sometimes with a few appressed branches, retrorsely pubescent near the nodes. *Leaves* 6 to 9 inches long, broadish, rough; *sheaths* roughish-pubescent. *Panicle* with long, rather remote, filiform, erect branches. *Lower palea* terminating in an *awn* which is 3 or 4 times as long as the spikelet.

Hab. Open, rocky woodlands: frequent. *Fl.* Aug. *Fr.* Sept.

6. M. diffùsa, *Schreber.* Culms diffusely branched, slender; panicles rather slender, often purplish; glumes minute,—the lower one obsolete.

Spreading Muhlenbergia. Drop-seed Grass.

Culms 6 to 12 and sometimes 18 inches long, decumbent, geniculate, compressed, smooth, very slender and rather wiry. *Leaves* 1 to 2 or 3 inches in length, divaricate, roughish; *sheaths* smooth, rather open, pubescent at throat. *Panicles* terminal and lateral, 3 to 6 or 8 inches long,—the branches alternate, rather distant, appressed; *spikelets* racemose, pedicellate; *lower palea* terminating in a very slender *awn*, which is generally purplish, and a little longer than the palea.

Hab. Pastures; yards, &c.: common. *Fl.* Aug. *Fr.* Sept.

Obs. This delicate little grass is rather abundant, in autumn; but neither has it, nor any of the species here described, much agricultural value.

474. BRACHYEL/YTRUM, *Beauvois.*

[Gr. *Brachys*, short, and *Elytron*, a cover; alluding to the very short glumes.]

Spikelets few, in a simple racemose panicle,—each spikelet with a filiform *pedicel* of an abortive *second floret*. *Lower glume* obsolete; the *upper* one subulate, persistent. *Paleae* involute, scabrous,—the *lower* one 5-nerved, terminating in a long straight awn,—the *upper* one 2-pointed, the *sterile pedicel* lodged in the groove on its back.—*Stamens* 2. *Perennial: rhizoma* creeping; *culms* simple; *spikelets* long.

1. B. aristàtum, *Beauv.* Culm erect, retrorsely pubescent; leaves rather broadly lance-linear, rough, with pubescent sheaths. Muhlenbergia erecta. *Schreb. & Fl. Cestr. ed.* 2. *p.* 58.

Awned Brachyelytrum.

Culm 2 to 3 feet high. *Leaves* 4 to 6 inches long, scabrous, somewhat hairy, ciliate on the margins. *Panicle* erect; *spikelets* all pedicellate, half an inch long; *paleae* strongly nerved, scabrous, the *lower* one terminating in an *awn*, which is more than twice as long as the palea. *Seed* linear, grooved on one side, with a long white pubescent acumination.

Hab. Rocky woodlands: frequent. *Fl.* July. *Fr.* Aug.

†††Glumes *and* paleae *not bristle-pointed;* florets *surrounded by a tuft of hairs at base.*

475. CALAMAGROS'TIS, *Adanson.*

[Gr. *Kalamos*, a Reed, and *Agrostis;* from its affinity to both.]

Spikelets in an open, or contracted (sometimes spiked), panicle,—each with a rudimentary *pedicel* of an abortive *second floret*. *Glumes* nearly equal, keeled, acute, longer than the *floret*, which is invested at base by a tuft of white hairs. *Lower palea* mostly awned on the back,—the *upper* shorter, with the rudimentary *pedicel*, at its base, often pencil-tufted. *Stamens* 3. *Perennials: culms* simple, rigid, and rather tall.

1. C. coarctàta, *Torrey.* Panicle densely contracted and somewhat spikeform, glaucous; lower palea shorter than the glumes, with a rigid awn above the middle.

CONDENSED CALAMAGROSTIS.

Culm 2 to 4 or 5 feet high, erect. *Leaves* 6 to 12 inches long, somewhat hairy and rough, with white keel and nerves. *Panicle* terminal, oblong, stiffly erect; *branches* short, aggregated; *glumes* with a subulate acumination, the margins often purple.

Hab. Moist woods, and thickets: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. The *C. Canadénsis, Beauv.* may perhaps be regarded as a doubtful *Chester County* plant; and I therefore omit it, for the present.

C. STI'PEAE: Inflorescence *racemose, or panicled;* spikelets *usually rather large;* paleae *coriaceous, mostly shorter than the glumes,* 1- *to* 3-*awned at apex; scales mostly* 3.

476. ARIS'TIDA, *L.*

[Latin, *Arista*, an awn, or beard; characteristic of the genus.]

Glumes unequal, membranaceous, often cuspidate. *Florets* stipitate. *Paleae* mostly 2,—the *lower* one involute, 3-awned at apex,—the *upper* one much smaller, or obsolete. *Stamens* mostly 3; *filaments* adnate at base to the *stipe* of the ovary. *Scales* 2. *Culms* wiry, branching; *leaves* narrow, often involute; *panicle* racemose.

☞ Awns *distinct, and not articulated with the palea,—the* middle one *bent backward, and sometimes contorted.*

1. A. dichótoma, *Mx.* Culms oblique, somewhat dichotomously branched; lateral awns minute,—the middle one about as long as the palea, and contorted.

FORKED ARISTIDA. Poverty-Grass.

Annual? *Culms* 9 to 15 inches long, oblique or decumbent, geniculate, smooth. *Leaves* 2 to 8 inches long, flat, with setaceous points: *sheaths* very short, open, hairy at throat. *Spikelets* elongated, slender, on clavate peduncles.

Hab. Dry, slaty hills: frequent. *Fl.* Aug. *Fr.* Sept.

2. A. grácilis, *Ell.* Culms erect, branched at base, very slender; lateral awns as long as the palea,—the middle one twice as long, bent back but not contorted.

A. stricta. *Fl. Cestr. ed.* 2. *p.* 53.

SLENDER ARISTIDA. Poverty-grass.

Annual. *Culms* 6 to 12 or 15 inches high, smooth. *Leaves* 1 to 6 inches long, setaceously narrow, erect, involute toward the apex; *sheaths* short, with long hairs at throat. *Spikelets* acicular, in a very slender erect racemose panicle.
Hab. Sterile old fields, and dry banks: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. These dry slender grasses are remarkably worthless, to the Farmer,—as their common name would indicate.

TRIBE 3. CHLORID'EAE.

Spikelets rarely 1- usually several-flowered, with the upper or terminal floret imperfect, disposed in *one-sided* racemose or digitate *spikes; glumes* persistent,—the *upper* one appearing as the *outer* one; *rachis* not jointed; *stamens* 2 or 3.

§ 1. Spikelets *strictly 1-flowered,—in pedunculate pendulous spikes.*

477. SPARTI'NA, *Schreber.*

[Gr. *Spartin*, or *Spartine*, a cord; from its long tough leaves.]

Spikelets much compressed, closely imbricated in 2 rows on the outer side of a *triangular rachis.* *Glumes* unequal, acute, or bristle-pointed, serrulate on the keel,—the *upper* one larger. *Paleae* membranaceous, awnless, shorter than the upper glume. *Stamens* 3. *Perennials*: *rhizomas* extensively creeping; *culms* simple, reed-like; *leaves* long, and sublinear; *spikes* racemose, smooth.

1. S. cynosuroides, *Willd.* Culms rather slender; leaves narrow, tapering to a point; spikes 5 to 10, scattered; glumes bristle-pointed.

CYNOSURUS-LIKE SPARTINA. Cord-grass.

Culm 3 to 5 feet high. *Leaves* 2 feet, or more, in length, and less than half an inch wide, inclining to become involute. *Spikes* 1½ to 3 inches long, alternate, on peduncles half an inch to 2 inches in length. *Anthers* pale yellow. *Styles* united to near the summit: *stigmas* white. *Seed* compressed.
Hab. Margin of the Schuylkill: rare. *Fl.* Aug. *Fr.* Sept.

§ 2. Spikelets 1½-*flowered;* i. e. *with* 1 (rarely 2 *or* 3) *perfect, and* 1 *imperfect, or rudimentary floret.*

478. BOUTELOU'A, *Lagasca.*

[Probably named after some Spanish Botanist.]

Spikelets crowded and closely sessile in a short spike, on one side of a *flat rachis,*—the *spikes* in a simple raceme. *Glumes* keeled,—the *lower* one shorter. *Lower palea* of the *perfect floret* 3-nerved, 3-toothed at apex,—the *upper palea* 2-nerved and 2-toothed, the nerves projecting in mucronate *points;* while in the pedicellate *abortive floret,* the nerves of the lower palea are extended into bristle-like *awns.* *Stamens* 3. *Perennial: culms* cespitose, erect, wiry; *leaves* and *sheaths* hairy; *spikes* short, sub-secund, often purplish.

1. B. racemòsa, *Lag.* Spikes numerous, distichously alternate, on short flat peduncles, spreading, finally deflected and turned to one side.

Atheropogon apludoides. *Muhl. & Fl. Cestr. ed.* 2. *p.* 81.

RACEMOSE BOUTELOUA.

Culms 1 to 3 or 4 feet high, often geniculate at base. *Leaves* 6 to 12 inches long, attenuate toward the apex, and inclining to became involute. *Spikes* 20 to 40,—

each about half an inch in length, and containing 6 or 8 *spikelets*, which are arranged in two rows on the under side of the spreading or reflected rachis. *Perfect florets* sessile; *anthers* bright red.
Hab. Dry banks; Serpentine rocks: not common. *Fl.* Aug. *Fr.* Sept.

Obs. This remarkable, and rather pretty grass, seems to be almost entirely restricted to Serpentine rocks, in Chester County. It has but little agricultural value.

§ 3. Spikelets *several-flowered;* pericarp *loose, like a utricle.*

479. ELEUSINE, *Gaertner.*

[From *Eleusis;* where *Ceres*, the Goddess of harvests, was worshipped.]

Spikelets 2- to 6-flowered, with a terminal naked rudiment, closely imbricate-spiked on one side of a *flattish rachis*,—the *spikes* digitate or fascicled. *Glumes* unequal, shorter than the florets, keeled, pointless. *Paleae* membranaceous, awnless,—the *lower* one ovate, keeled,—the *upper* one smaller, 2-keeled. *Stamens* 3. *Pericarp* thin and membranaceous, loose on the transversely *rugose seed.* *Annual: culms* low and spreading; *spikes* 2 to 4, or 6 (rarely solitary), pale green.

1. *E. Indica*, Gaertner. Culms branched at base, ascending, compressed; spikelets lance-ovate, about 5-flowered.

INDIAN ELEUSINE. Dog's-tail Grass.

Culms 6 to 12 or 18 inches long, oblique, or nearly procumbent, smooth. *Leaves* 2 to 12 inches long, rather crowded at the base of the culm, linear; *sheaths* loose, pilose at the throat. *Spikes* 1 or 2 to 4 inches in length, smooth. *Grain* triangular-ovoid, dark brown.
Hab. Farm-yards, &c. Nat. of India. *Fl.* Aug. *Fr.* Sept.

Obs. This is extensively naturalized, here,—and in the latter part of summer, makes a fine green carpeting for yards, and lanes, that had been previously naked and muddy. Cattle and hogs are fond of feeding on it.

TRIBE 4. FESTUCIN'EAE.

Spikelets several- (few- to many-) flowered, often with the *uppermost* (rarely the *lowest*) *floret* imperfect, or abortive,—usually disposed in *open panicles; paleae* pointless,—or the *lower* one sometimes tipt with a straight *awn*, or bristle; *stamens* 1 to 3; *scales* 2.

§ 1. Grain *free in the paleae, and smooth.*

A. Lowest floret *of the spikelet imperfect.*

480. PHRAGMITES, *Trinius.*

[Gr. *Phragmos*, a partition, or hedge; from its alleged use, as such.]

Spikelets lance-linear, 3- to 5- or 7-flowered; *florets* rather distant, on conspicuously *silky-bearded pedicels*,—all perfect and triandrous, except the *lowest*, which is sessile, and either neutral, or monandrous, and naked at base. *Glumes* shorter than the florets, very unequal, keeled, *paleae* slender, unequal,—the *lower* one much longer, with a long involute awn-like acumination. *Perennials: culm* simple, tall and stout; *leaves* broad; *panicle* terminal, large.

1. P. communis, *Trin.* Culm terete, smooth; leaves lanceolate; panicle loosely expanded; spikelets 3- to 5-flowered.
Arundo Phragmites. *L. & Fl. Cestr. ed.* 2. *p.* 61.
Common Phragmites. Reed-Grass.

Culm 8 to 12 feet high, and often an inch or more in diameter, at base. *Leaves* 1 to 2 feet long, and about 2 inches wide at base, attenuated at apex, glaucous, scabrous on the margins; *sheaths* closely embracing the culm. *Panicle* much branched,—the *branches* semi-verticillate, long and slender, with a tuft of soft hairs at base; *spikelets* usually 3-flowered,—the *lowest florets* staminate,—the *pedicels* of the *upper florets* finally clothed with white silky hairs which are nearly as long as the florets (though scarcely perceptible on the young panicle).
Hab. Swamps; Wynn's meadows, Brandywine: rare. *Fl.* Aug. *Fr.* Sept.

Obs. This stout grass—which attains to the usual size of *Broom-corn*—seems to be common to both hemispheres. It is, however, of little value in agriculture. A nearly allied plant (*Arundo Donax, L.*) is often seen in the yards and gardens of the curious, under the name of *cane.*

B. Lower florets *perfect,—the terminal ones abortive.*

a. Lower palea 2- *or* 3-*pointed at apex.*

481. TRICUS'PIS, *Beauvois.*

[Latin,—meaning 3-*pointed;* in reference to the lower palea.]

Spikelets subterete, 3- to 12- (usually 4- or 5-) flowered,—the terminal one abortive. *Glumes* unequal, mucronate. *Rachis* of the spikelet *bearded* below each floret. *Paleae* chartaceous,—the *lower* one much larger than the upper, convex, hairy on the back, 3-nerved, tricuspidate at apex by the projection of the nerves,—the *upper* palea emarginate, 2-keeled. *Stamens* 3. *Stigmas* plumose, dark purple. *Perennials: culms* erect, hard and smooth; *panicle* very loose, and spreading, usually purple.

1. T. sesleroides, *Torrey.* Points of the nerves, in the lower palea, scarcely exceeding the intermediate membranous teeth,—the apex thus appearing 5-toothed.
Sesleria-like Tricuspis. Tall Red-top.

Culm 3 to 4 or 5 feet high. *Leaves* 6 to 15 inches long; *sheaths* bearded at throat,—upper ones smooth, those below often quite hairy. *Panicle* somewhat nodding,—the *branches* alternate, or in pairs, long, flexuose, smooth, pilose in the axils.—*Spikelets* on short peduncles, alternate and rather distant on the upper part of the branches, usually 4-flowered. *Seed* oval, a little gibbous, 2 horned at apex.
Hab. Sandy banks, and old fields: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. This grass—though lauded by Pursh—is certainly of very little agricultural value.

b. Lower palea 1-*pointed, or mucronate.*

482. DAC'TYLIS, *L.*

[Gr. *Daktylos,* a finger; in reference to the form, or size, of the spikes.]

Spikelets 3- to 5-flowered, compressed, crowded in dense one-sided *paniculate clusters. Glumes* unequal, acuminate, ciliate-scabrous on the keel. *Paleae* nearly equal, acuminate,—the *lower* one emarginate, cuspidate, 5-nerved,—the *upper* one 2-keeled, bifid at apex.

Stamens 3. *Scales* bifid. *Grain* lance-oblong, acute at each end. *Perennials:* *culms* cespitose, rather stout; the clustered *spikelets* pale green.

1. D. GLOMERÀTA, L. Rough and glaucous; panicle distantly branched; spikelets clustered at the ends of the branches.

CLUSTERED DACTYLIS. Orchard-Grass. Rough Cock's-foot Grass.

Culms 2 to 3 or 4 feet high. *Leaves* 6 to 18 inches long; *sheaths* striate; *ligule* elongated, lacerate. *Panicle* racemose at summit, rather one-sided; *branches* 3 to 5, solitary, erect, subdivided toward the extremity; *spikelets* about 4-flowered.
Hab. Fields, orchards, &c. Nat. of Europe. *Fl.* May. *Fr.* June.

Obs. Cultivated to some extent, and naturalized among us. It is more valued for *pasture*, than for *hay*. It is of quick growth, and is speedily reproduced after being cut, or eaten down by Stock: so much so, that we may almost literally apply to it the lines of VIRGIL—

> "Et quantum longis carpent armenta diebus
> Exiguà tantum gelidus ros nocte reponet."—*Georg.* 2.

or, as SOTHEBY renders them—

> "Cool dews restore beneath night's transient hours,
> All that the herd each live-long days devours."

c. Lower palea *mostly pointless.* ‡Glumes *very dissimilar.*

483. REBOULEA, *Kunth.*

[Named from *Eugene de Reboul*)—an Italian Botanist.]

Spikelets usually 2-flowered, with an abortive pedicel-like rudiment of a third, in a contracted slender panicle. *Glumes* nearly equal in length, rather shorter than the florets,—the *lower* one narrowly linear, 1-nerved and keeled,—the *upper* one obovate, 3-nerved.—*Lower palea* oblong, obtuse, chartaceous,—the *upper* one very thin and hyaline. *Stamens* 3. *Grain* linear-oblong, not grooved. *Perennials:* *culms* slender; *leaves* and *sheaths* more or less pubescent.

1. R. Pennsylvánica, *A. Gray.* Panicle long and slender, rather loose; spikelets a little compressed, shining; upper glume barely obtuse.
Kœleria Pennsylvanica. *DC. & Fl. Cestr. ed.* 2. *p.* 65.

PENNSYLVANIAN REBOULEA.

Culms 2 to 3 feet high. *Leaves* 2 to 6 inches long; *sheathe* sometimes smoothish. *Panicle* 4 to 6 or 8 inches long, very slender; *spikelets* not crowded, pale yellowish-green.
Hab. Moist woodlands, and low grounds; frequent. *Fl.* May. *Fr.* July.

2. R. obtusàta, *A. Gray.* Panicle oblong, rather dense, somewhat interrupted; upper glume rounded-truncate, roughish.
Kœleria truncata. *Torrey. & Fl. Cestr. ed.* 2. *p.* 66.

BLUNTED REBOULEA.

Culms about 2 feet high. *Leaves* 3 to 8 inches long; *sheaths* striate, usually softly pilose. *Panicle* 3 to 4 or 5 inches long, contracted,—the branches short and nearly erect; *spikelets* crowded, glaucous or ash-colored,—appearing somewhat acuminate, by reason of the paleae projecting beyond the glumes.
Hab. Fields and open woodlands: not very common. *Fl.* June. *Fr.* July.

‡‡ Glumes *nearly similar, though often unequal.*

+– Lower palea *convex, not keeled.*

484. GLYCE'RIA, *R. Brown.*

[Gr. *Glykeros*, sweet; alluding to the sweet taste of the seeds.]

Spikelets several- or many-flowered; *florets* oblong, sessile, early deciduous with the joints of the *rachis*, leaving the persistent membranaceous *glumes* behind. *Paleae* nearly equal, naked, somewhat chartaceous,—the *lower* one mostly 7-nerved, usually scarious at apex,—*upper* one 2-keeled. *Stamens* 3, or 2. *Scales* 2, truncate, more or less connate. *Stigmas* plumose, the hairs dichotomous; *grain* oblong. *Perennial*, smooth, semi-aquatic grasses: *culms* simple, often tall; *leaves* flat; *sheaths* nearly *entire*, or united round the culm.

† Spikelets *ovate;* upper palea *entire, and very obtuse;* stamens 2.

1. G. Canadénsis, *Trinius.* Panicle oblong-pyramidal, finally spreading; spikelets 6- to 8-flowered, drooping, becoming broad; glumes purplish.

CANADIAN GLYCERIA.

Culm 2 to 3 or 4 feet high. *Leaves* 6 to 15 inches long, roughish and somewhat glaucous; *sheaths* smooth; *ligule* ovate. *Panicle* 6 to 9 inches long,—the *branches* virgate, at length much spreading; *spikelets* about two lines long; *glumes* much shorter than the florets; *grain* oblong, brown.

Hab. Margins of swamps: not common. *Fl.* July. *Fr.* Aug.

Obs. Collected on the northern side of the County, in 1841, by Mr. JOHN M'MINN. The *G. elongata, Trin.*—(inserted in the 2nd Edition, as *Poa elongata, Torrey*—) seems yet to be an uncertain plant, of the County; and therefore is now omitted.

†† Spikelets *ovate-oblong, diffusely panicled;* upper palea *2-toothed at apex;* stamens 3.

2. G. nervàta, *Trin.* Spikelets numerous, 3- to 5- or 7-flowered, nodding on the very slender branches; paleae oval, obtuse, nearly equal,—the lower one prominently nerved.

Poa nervata. *Willd. & Fl. Cestr. ed.* 2. *p.* 76.

NERVED GLYCERIA.

Culm 3 to 4 feet high, slender. *Leaves* 6 to 15 inches long, rough on the upper surface; *sheaths* striate, roughish; *ligule* oblong-ovate. *Panicle* with the loose spreading branches by twos or threes, subdivided, angular and scabrous; *florets* caducous; *glumes* very small; *upper palea* subcoriaceous, concave above; *grain* ovate, acute, dark brown.

Hab. Swamps, and along muddy rivulets: frequent. *Fl.* June. *Fr.* July.

††† Spikelets *linear, appressed on the branches of a racemose elongated panicle;* ligule *long*; stamens 3.

3. G. fluìtans, *R. Brown.* Spikelets 7- to 13-flowered; lower palea oblong, obtuse, erosely dentate at apex, longer than the upper one.

FLOATING GLYCERIA. Manna-grass.

Culm 4 to 6 feet high, erect, or ascending, compressed. *Leaves* 4 to 10 inches long, lance-linear, scabrous on the margins and upper surface; *sheaths* nerved, smooth; *ligule* very large, oblong. *Panicle* 9 to 15 inches long, partly concealed in the sheath of the upper leaf; *branches* mostly simple; *spikelets* about an inch long; *anthers* large, yellow; *scales* subcordate; *grain* linear-oblong.
Hab. Shallow ponds, and wet places: frequent. *Fl.* June. *Fr.* July.

+– +– Lower palea *usually compressed, or keeled;* panicle *generally open.*

485. PO'A, *L.*

[An ancient Greek name for herbage, or pasture.]

Spikelets ovate, or oblong, compressed, few- or several-flowered.—*Glumes* mostly shorter than the florets,—the *lower* one smaller. *Lower palea* herbaceous, with a scarious margin, keeled, or convex, pointless, 5-nerved,—the nerves often clothed at base with *cobweb-like hairs; upper palea* rather smaller, membranaceous, 2-keeled, deciduous with the lower one. *Stamens* 2, or 3. *Stigmas* simply plumose. *Grain* oblong. *Culms* cespitose.

† Panicle-branches *mostly* 1 *or* 2 *at a node.*

* Branches *smooth and short;* florets *not webbed at base.*

1. *P. annua*, L. Culms short, spreading, compressed; leaves short; spikelets 3- to 7-flowered, on short pedicels, rather crowded.
ANNUAL POA. Early, or Dwarf Meadow-grass.

Culms 3 to 9 inches long, often nearly procumbent, geniculate, glabrous. *Leaves* 1 to 3 inches long; *sheaths* loose, smooth; *ligule* oblong, dentate. *Panicle* often rather secund,—the *branches* solitary, subdivided.
Hab. Yards; along foot-paths, &c. Nat. of Europe. *Fl.* April. *Fr.* June.

Obs. I incline to think this humble species is not indigenous, here. STILLINGFLEET says, it "makes the finest of turfs. It grows every where by way sides, and on rich commons (in England). It is called in some parts the Suffolk Grass."

** Panicle-branches *long, roughish;* florets *webbed at base.*

2. P. púngens, *Nuttall.* Culms compressed; radical leaves long, linear,—those of the culm few, short, and cuspidate; spikelets 3- to 5-flowered, crowded at the ends of the branches.
PUNGENT POA.

Perennial. Culms 1 to 2 feet long, glabrous, somewhat cespitose. *Leaves* 2 to 9 inches in length,—usually 2 on the culm; *sheaths* striate, roughish, rather loose; *ligule* truncate, lacerate, sometimes abruptly acuminate. *Panicle* nearly simple, small, spreading below, contracted and almost racemose at summit; *branches* in twos or threes; *grain* oblong, 2-horned at apex.
Hab. Hilly woodlands, along Brandywine: not common. *Fl.* April. *Fr.* May.

Obs. This early-flowering species (which by a singular misnomer has been also called *P. autumnalis,*) is frequent in woodlands along the Brandywine; but I have rarely met with it elsewhere.

†† Panicle-branches *in semi-verticils of* 3 *to* 5, *or more;* spikelets *subsessile, crowded on the branches;* florets *more or less webbed at base.*

3. *P. trivialis*, L. Culms sub-terete and, with the sheaths, retrorsely scabrous; ligule elongated, acuminate; spikelets 2- to 3-flowered; florets slightly webbed.

TRIVIAL (OR WAY-SIDE) POA. Rough Meadow-grass.

Perennial. *Culms* 1 to 2 or 3 feet high, often declined at base, geniculate, stoloniferous. *Leaves* 3 to 6 or 8 inches long; *sheaths* striate-nerved; *ligule* remarkably large and whitish. *Panicle* loose, expanding.

Hab. Moist places. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. This has considerable resemblance to the following one,—but is decidedly inferior in value. The features mentioned will readily serve to distinguish them.

4. *P. praténsis*, L. Culms erect, terete and, with the sheaths, smooth; ligule short, truncate; spikelets 3- to 5-flowered; florets conspicuously webbed.

MEADOW POA. Smooth Meadow-grass. Green-Grass.

Perennial. *Culms* 1 to 2 or 3 feet high. *Radical leaves* often very numerous, and very long (1 to 2 feet, or more, in rich soils), scarcely a line wide, and exactly linear, terminating abruptly in a boat-shaped or keeled point, deep-green,—*culm leaves* shorter than the sheaths. *Panicle* at first rather contracted, finally expanding and pyramidal.

Hab. Fields, meadows, &c. Nat. of Europe. *Fl.* May. *Fr.* July.

Obs. This varies greatly, in size and appearance, when growing in different soils and situations. It is believed to be a foreigner; but is thoroughly naturalized. In our best soils, the radical leaves are very luxuriant,—when it is known by the name of "Green-Grass." It is the profusion of the nutritious *radical leaves*, which constitutes the chief excellence of this grass,—which is, indeed, the most valuable known in our pastures. The slender *culms* afford a good material for the manufacture of *Leghorn hats.*

5. *P. compréssa*, L. Culms ascending, much compressed and, with the sheaths, smooth; panicle contracted, somewhat one-sided.

COMPRESSED POA. Blue-Grass. Wire-Grass.

Perennial. *Rhizomas* branching and creeping. *Culms* 9 to 18 inches long, oblique and geniculate, often procumbent and radicating at base. *Leaves* 2 or 3 to 5 or 6 inches long, linear, keeled, and, with the culm, of a bluish-green, or glaucous hue. *Panicle* at first almost spicate, finally expanding; *spikelets* 5- or 6-flowered, often purplish.

Hab. Fields, and pastures. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. This species is also thoroughly naturalized, and is universally known, here, by the name of *Blue-grass*,—though, in *Kentucky*, that name is given to the preceding (our *Green-Grass*). It affords much less pasture than the Green-Grass,—and therefore is less valuable; but what there *is*, is believed to be even more nutritious. The *rhizomas* are exceedingly tenacious of life,—which renders the grass rather troublesome, in cultivated grounds, among other crops.

486. ERAGROS'TIS, *Beauvois.*

[Perhaps from the Gr. *Era*, the earth, and *Agrostis;* being sometimes procumbent.]

Spikelets nearly as in *Poa*, few- or many-flowered, in an open panicle. *Glumes* unequal. *Lower palea* 3-nerved, not webbed at base,—the *upper* one persistent on the rachis. Chiefly *annuals: culms* often branching, geniculate and oblique, or sometimes creeping; *ligule* short, often bearded.

1. *E. megastàchya*, Link. Panicle-branches single, or in pairs, mostly naked in the axils; spikelets 8- to 30- or 40-flowered, usually lead-colored.
Poa Eragrostis. *L. & Fl. Cestr. ed.* 2. *p.* 79.

LARGE-SPIKED ERAGROSTIS.

Culms 6 inches to 1 or even 2 feet long, somewhat decumbent, smooth. *Leaves* 3 to 6 inches in length, lance-linear; *sheaths* striate, smooth, somewhat pilose at throat. *Panicle* pyramidal,—the *branches* flexuose, scabrous, the subdivisions often bearing 2, 3, or 4 ovate-oblong *spikelets; grain* roundish-ovoid, brown.
Hab. Gardens, roadsides, &c. Nat. of Europe. *Fl.* Aug. *Fr.* Sept.

Obs. This grass, when fresh gathered, emits a peculiar and rather unpleasant odor,—as if scorched.

2. *E. pilòsa*, Beauvois. Lower panicle-branches subverticillate, hairy in the axils; sheaths with long white hairs at throat; spikelets 5- to 12-flowered; glumes very unequal.
Poa pilosa. *L. & Fl. Cestr. ed.* 2. *p.* 78.

HAIRY ERAGROSTIS.

Culms 6 to 12 inches long, often decumbent and geniculate at base, slender, smooth. *Leaves* 1 to 3 or 4 inches in length. *Panicle* loose; branches flexuose; *spikelets* sub-linear; *grain* oblong, brown.
Hab. Gardens, roadsides, &c. Nat. of Europe. *Fl.* July. *Fr.* Sept.

3. E. capillàris, *Nees.* Panicle-branches very slender, naked in the axils; spikelets about 3-flowered, green, on long capillary pedicels.
Poa capillaris. *L. & Fl. Cestr. ed.* 2. *p.* 77.

CAPILLARY, OR HAIR-PANICLED ERAGROSTIS.

Culms 6 to 12 inches long, oblique, or erect, somewhat compressed, much branched at base, smooth. *Leaves* 3 to 6 inches in length; *sheaths* rather loose, often ciliate along the margins. *Panicle* long (often longer than the culm), loose, much branched; *spikelets* ovate, sometimes 5-flowered; *glumes* nearly equal; *grain* oval, gibbous at base, reddish-brown.
Hab. Sandy soils; slaty hills: not very common. *Fl.* Aug. *Fr.* Sept.

Obs. A *variety* of this,—with an erect culm, long radical leaves, and a large capillary panicle, with spikelets 1- to 3-flowered,—occurs on our slaty hills.

4. E. spectábilis, *A. Gray.* Panicle-branches rigid, finally divaricate, bearded in the axils; spikelets 5- to 10-flowered, mostly purple.
Poa hirsuta. *Fl. Cestr. ed.* 2. *p.* 78. not of *Mx.*

SHOWY ERAGROSTIS.

Culm 9 to 18 inches long, rather stout, mostly simple and smooth. *Leaves* 6 to 15 inches long; *sheaths* loose, longer than the internodes,—the lower ones hairy, upper ones smooth; *ligule* densely bearded. *Panicle* 8 to 15 inches long, much branched; *spikelets* lance-oblong; *glumes* nearly equal; *grain* minute, purple.
Hab. Sterile, sandy fields; roadsides, &c.: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. This handsome, showy grass, has no agricultural value; and the same may be said of all the preceding species.

§ 2. Grain *mostly adherent to the upper palea, hairy at summit;* lower palea *chartaceous, or coriaceous.*

487. FESTUCA, *L.*

[An ancient Latin name.]

Spikelets oblong, subterete, rather dry and harsh, 2- 3- or many-flowered, panicled, or racemose; *florets* not cobwebby at base.—*Glumes* unequal, mostly keeled, shorter than the florets. *Lower palea* subcoriaceous, convex, nerveless, not scariously margined, either awned, mucronate, or pointless. *Stamens* mostly 3.

† Florets *awned from the tip;* panicle *contracted, racemose.*

1. F. tenélla, *Willd.* Culm filiform; leaves setaceous; panicle somewhat secund; spikelets 3- to 9-flowered.
TENDER, OR LITTLE FESTUCA.

Annual. Culm 6 to 12 inches high, often growing in bunches. *Leaves* 1 to 3 inches long, setaceously linear; *sheaths* slightly pubescent. *Panicle* 2 to 4 inches long,—the lower branches in pairs; *spikelets* usually 5- to 7-flowered, becoming brown when old; *grain* linear, grooved on the upper side.
Hab. Dry, sterile banks: frequent. *Fl.* June. *Fr.* July.

†† Florets *pointless, or merely mucronate;* panicle *open;* grain *sometimes free.*

2. *F. elàtior,* L. Panicle spreading, and somewhat nodding; spikelets 4- to 6-flowered; lower palea somewhat mucronate.
TALLER FESTUCA.

Perennial. Culm 3 to 4 or 5 feet high. *Leaves* 9 to 15 inches long; *sheaths* smooth; *ligule* very short. *Panicle* 5 to 10 inches long, generally nodding; *branches* mostly in pairs. *Grain* oval, concave on the upper side.
Hab. Wet meadows. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. This is partially naturalized,—but is much less common, and also less valuable, than the next following; to which, however, it is nearly allied.

3. *F. praténsis,* Hudson. Panicle rather erect and secund; spikelets 7- to 9-flowered; lower palea never mucronate.
MEADOW FESTUCA. Fescue-Grass.

Perennial. Culm 2 to 3 feet high, smooth. *Leaves* 4 to 8 and 12 inches long, lance-linear, tapering to a point, smooth and shining, yellowish-green,—the *radical* ones numerous; *sheaths* smooth; *ligule* very short or obsolete. *Panicle* 4 to 8 inches long; *branches* generally single, often subdivided; *spikelets* racemose on the branches, frequently purplish.
Hab. Fields, waysides, &c. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. This is a valuable grass,—and has become thoroughly naturalized in all our good lands.

4. F. nùtans, *Willd.* Panicle of several long slender naked branches, which are mostly in pairs; spikelets subterminal, pedicellate, finally nodding, about 3-flowered.
NODDING FESTUCA.

Perennial. Culm about 3 feet high, rather slender, smooth; *nodes* blackish.—*Leaves* 6 to 12 inches long, deep green; *sheaths* nerved, often pilose; *ligule* short, serrate. *Panicle* very loose; *spikelets* few, 2 to 5 flowered; *florets* rather tumid.
Hab. Moist woodlands: frequent. *Fl.* June. *Fr.* July.

488. BRO'MUS, *L.*

[Gr. *Broma*, food; *Bromos* was an ancient name for Oats.]

Spikelets ovate- or oblong-lanceolate, somewhat compressed, 3- or 5- to many-flowered, in a loose panicle. *Glumes* unequal,—the *lower*, 1- to 5-nerved,—the *upper*, 3- to 9-nerved. *Lower palea* convex, bifid at apex, usually *awned* a little below the tip; *upper palea* pectinate-ciliate on the two keels, finally adhering to the groove of the linear-oblong *grain*. *Stamens* 3. Coarse grasses, with rather large spikelets, which are finally nodding.

1. B. ciliàtus, *L.* Panicle compound, with elongated branches; spikelets lanceolate; florets pubescent, and conspicuously ciliate, rather longer than the straight awn.

B. pubescens. *Muhl. & Fl. Cestr. ed.* 2. *p.* 70.

CILIATE BROMUS. Wild Brome-grass.

Perennial. *Culm* 3 to 4 feet high, smooth above; *nodes* black. *Leaves* 6 to 12 inches long, pilose on the upper surface; *sheaths* nerved,—the lower ones retrorsely pilose, the upper ones smooth. *Panicle* very loose,—the *branches* in pairs, or 3 to 5, slender, subdivided, flexuose and sharply scabrous; *spikelets* about 10-flowered; *lower glume* smaller, almost subulate, 1-nerved,—the upper one 3-nerved. *Lower palea* 7-nerved, clothed with appressed hairs.

Hab. Woodlands: frequent. *Fl.* June. *Fr.* July.

2. *B. secalìnus*, L. Panicle-branches nearly simple; spikelets ovate-oblong, somewhat turgid; florets smooth, distinct, longer than the flexuose awn.

RYE BROMUS. Cheat. Chess.

Annual. *Culm* 3 to 4 feet high, smooth; *nodes* pubescent. *Leaves* 6 to 12 inches long, rough and pilose on the upper surface; *sheaths* smooth; *ligule* oblong, laciniate-dentate. *Panicle* 4 to 8 inches long,—the *branches* semi-verticillate; rough and pubescent; *spikelets* 8- or 10-flowered; *lower glume* shorter, 5-nerved, sometimes mucronate,—the *upper* one 7-nerved, obtuse, or emarginate. *Lower palea* obscurely 7-nerved, slightly pubescent near the apex,—the *awn* sometimes wanting, or a mere rudiment. *Grain* closely embraced by the lower palea,—the upper palea doubled in the groove, and adherent.

Hab. Grain-fields, and pastures. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. This foreigner is a well-known intruder among our crops of Wheat and Rye,—and often appears in the same fields, for a year or two, after those crops; but, being an annual, it is soon choked out by the perennial grasses. The vulgar error, that this plant is *transformed Wheat*, came to us with the earliest Immigrants,—and, notwithstanding the boasted "march of mind," it yet prevails among a certain class of our farmers, to a considerable extent. Any one, however, who has had an opportunity to observe the uniformity and constancy of the Laws which govern the development of living bodies, and yet persists in believing in the transmutation of genera and species, may be fairly placed in the category of him who believes in equivocal generation,—of whom it is said, in the *Amœnitates Academicae*, "certè fungum habet pro cerebro."

3. *B. móllis?* L. Panicle erect, somewhat spreading; spikelets ovate-lanceolate, compressed; florets pubescent, closely imbricated, about as long as the straight awn.

B. arvensis. *L? & Fl. Cestr. ed.* 2. *p.* 69.

SOFT BROMUS.

Biennial? *Culm* about 2 feet high, smooth; *nodes* nearly black, retrorsely pubescent. *Leaves* 6 to 12 inches long, hairy on both sides; *sheaths* retrorsely and softly pilose; *ligule* oblong, lacerate. *Panicle-branches* often simple, sometimes subdivided, rough; *spikelets* about 7-flowered.

Hab. Moist meadows; pastures, &c. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. I am not quite certain, as to this species; but I now incline to think it may be the *B. mollis*, of the European Botanists.

TRIBE 5. HORDEIN'EAE.

Spikelets several- (rarely 1-) flowered, sessile on opposite sides of a flexuose *toothed rachis*, forming a *solitary spike*,—the terminal or lateral florets often abortive; *glumes* sometimes collateral, occasionally wanting; *paleae* awned, or awnless; *stamens* mostly 3.

§ 1. Spikelets *single at each joint of the rachis, several-flowered.*

489. TRIT'ICUM, *L.*

[Latin, *tritus*, a rubbing, or grinding; the grain being so treated.]

Spikelets 3- to several-flowered, compressed, with the *flat side* against the rachis; *florets* distichous. *Glumes* nearly equal and opposite. *Lower palea* very like the glumes, convex, awned, or merely mucronate; the *upper* one flat, bristly-ciliate on the two keels, free, or adherent to the groove of the grain. *Ovary* pubescent at summit. *Annuals*, or *perennials*,—the former yielding bread-corn.

† ANNUAL: Spike 4-*sided*; glumes *ventricose, obtuse.* [GENUINE TRITICUM].

1. T. VULGÀRE, Villars. Spike imbricated, with a tough rachis; spikelets 4- or 5-flowered, broad-ovate, obtuse; florets mucronate, or often awned; grain free.

T. sativum. *L. & Fl. Cestr. ed.* 2. *p.* 86.

COMMON TRITICUM. Wheat. Winter, and Spring Wheat.

Culm 2 or 3 to 5 feet high, terete, smooth; *nodes* striate, pubescent. *Leaves* 6 to 15 inches long; *sheaths* smooth; *ligule* truncate, dentate. *Spike* 3 to 5 inches in length; *rachis* flat and broad, hirsute on the margins; *spikelets* sessile, compressed at apex; *florets* usually 3 fertile and 2 abortive,—the penultimate one pistillate, the terminal one neutral, and pedicellate; *grain* ovoid-oblong, grooved on the upper side, whitish, pale yellowish, or brown.

Hab. Fields. Native Country uncertain. *Fl.* June. *Fr.* July.

Obs. Long culture, in various soils and climates, has produced numerous *varieties* of this most important grass; in some of which the chaff is awnless, and the grain nearly white,—in others, the lower palea terminates in a long awn, and the grain is reddish or dark brown.

†† PERENNIAL: Spike *distichous*; glumes *lanceolate, often acuminate.* [COUCH GRASSES].

2. *T. rèpens*, L. Rhizomas creeping; spike compressed; spikelets 4- to 8-flowered, lance-oblong, acute; florets mostly awnless.

CREEPING TRITICUM. Couch-grass.

Rhizomas jointed, white. *Plant* sometimes bluish-glaucous. *Culms* about 2 feet high, smooth. *Leaves* 4 to 12 inches long; *sheaths* smooth; *ligule* short, truncate. *Spike* 3 to 5 inches long; *rachis* flexuose, flat, mostly scabrous on the

margins; *glumes* acuminate, keeled, strongly 5- or 7-nerved, roughish,—the outer margin broader; *lower palea* acuminate, or mucronate, 5-nerved, smooth.
Hab. Pastures, and Lots. Nat. of Europe. *Fl.* July. *Fr.* Aug.

Obs. This species—which is quite distinct in habit from the *geniune Wheat*—is gradually extending itself over the County; and will no doubt become troublesome, in our cultivated grounds, by reason of the great tenacity of life in its *rhizomas*, or creeping subterranean stems.

490. SECA'LE, *L.*

[Latin, *secare*, to cut; or perhaps from the Celtic, *Sega*, a sickle.]

Spikelets 2-flowered, arranged as in *Triticum*. *Glumes* sub-opposite, keeled. *Lower palea* awned at apex, keeled, with unequal sides,—the outer side broader and thicker; *upper palea* shorter, 2-keeled. *Grain* free, pubescent at summit. A tall, *annual*, bluish-glaucous grass; *florets* long-awned.

1. S. CEREÀLE, L. Spike compressed, linear; glumes subulate; lower palea bristly-ciliate on the keel and outer margin.
HARVEST SECALE. Rye. Common Rye.

Culm 4 to 6 feet high, hairy near the spike. *Leaves* 6 to 18 inches long; *sheaths* membranaceous, smooth; *ligule* short, dentate. *Spike* 4 to 6 inches long, 2-sided and flattish; *spikelets* mostly 2-flowered, with an awn-like rudiment of a third.—*Grain* oblong, subcylindrical, grooved on the upper side, dusky brown.
Hab. Fields. Nat. of the East. *Fl.* June. *Fr.* July.

Obs. Being in quality decidedly inferior to *Wheat*, this grain is only partially cultivated, and that on our thin slaty soils, where it succeeds best.

491. LO'LIUM, *L.*

[The ancient Latin name.]

Spikelets many-flowered, alternate, distichously arranged in a simple terminal *spike*,—with the *edge* of the spikelets to the *common rachis*. *Glumes* (except at the terminal spikelet) only one, and that on the outer side; for the rest, much resembling the *Couch Grasses*.—*Grain* adherent to the upper palea, smooth.

1. *L. perénne*, L. Spikelets compressed, longer than the glumes, about 7-flowered; florets mostly awnless.
PERENNIAL LOLIUM. Rye- or Ray-grass. Darnel.

Perennial. Culm 1 to 2 feet high, smooth. *Leaves* 4 to 10 inches long, shining green; *sheaths* smooth; *ligule* truncate. *Spike* about 6 inches long; *rachis* flexuose, channelled or concave opposite the spikelets. *Spikelets* 12 to 20, a little distant,—each sessile in the axil of a single *glume*, which resembles a short rigid leaf.
Hab. Meadows, and Lots. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. This has been introduced, as suitable for Lawns, &c. and has become partially naturalized; but it does not seem to command the attention of our farmers—either for pasture, or hay. STILLINGFLEET says, "many are tempted by the facility of procuring the seed of this grass to lay down grounds near their houses, where they want to have a fine turf with it; for which purpose, unless the soil be very rich, a worse grass cannot be sown, as it will certainly die off in a very few years intirely."

§ 2. Spikelets 2 *to* 4 *at each joint of the rachis;* glumes *collateral, or wanting.*

492. E'LYMUS, *L.*

[An ancient Greek name, of obscure derivation.]

Spikelets mostly 2 at each joint of the rachis, all fertile, each 2- to 7-flowered,—the terminal floret abortive. *Glumes* nearly equal, placed side by side in front of the spikelets, rarely wanting. *Paleae* coriaceous,—the *lower* one convex, usually awned at apex. *Grain* adherent to the involving paleae, pubescent at summit. *Perennial* grasses,—often with spikes somewhat resembling those of *Barley*, or *Rye.*

† Glumes *unequal-sided, rigid, nerved and awned.*

1. E. Virginicus, *L.* Spike erect, straight, dense and thickish; spikelets about 3-flowered; glumes linear-lanceolate; florets smoothish.

VIRGINIAN ELYMUS. Wild Rye. Lyme-Grass.

Culm 2 to 3 feet high, smooth. *Leaves* 6 to 12 inches long, broadish, scabrous; *sheaths* nerved, sometimes pubescent; *spike* 3 to 5 inches long; *rachis* smoothish. *Hab.* Moist, low grounds; along streams: frequent. *Fl.* July. *Fr.* Sept.

2. E. Canadénsis, *L.* Spike rather loose, curving or somewhat nodding; spikelets 2- to 5-flowered; glumes lance-subulate; florets hairy.

CANADIAN ELYMUS.

Culm 3 or 4 feet high, rather stout, smooth. *Leaves* 6 to 12 inches long, roughish, green, and sometimes glaucous; *sheaths* smooth. *Spike* 4 to 8 inches long; *rachis* hirsute.

Hab. Low grounds; along streams: frequent. *Fl.* Aug. *Fr.* Sept.

3. E. striàtus, *Willd.* Spike rather dense, but slender, sometimes nodding; spikelets 1- to 3-flowered; glumes subulate; rachis and florets hispidly pilose.

E. villòsus. *Muhl. & Fl. Cestr. ed.* 2. *p.* 84.

STRIATE ELYMUS.

Culm 2 to 3 feet high, rather slender, striate, smooth. *Leaves* 6 to 8 inches long, pubescent on the upper surface, scabrous on the margins; *sheaths* hairy, or the upper ones smoothish. *Spike* 2 to 3 inches long, at first erect, finally loose and somewhat nodding; *rachis* villous.

Hab. Along streams: frequent. *Fl.* July. *Fr.* Sept.

†† Glumes *mere rudiments, or wanting; when present, awn-like.*

4. E. Hys'trix, *L.* Spike erect, open; spikelets about 3-flowered, distant, diverging; florets smoothish, long-awned.

PORCUPINE ELYMUS. Bottle-brush Grass.

Culm 2 to 4 feet high, smooth. *Leaves* 4 to 8 inches long, rough on the upper surface, often glaucous; *sheaths* smooth. *Spike* 3 to 6 inches long; *rachis* smoothish, serrulate on the margins; *spikelets* finally spreading almost horizontally,—often 3 at each joint of the rachis; *glumes* generally wanting, or mere callous rudiments,—or sometimes the upper and lower spikelets have one or two subulate glumes, as long as the florets.

Hab. Moist, rocky woodlands: frequent. *Fl.* July. *Fr.* Aug.

Obs. The expanded bristly spike of this species somewhat resembles an Apothecary's bottle-brush.

493. HOR'DEUM, *L.*

[The ancient Latin name.]

Spikelets 1-flowered (with a subulate rudiment of second floret), arranged in *threes* at the joints of the rachis, but the lateral ones often abortive. *Glumes* collateral, lance-linear, rigid, subulate-awned. *Paleae* herbaceous,—the *lower* or front one convex, long-awned at apex. *Stamens* included. *Grain* oblong, pubescent at summit, usually adherent to the paleae.

1. H. VULGÀRE, L. Spikelets all fertile, and awned,—arranged so as to form a 4- (or somewhat 6-) sided spike.

COMMON HORDEUM. Four-rowed Barley.

Annual. *Culm* 2 to 3 feet high, smooth. *Leaves* 6 to 15 inches long; *sheaths* smooth, auriculate at throat. *Spike* about 3 inches long; *rachis* pubescent on the margins.

Hab. Fields. Nat. of Sicilly and Tartary. *Fl.* May. *Fr.* June.

2. H. DIS'TICHUM, L. Lateral spikelets abortive and awnless,—the fertile ones distichous, forming a 2-sided spike.

DISTICHOUS HORDEUM. Two-rowed Barley.

Annual. *Culm* 2 to 3 feet high, smooth. *Leaves* 6 to 15 inches long; *sheaths* smooth, auriculate at throat. *Spike* 3 to 4 inches in length; *rachis* hirsute on the margins.

Hab. Fields. Nat. of Tartary. *Fl.* June. *Fr.* July.

Obs. Both species were formerly much cultivated, in this County; but, of late, the culture seems to be transferred to western New York.

TRIBE 6. AVE'NEAE.

Spikelets 2- or several-flowered, panicled,—the terminal floret mostly abortive; *glumes* and *paleae* membranaceous, or chartaceous,—the *lower palea* mostly bearing a bent or twisted *awn* on the back; *stamens* 3.

§ 1. Lower palea 3- *to* 5-*nerved, thin and membranaceous.*

494. AI'RA, *L.*

[An ancient Greek name, for another grass.]

Spikelets 2-flowered, in an open diffuse panicle; *florets* small, both perfect (often with an abortive third one), sometimes equalling, but usually shorter than the membranaceous shining *glumes*. *Paleae* nearly equal, hairy at base,—the *lower* one 3- to 5-nerved, lacerate-toothed at apex, awned on the back below the middle. *Grain* oblong, smooth. Dry, wiry, slender grasses, with smooth *culms*, and lead-colored *glumes*.

1. A. caespitòsa, *L.* Leaves flat, roughish; lower palea 4-toothed at the truncate apex; awn short, and mostly straight.

CESPITOSE AIRA.

Perennial. *Culms* 2 to 3 feet high, growing in *tussocks*. *Leaves* 6 to 15 inches long, narrow, scabrous on the upper surface; *sheaths* smooth; *ligule* elongated, acuminate. *Panicle* oblong, at first contracted, finally diffuse; *branches* semi-verticillate, capillary, sharply scabrous; *florets* as long or rather longer than the bluish *glumes*. *Grain* free, not grooved.

Hab. Moist places, on Serpentine rock: frequent there. *Fl.* May. *Fr.* July.

Obs. This is not generally diffused,—but seems to be restricted to Serpentine banks. The *A. flexuosa* is so uncertain, as a Chester County plant, that I think it best to omit it, for the present.

495. TRISE'TUM, *Persoon.*

[Latin; meaning *three bristles*; a feature of the lower palea.]

Spikelets 2- to several-flowered, usually in a contracted panicle. *Lower palea* keeled, bicuspidate at apex, and awned below the tip: otherwise nearly as in *Aira*. Slender *perennials*,—intermediate between *Aira* and *Avena*.

1. T. palústre, *Torrey.* Smooth; panicle long and slender, somewhat nodding, yellowish-green; spikelets much compressed, 2- to 3-flowered.

Avena palustris. *Mx. & Fl. Cestr. ed.* 2. *p.* 67.

MARSH TRISETUM.

Culm 2 to 3 feet high; *nodes* contracted. *Leaves* 2 to 4 inches long, roughish; *ligule* oblong, lacerate. *Panicle* 5 or 6 inches long, often somewhat secund; *branches* semi-verticillate; *spikelets* all pedunculate; *glumes* nearly equal, rather shorter than the florets; *upper floret* on a hairy pedicel, with the *awn* of the lower palea contorted, or bent, as long as the floret; *lower floret* often awnless,—the lower palea merely bicuspidate. *Grain* compressed, free.

Hab. Swampy meadows: frequent. *Fl.* June. *Fr.* July.

§ 2. Lower palea 7- *to many-nerved, chartaceous, or subcoriaceous.*

496. DANTHO'NIA, *DC.*

[Named after *M. Danthoine*,—a French Botanist.]

Spikelets 2- to 7-flowered, in a racemose panicle. *Glumes* nearly equal, awnless, loose, longer than the imbricated florets. *Paleae* hairy at base,—the *lower* one bifid at apex, with a flattish twisted *awn* (composed of the 3 middle nerves,) between the segments. *Grain* smooth and free.

1. D. spicàta, *Beauvois.* Leaves short, involute-subulate; panicle simple, rather secund; spikelets about 7-flowered.

SPICATE DANTHONIA. Wild Oat-grass.

Perennial. Culms 12 to 18 inches long, slender, somewhat cespitose, often a little decumbent at base. *Lower leaves* 3 to 6 inches long; *culm leaves* short, erect, subulate; *sheaths* pilose at throat, and near the nodes; *ligule* very short. *Panicle* short, erect, sometimes the lower branches divided; *spikelets* 3 to 5,—occasionally 10 or 15. *Grain* oblong, compressed, incurved, longitudinally striate,—the apex slightly 2-horned.

Hab. Dry banks; borders of woods: common. *Fl.* June. *Fr.* July.

497. AVE'NA, *L.*

[The Classical Latin name.]

Spikelets 2- to 5-flowered, in a loose, large, and somewhat nodding panicle; *florets* rather distant,—the terminal one abortive. *Glumes* nearly equal, awnless, loose and membranaceous, often longer than the florets. *Lower palea* convex, mostly bifid at apex, with a bent or twisted *awn* on the back (proceeding from the middle nerve, only). *Stamens* included. *Grain* oblong, grooved on the upper side, hairy at summit.

1. A. SATÌVA, L. Panicle regular; spikelets 2-flowered, pendulous; florets shorter than the glumes, naked at base.
CULTIVATED AVENA. Common Oats.

Annual. *Culm* 2 to 4 feet high, smooth, and rather soft. *Leaves* 6 to 15 inches long, rough; *sheaths* smooth, somewhat loose; *ligule* lacerate. *Spikelets* all pedunculate; *lower floret* mostly awned near the bifid apex; *upper floret* awnless,—with a *pedicel* at the base of the upper palea, bearing at its summit membranaceous rudiments of a third floret. *Grain* closely invested by the smooth, shining, subcoriaceous *paleae*, and slightly adherent to the upper one.
Hab. Fields. Native Country uncertain. *Fl.* July. *Fr.* Aug.

Obs. The great English Lexicographer defined *Oats* as being the food of *Horses, in England,*—and of *People, in Scotland.* Dr. DARWIN, also, seemed by the following couplet, to regard the plant as somewhat *Scottish*, in its associations:—

> "*Two* Sister-nymphs, the fair AVENAS, lead
> Their fleecy squadrons on the lawns of *Tweed.*"

The Founders of the *Edinburgh Review* had reference to the same Johnsonian idea, when they thought of adopting for a motto—

> "*Tenui* Musam meditamur *Avenâ.*"

And it was, doubtless, while those *Reviewers* were supping their *thin Parritch*, that the interesting inquiry occurred to them—"*Who reads an American Book?*"* On our side of the Atlantic, the *Avena* is cultivated almost entirely as a pabulum for Farm Stock,—and has, as yet, very little connection with our *Literature.*

DIVISION II. PHALARID'EAE.

Spikelets more or less panicled, somewhat 3-flowered, with the *middle floret*, only, perfect,—the *lower* and *terminal* ones (or the apparently *lateral ones*) imperfect—either staminate, rudimentary, or neutral; or sometimes the *terminal floret* perfect, and the *two lower* ones imperfect.

§ 1. Middle floret *perfect.*

498. ARRHENATHE'RUM, *Beauvois.*

[Gr. *Arrhen*, male, and *Ather*, awn; the staminate floret being awned.]

Spikelets 2-flowered, with the rudiment of a third, *terminal* one; *middle floret* perfect,—the *lower palea* convex, with a short awn near the slightly bifid apex; *lowest floret* staminate only,—the *lower palea* convex, bearing a long *twisted awn* on the back, below the middle; otherwise nearly as in *Avena.*

1. A. AVENÀCEUM, Beauv. Leaves flat; panicle linear-oblong, contracted, finally spreading; glumes unequal,—the lower one shorter than the florets.
Avena elatior. *L. & Fl. Cestr. ed.* 2. *p.* 66.
OAT-LIKE ARRHENATHERUM. Tall Oat-grass.

Perennial. *Rhizoma* nodose, creeping. *Culms* about 3 feet high, smooth. *Leaves* 4 to 8 or 10 inches long, rough on the upper surface; *sheaths* smooth; *ligule* short, retuse. *Panicle* 6 to 9 inches long, finally somewhat nodding.
Hab. Meadows, and lots: cultivated. Nat. of Europe. *Fl.* May. *Fr.* July.

* Since that inquiry was made, however, it is believed that some American Books have been *read;* and, it is said, some curious people have even been seen going to *look* at an "*American Statue.*"

Obs. This has been introduced, and occasionally cultivated, under the absurd misnomer of "Grass of the Andes;" but it is not likely to become a favorite, with our farmers. It is partially naturalized, in some neighborhoods.

499. HOL'CUS, *L.*

[An ancient Greek name,—of obscure meaning.]

Spikelets 2- to 3-flowered,—the *florets* pedicellate, so as to appear side by side, shorter than the membranaceous *glumes*. *Lowest floret* neutral, or obsolete; *middle* one perfect, chartaceous, and awnless; *upper* one staminate only, awned near the tip. *Grain* free, smooth.

1. *H. lanàtus*, L. Softly hoary-pubescent; panicle oblong, rather contracted; awn of the staminate floret recurved, included in the glume.

WOOLLY HOLCUS. Feather-grass. White Timothy.

Perennial. Culms 1½ to 2 feet high. *Leaves* 3 to 6 inches long; *ligule* white, truncate, dentate. *Panicle* 2 to 4 inches long, somewhat dense, whitish, tinged with purple; *glumes* roughish-pubescent; *florets* smooth and shining.
Hab. Moist meadows. Nat. of Europe. *Fl.* June. *Fr.* July.

Obs. Extensively naturalized; but not esteemed by our Farmers.

§ 2. Terminal floret *perfect, and awnless,—sometimes diandrous.*

500. ANTHOXAN'THUM, *L.*

[Gr. *Anthos*, flower, and *anthon*, of flowers; *flower of flowers*; fide *A. Gray.*]

Spikelets in a condensed, oblong, *spike-form panicle*,—each spikelet somewhat 3-flowered, but the *lower two* (or apparently *lateral*) *florets* neutral, consisting merely of a narrow *palea*, which is hairy, and awned on the back; the *terminal* (or *central*) *floret* diandrous, with 2 short, smooth, shining *paleae*. *Glumes* very unequal, thin, acute, keeled. *Grain* smooth, closely embraced by the *paleae*.

1. *A. odoràtum*, L. Spikelets somewhat fascicled on short peduncles; paleae of the neutral florets ciliate.

FRAGRANT ANTHOXANTHUM. Sweet-scented Vernal-grass.

Perennial. Culms 9 to 18 inches high, slender. *Leaves* 2 to 6 inches long, pubescent; *sheaths* nerved; *ligule* elongated. *Panicle* a sort of loose spike, 1 to 2 or 3 inches in length, becoming yellowish when mature.
Hab. Moist grounds. Nat. of Europe. *Fl.* May. *Fr.* July.

Obs. This has been much noticed, in Europe, as a fragrant meadow-grass; but it seems to affect a thin, moist soil,—and is by no means regarded, here, as a grass of superior value. When cut, and partly dry, it emits an agreeable odor—often remarkable in new-mown hay. The *culms* have been used in the manufacture of imitation Leghorn hats. This is the grass so fancifully referred to, by Dr. DARWIN, in the following lines of the Botanic Garden.

"Two gentle shepherds, and their sister-wives,
With thee, ANTHOXA! lead ambrosial lives;
Where the wide heath in purple pride extends,
And scatter'd furze its golden lustre blends,
Clos'd in a green recess, unenvi'd lot!
The blue smoke rises from their turf-built cot;
Bosom'd in fragrance blush their infant train,
Eye the warm sun, or drink the silver rain."

501. PHAL'ARIS, *L.*

[Gr. *Phalos*, shining; alluding to the shining florets, or paleae.]

Spikelets in a dense panicle (sometimes spiked),—each spikelet considered as 3-flowered, but the *two lower* (or *lateral*) *florets* mere neutral *rudiments*, at the base of the perfect one. *Glumes* nearly equal, boatshaped, nerved. *Paleae* shorter than the glumes, finally coriaceous, and shining, closely investing the smooth *grain*.

1. P. arundinàcea, *L.* Panicle oblong, with the spikelets clustered, and somewhat secund, on the branches; glumes obtusely keeled; neutral rudiments hairy.

REED-LIKE PHALARIS.

Perennial. *Culm* 3 to 5 feet high. *Leaves* 3 to 12 inches long, lance-linear, keeled, deep green; *sheaths* smooth; *ligule* ovate, obtuse. *Panicle* erect, finally a little spreading, glaucous; *glumes* acute, or acuminate, 3-nerved, whitish, with green nerves; *paleae* pilose with appressed hairs; *anthers* yellow; *grain* obovate, dark brown.

Hab. Swampy rivulets, and ditches: frequent. *Fl.* June. *Fr.* July.

Obs. This is a fine-looking, deep-green grass,—but is not regarded as of much agricultural value. Is it really native? The foreign *var. picta*, with striped leaves—called *Ribbon-grass*—is often seen in gardens. The *P. Canariensis*, *L.* with ovate spikes, is also sometimes cultivated, for the *seeds*, to feed birds.

DIVISION III. PANI'CEAE.

Spikelets 2-flowered, but the *lower floret* always imperfect (either staminate, or neutral),—often reduced to a single empty palea, or glume; *grain* compressed,—or sometimes grooved on the back, with the embryo at the bottom of the groove; *flowers* often polygamous, or monoicous.

TRIBE 7. PANI'CEAE PROPER.

Paleae of the fertile florets coriaceous, or chartaceous, awnless, not keeled, embracing the smooth grain, flattened parallel with the herbaceous glumes.

A. Spikelets *appearing simply 1-flowered, from the suppression of the lower* glume (*an empty* palea *occupying its place*).

502. PAS'PALUM, *L.*

[Gr. *Paspalos;* said to be an ancient name for Millet.]

Spikelets racemose-spiked, usually in 2 rows, on one side of a flattened *continuous rachis*, jointed with their very short pedicels, plano-convex, and nearly orbicular. *Glume* and *empty palea* few nerved. *Perennials: culm* erect, smoothish; *spikes* single, digitate, or racemed.

1. P. setàceum, *Mx.* Culm slender; leaves hairy; spike mostly solitary, on a long terminal peduncle.

SETACEOUS PASPALUM.

Culm 1 to 2 feet high, setaceously slender, often purplish below, and somewhat hairy. *Leaves* 2 to 6 inches long, hairy on both sides; *sheaths* smooth, pilose at throat. *Spike* 2 to 4 inches in length, very slender,—often with another on a short peduncle from the same sheath,—sometimes others from the lower sheaths. *Hab.* Sandy fields, and roadsides: frequent. *Fl.* Aug. *Fr.* Sept.

2. P. laève, *Mx.* Culm rather stout; leaves generally smooth; spikes 2 to 6, alternate and approximated at the summit of the culm, or long naked peduncle.
SMOOTH PASPALUM.

Culm 1½ to 3 feet high, green. *Leaves* 3 to 9 inches long, pilose at base. *Spikes* 2 to 4 inches long, with a few long white hairs at base; *rachis* flat on the back, flexuose; *spikelets* broader than the rachis.

Hab. Grassy flats, and moist grounds: frequent. *Fl.* Aug. *Fr.* Sept.

B. Spikelets *manifestly* 1½- *or* 2-*flowered* (*the lower floret neutral, or staminate*),—*the lower* glume *being mostly present.*

503. PANICUM, *L.*

[Supposed from the Latin, *Panis*, bread; which some species afford.]

Spikelets sometimes *spiked*, or *racemose*,—usually *panicled*. *Glumes* unequal,—the *lower* one short, or minute, sometimes wanting.—*Lower floret* neutral, or staminate, rarely awned,—mostly consisting of a single *palea*, which resembles the upper glume. *Upper floret* perfect, coriaceous, inclosing the free and grooveless *grain*. *Stamens* 3. *Stigmas* plumose, usually purple.

¶1. DIGITARIA: *Annuals:* Spikelets *crowded* 2 *or* 3 *together, in simple one-sided digitate-fascicled spikes;* neutral floret *with a single palea;* lower glume *minute, or wanting.*

1. *P. sanguinàle*, L. Culms geniculate, decumbent and radicating at base; spikes 4 to 8 or 10; upper glume shorter than the floret.
Digitaria sanguinalis. *Scop. & Fl. Cestr. ed.* 2. *p.* 44.
BLOODY (OR PURPLE) PANICUM. Crab-grass. Finger-grass.

Culms 1 to 2 feet long, ascending, geniculate, smooth, somewhat branching from the sheaths. *Leaves* 2 to 6 or 8 inches long, softly pilose; *sheaths* strigosely hairy; *ligule* short. *Spikes* 2 to 6 inches in length, often in 2 fascicles, usually becoming purple.

Hab. Gardens, and lots. Nat. of Europe. *Fl.* July. *Fr.* Aug.

Obs. The Grasses of this Section (*Digitaria*) are probably all *introduced*,—at least into this region. This is a very troublesome one, in the latter part of summer, in Gardens and cultivated lots; and, like the most of the *Panicums*, is little worth, in an agricultural point of view.

2. *P. glàbrum*, Gaudin. Culms procumbent and spreading, rarely radicating; spikes 2 or 3 to 6; upper glume nearly as long as the floret.
Digitaria glabra. *Roem. & Schultes. & Fl. Cestr. ed.* 2. *p.* 594.
SMOOTH PANICUM.

Culms 6 to 12 inches long, often closely prostrate. *Leaves* 1 to 2 or 3 inches in length; *sheaths* smooth, a little pilose at throat. *Spikes* 1 to 3 inches long, seldom more than 3 in number; *spikelets* greenish purple.

Hab. Cultivated grounds. Nat. of Europe. *Fl.* Aug. *Fr.* Sept.

Obs. Naturalized in all our cultivated lots, and Indian-Corn fields; but not so troublesome as the preceding.

3. *P. filifórme*, L. Culms erect, very slender; spikes 2 to 4 or 6 (rarely single), filiform; lower glume wanting.
Digitaria filiformis. *Ell. & Fl. Cestr. ed.* 2. *p.* 44.

FILIFORM PANICUM.

Culm 1 to 2 feet high. *Leaves* 3 to 6 inches in length, slightly hairy; *lower sheaths* hairy,—*upper* ones smooth. *Spikes* 1 to 3 inches long, usually 2 or 3 in number; *spikelets* in twos, or threes, on pedicels of different length.
Hab. Sandy fields, and roadsides. Nat. of the South. *Fl.* Aug. *Fr.* Sept.

Obs. This is said, in the books, to be a native of our Southern Country; but I suspect it is a stranger, here.

§ 2. PANICUM proper: Spikelets *scattered in panicles.*

a. Sterile floret *neutral.* † Panicle *elongated;* spikelets *racemose.*

* Neutral floret *with* 2 *paleae.*

4. P. ánceps, *Mx.* Culms ancipital; spikelets ovate-lanceolate, acuminate, with the point a little curved; upper glume 7-nerved.

TWO-EDGED PANICUM.

Perennial. Culm 2 to 4 feet high, smooth, somewhat geniculate at base. *Leaves* 1 to 2 feet long, keeled, hairy on the upper surface; *ligule* obsolete. *Panicles* terminal and lateral; *branches* erect; *spikelets* somewhat secund, in interrupted racemes.
Hab. Fields, and meadows: frequent. *Fl.* July. *Fr.* Sept.

5. P. agrostoides, *Sprengel.* Culms compressed; leaves elongated; panicles pyramidal; spikelets ovate-oblong, acute; upper glume 5-nerved.

AGROSTIS-LIKE PANICUM.

Perennial. Culm 1 to 3 feet high. *Leaves* 6 to 15 inches long, usually forming a large tuft at the root, smooth; *ligule* very short, truncate. *Panicles* mostly dark purple, terminal and lateral,—the lateral ones on long compressed peduncles; *branches* slightly flexuose, finally spreading horizontally; *spikelets* in somewhat secund racemes, crowded, on short pedicels, often with slender setaceous *bracts* at base.
Hab. Moist meadows; borders of swamps: frequent. *Fl.* July. *Fr.* Sept.

** Neutral floret *with a single palea.*

6. P. proliferum, *Lamarck.* Smooth; culms rather stout and succulent, geniculate, ascending, or procumbent; spikelets lance-oval, appressed.

PROLIFEROUS PANICUM.

Annual. Culms 1 to 2 feet long, branching. *Leaves* 3 to 12 inches long; *sheaths* loose; *ligule* ciliate. *Panicles* terminal and lateral, spreading; *branches* straight, scabrous; *spikelets* pale green; *lower glume* short and broad, clasping,—*upper* one 7-nerved, acute.
Hab. Wet meadows; roadsides: frequent. *Fl.* Sept. *Fr.* Octo.

†† Panicle *capillary, large and loose;* neutral floret *with a single palea.*

7. P. capillàre, *L.* Sheaths hirsute; panicle-branches finally divaricate; spikelets lanceolate, acuminate.

HAIR-LIKE PANICUM. Old-witch Grass.

Annual. Culm 6 inches to 1 or 2 feet high, rather erect, often branching.—*Leaves* 3 to 10 inches in length, lance-linear, hairy; *ligule* beard-like. *Panicle* 6 to 12 inches long, pyramidal; *spikelets* small, on long hispid peduncles, often purple,
Hab. Sandy grounds; Indian-corn fields, &c.: common. *Fl.* Aug. *Fr.* Sept.

Obs. In autumn, the dry culms of this worthless grass break off, and the divaricate panicles are rolled over the fields, by the winds, until they accumulate in great quantities, along fences and hedges.

b. Sterile floret *mostly staminate, with* 2 *paleae.*

† Panicle *elongated, compound.*

8. P. virgàtum, *L.* Glabrous; culms tall; panicle-branches virgate, finally spreading, and somewhat nodding; spikelets ovate, acuminate.

VIRGATE, OR LONG-PANICLED PANICUM.

Perennial: often purple: *Culms* 3 to 5 feet high. *Leaves* 1 to 3 feet long, pilose at base; *ligule* fringed with long white hairs. *Panicle* 1 to 2 feet long; *spikelets* rather large, scattered; *sterile floret* staminate,—the upper palea membranaceous and white, infolding the purple stamens.

Hab. Along streams; Brandywine: not common. *Fl.* Aug. *Fr.* Sept.

†† Panicle *short, simple;* leaves *broad.*

9. P. latifòlium, *L.* Culms simple; nodes retrorsely hairy; leaves ovate-lanceolate; sheaths usually smoothish.

BROAD-LEAVED PANICUM.

Perennial. Culm 1 to 2 feet high. *Leaves* 3 or 4 inches long, and about an inch wide, clasping; *sheaths* ciliate, sometimes pubescent. *Panicle* 2 to 3 inches in length, generally exserted; *spikelets* oblong-ovoid, pubescent, large; *sterile floret* with 3 perfect *stamens.*

Hab. Shaded ditch banks; thickets, &c.: frequent. *Fl.* June. *Fr.* Aug.

c. Sterile floret *neutral, with* 2 *paleae.*

† Culm-leaves *broad, several-nerved.*

10. P. clandestinum, *L.* Culms branching; nodes smooth; leaves cordate-lanceolate; sheaths hispid, inclosing the short lateral panicles.

CLANDESTINE, OR HIDDEN-FLOWERED PANICUM.

Perennial. Culm 1 to 3 feet high, leafy at summit,—one or two upper branches finally much elongated. *Leaves* 3 to 6 inches long, ciliate at base; *sheaths* deeply striate, strigosely hairy in the grooves. *Panicles* lateral, few-flowered, nearly concealed in the sheaths; *spikelets* oblong-ovoid, rather obtuse, large, pubescent.

Hab. Moist, low grounds; along rivulets: frequent. *Fl.* July. *Fr.* Sept.

11. P. microcárpon, *Muhl.* Culms simple; sheaths smooth; leaves lanceolate, ciliate at base; panicle rather large; spikelets small, ovoid, or obovoid.

SMALL-FRUITED PANICUM.

Perennial. Culm 1½ to 3 feet high, smooth; *nodes* glabrous. *Leaves* 3 to 9 inches long, roughish on the upper surface,—the *radical* ones ovate, acute; *sheaths* smooth, deeply striate; *ligule* none. *Panicle* 3 to 6 inches in length, much branched, somewhat pyramidal, on a long terminal peduncle; *spikelets* numerous, at the ends of the branches, nearly smooth; *perfect floret* bluish white.

Hab. Moist woodlands, and low grounds: frequent. *Fl.* July. *Fr.* Aug.

†† Culm-leaves *narrow, few-nerved.*

12. P. dichótomum, *L.* Culms at first simple, finally dichotomous, with fascicled leafy branches,—or often a few elongated ones; panicles capillary, slender.

Also, P. nitidum. *Lam. & Fl. Cestr. ed.* 2. *p.* 46.

DICHOTOMOUS PANICUM.

Perennial. *Culm* 1 to 2 feet high; *nodes* often villous, sometimes smooth.—*Leaves* 1 or 2 inches long,—the short ones numerous on the fascicled branches, hairy, or smooth; *sheaths* often hairy; *ligule* bearded. *Panicles* terminal and lateral,—the former on long peduncles,—the latter few-flowered, simple, on short peduncles; *spikelets* small.

Hab. Dry woods; clearings, &c.: common. *Fl.* June. *Fr.* Sept.

Obs. This assumes many forms; and I have had occasion fully to verify Prof. A. GRAY'S remark, that *P. dichotomum* is the *autumnal state* of several slender *varieties* of *Panicum*, observable in the earlier part of the season,—and which have heretofore ranked as *species*.

13. P. depauperàtum, *Muhl.* Culms simple, cespitose; upper leaves elongated; panicle terminal, simple, few-flowered,—the branches erect and flexuose.

P. rectum. *R. & S. & Fl. Cestr. ed.* 2. *p.* 45.

IMPOVERISHED PANICUM.

Perennial. *Culms* 6 to 15 inches high, roughish; *nodes* hairy. *Leaves* 3 to 6 inches long, erect, involute at apex, more or less pilose,—the upper one overtopping the panicle; *sheaths* pubescent with long hairs. *Panicle-branches* somewhat in pairs,—one of then longer and bearing 2 spikelets; *spikelets* rather large, smooth, all pedunculate.

Hab. Dry hills; Serpentine ridge: abundant. *Fl.* May. *Fr.* July.

§ 3. ECHINOCHLOA: Spikelets *imbricate-spiked on paniculate branches;* sterile floret *neutral, (sometimes staminate), with 2 paleae,—the lower one awned, or mucronate.*

14. *P. Crus-gálli,* L. Culms stout, smooth; spikes alternate, secund; glumes, and lower palea of the neutral floret, hispid; rachis hirsute.

COCK'S-FOOT PANICUM.

Annual. *Culm* 2 to 5 feet high. *Leaves* 9 to 15 inches long, broadish, serrulate on the margins; *sheaths* rather loose, compressed, smooth; *ligule* none. *Panicle* pyramidal, with the spikelets crowded in dense spike-form, compound racemes; *spikelets* ovoid, plano-convex, echinate, awned, or sometimes awnless.

Hab. Moist places; Barnyard drains. Nat. of Europe. *Fl.* Aug. *Fr.* Sept.

Obs. This coarse, weed-like grass, is usually stated to be indigenous in all the four quarters of the globe; but I believe it to be a naturalized foreigner, in *Chester County*.

504. SETA'RIA, *Beauvois.*

[Latin, *Seta,* a bristle; from the involucre-like bristles of the spikelets.]

Spikelets as in *Panicum proper,*—awnless, but with short peduncles (abortive spikelets?) produced beyond them into solitary, or clustered *bristles,* resembling awns. *Inflorescence* a dense *spiked panicle,*—or sometimes apparently a cylindrical *spike. Annuals:* introduced from Europe, and are all naturalized *weeds,*—except the last, which is occasionally cultivated.

† Bristles *single, or in pairs, retrorsely scabrous.*

1. *S. verticillàta,* Beauv. Spike pale green, nearly cylindrical, somewhat interrupted; spikelets subverticillate; bristles in pairs, rather short, adhesive.

VERTICILLATE SETARIA.

Culm about 2 feet high, rather slender, smooth. *Leaves* 3 to 9 inches long; *sheaths* smooth; *ligule* bearded. *Spike* 2 to 3 inches in length; *rachis* angular, sulcate, scabrous; *spikelets* clustered on short pedicels; *bristles* about twice as long as the spikelets, yellowish-green, sometimes purplish; *paleae* of the perfect floret roughish-dotted, or papillose.

Hab. Gardens, and lots: not yet very common. *Fl.* July. *Fr.* Aug.

Obs. The adhesive bristles of this species are calculated to make it something of a nuisance, if it becomes abundant.

†† Bristles *in clusters of* 4 *to* 8 *or* 10, *antrorsely scabrous.*

2. *S. glaŭca*, Beauv. Spike tawny, quite cylindrical; bristles 6 to 10 in a cluster, long; paleae of the perfect florets transversely rugose.

GLAUCOUS SETARIA. Fox-tail Grass.

Culm 2 to 3 feet high, smooth, sometimes branching, often several from the same root. *Leaves* 6 to 15 inches long, somewhat glaucous; *sheaths* smooth; *ligule* short, fringed. *Spike* 2 to 6 inches in length; *rachis* pubescent; bristles 2 or 3 times as long as the spikelets; *perfect florets* plano-convex—the *paleae* firm and almost horn like, wavy-wrinkled.

Hab. Stubble fields, orchards, &c.: common. *Fl.* Aug. *Fr.* Sept.

3. *S. víridis*, Beauv. Spike green, subcylindrical, or oval-oblong, somewhat compound; bristles 4 to 10 in a cluster, longish; paleae of the perfect florets striate lengthwise, puncticulate.

GREEN SETARIA. Bottle-grass.

Culm 1 to 2 or 3 feet high, often branching near the base. *Leaves* 3 to 8 inches long; *sheaths* smooth; *ligule* fringed. *Spike* 1 to 4 inches long, often so compound as to be swelling in the middle; *rachis* hirsute with short hairs; *bristles* 3 or 4 times as long as the spikelets.

Hab. Cultivated grounds; roadsides, &c.: frequent. *Fl.* July. *Fr.* Aug.

4. S. ITÁLICA, *var.* GERMÁNICA, *Kunth.* Spike yellowish, ovoid-oblong, compound, interrupted at base; bristles 4 to 8 in a cluster, short; paleae of the perfect floret smooth, minutely striate-punctate.

ITALIAN SETARIA (GERMAN VARIETY). Millet. Bengal-grass.

Culm 2 to 4 or 5 feet high. *Leaves* 6 to 18 inches long, broadish; *sheaths* striate; *ligule* beard-like. *Spike* (or rather densely contracted *panicle*) 3 to 6 inches in length; *rachis* densely hirsute with longish hairs; *bristles* about as long as the spikelets, sometimes longer.

Hab. Fields: cultivated. Nat. of Europe, and India. *Fl.* July. *Fr.* Aug.

Obs. This is sometimes cultivated, to eke out the *hay*-crop; but it is not likely to become general,—as a crop of *Oats* can be as easily raised, and is more valuable.

505. CEN'CHRUS, *L.*

[Gr. *Kenchros*, the ancient name of Millet.]

Spikelets as in *Panicum*,—awnless, but inclosed (1 to 5 together,) in a globular, bristly, or spinose *involucre*, which becomes coriaceous, forming a deciduous *bur*, in fruit. *Involucres* sessile, in a terminal *spike*. *Scales* none. *Styles* united below. *Grain* free, included in the paleae.

1. *C. tribuloìdes*, L. Culms branched at base, geniculate, ascending, or procumbent; spike oblong; involucre spinose, pubescent, split on one side.

TRIBULUS-LIKE CENCHRUS. Bur-grass. Hedgehog-Grass.

Annual. Culms 9 to 18 inches long, smooth. *Leaves* 3 to 8 inches long; *sheaths* loose, smooth; *ligule* beard-like. *Spike* terminal, consisting of 6 to 12, or more, alternate involucrate heads, or clusters; *rachis* angular, flexuose, slightly scabrous; *involucre* urceolate, or subglobose, laciniate, armed externally with rigid, subulate, scabrous spines, villous within, embracing 1, 2, or 3 *spikelets; sterile floret* mostly staminate.

Hab. Old fields. Nat. of the South. *Fl.* Aug. *Fr.* Sept.

Obs. This pestilent grass is, happily, yet rare in our County; but is gradually extending itself,—and, if not vigilantly watched, will one day be found a great nuisance, around our dwellings. It is very abundant in the sandy districts of New Jersey; but whether *indigenous* there, I cannot say.

TRIBE 8. SACCHA'REAE.

Paleae of the fertile florets membranaceous, always thinner and more delicate than the (often indurated) *glumes*,—frequently *awned* at apex; *spikelets* usually in pairs, or threes, spiked, or panicled, some of them entirely sterile (*monoicous*, or *polygamous*).

§ 1. SPIKELETS MONOICOUS: Pistillate spikelets *imbedded in the rachis of the continuous spike, or in its separable joints.*

506. ZE'A, *L.*

[Gr. *Zao*, to live; from the sustenance it affords to animal life.]

STAMINATE SPIKELETS in terminal, fascicled, *spicate racemes*, 2-flowered; *glumes* herbaceous, pubescent; *paleae* membranaceous, awnless; *stamens* 3; *anthers* linear, erect; *scales* 2, collateral, fleshy, glabrous. PISTILLATE SPIKELETS sessile, 2-flowered (the lower one abortive), in dense *continuous spikes*, which terminate short, nodose, axillary branches,—the spikes enveloped by the *sheaths* of abortive leaves, called *husks; glumes* fleshy-membranaceous, very broad, ciliate,—the lower one emarginately 2-lobed; *paleae* fleshy-membranaceous,—the abortive floret with 2 paleae. *Ovary* roundish-ovoid; *style* capillary, very long, exserted from the envelopes of the spike, pubescent at summit, and mostly bifid (*stigmas?*). *Grain* usually crowded, and then compressed, cuneate, or roundish-reniform, with a shallow groove on the upper side containing the embryo,—the base imbedded in the persistent glumes and paleae. *Annual: culm* stout, solid with pith; *pistillate spikelets* in 8 to 12 longitudinal rows, on the thick subcylindric *rachis*, the *rows* always in approximated *pairs*, before the spaces are filled by their growth; *spikes* (or *ears*) 1 to 3 or 4 (rarely more—usually 2) on a culm.

1. Z. MAYS, L. Leaves flat, linear-lanceolate, acuminate, with a broad midrib channelled above.

Indian Corn. Maize.

Culm 4 to 15 feet high, and about an inch, or inch and a half, in diameter, simple (often producing branches, or suckers, at base), nodose, semi-terete, or with a broad shallow channel, on alternate sides, between the nodes. *Leaves* 2 to 3 feet

long, and 2 to 4 inches wide, pubescent above, smooth beneath; *sheaths* smooth, pubescent along the margins; *ligule* short.

Hab. Fields. Nat. of Southern America. *Fl.* July. *Fr.* Sept.

Obs. Long culture has produced several *varieties* of this noble Grass,—with *grains* of different *form* and *color*. There is also a remarkable *variety*—frequent, I believe, in the South-west—in which a kind of *husk*, or involucre, is developed around every grain, or spikelet, on the receptacle. The *Goethean* theory of the *modification of leaves*, at the successive stages of the vegetable progress, from cotyledons to flowers, is well illustrated by the envelope, or "husk," of an *Ear of Indian Corn*. Few heedless observers would be apt to recognize the fact, that the several portions of that envelope are the *sheaths of abortive leaves;* and yet nothing is more obvious, when we examine them by the light of that theory. The *spike* of pistillate flowers is supported on a short axillary *branch*, with numerous *nodes*, and very short *internodes*. As *nodes* are the points at which leaves originate, we accordingly find a *leaf*—or rather the *sheathing petiole* of an imperfect one—at each node of this short flowering-branch; and as the nodes are very close together, the sheaths necessarily over-lap one another,—and thus furnish a manifold wrapper to the *spike* of flowers and fruit (i. e. the "Ear"). That these several layers of the envelope are the sheathing portions of abortive leaves, is demonstrated by the *laminae*, more or less developed, at their summits,—and which, indeed, are sometimes seen expanded to nearly half the size of an ordinary full-grown blade.—The same doctrine applies to the *chaff*, or floral coverings, of *all the Grasses;** as it does, in fact, to those of all the flowering tribes.

507. TRIP'SACUM, *L.*

[Gr. *tribo*, to rub; perhaps in reference to the polished fertile spike.]

Spikelets sessile, in terminal and subterminal *jointed spikes*,—which spikes are solitary, or often digitate in twos or threes, the *staminate* part above. STAMINATE SPIKELETS in *pairs* on each triangular joint, longer than the joint, collateral, 2-flowered,—the *florets* each with 2 *paleae*, and 3 stamens; *anthers* orange-colored, opening by 2 pores at summit. PISTILLATE SPIKELETS single, 2-flowered (the *lower* one neutral), deeply imbedded in each oblong joint of the cartilaginous thickened *rachis*, and occupying a boat-shaped cavity which is closed by the polished cartilaginous ovate *outer glume; inner glume* much thinner, boat-shaped. *Paleae* very thin, hyaline, and closely packed together. *Style* long; *stigmas* very long, plumose, dark purple. *Grain* ovoid, free. *Perennial: culms* cespitose, tall, branching, hard and smooth, solid with pith; *leaves* very long, sublinear, acuminate; *spikes* separating at the articulations spontaneously, at maturity.

1. T. dactyloides, *L.* Spikes usually 2 together, with the contiguous sides flat, the upper half staminate.

FINGER-LIKE TRIPSACUM. Gama Grass. Sesame Grass.

Culms 3 to 6 feet high, the internodes broadly channelled on alternate sides;

* "Perigonia graminum sunt vaginae foliorum superstites."—LINK.

nodes smooth. *Leaves* 2 to 4 feet long, and about an inch wide, sharply scabrous on the margins, striate-nerved; *midrib* keeled, channelled and white above; *ligule* very short, ciliate. *Spikes* 4 to 8 inches long,—when single, the pistillate portion is terete,—when in pairs, semi-terete as if split down.
Hab. Moist meadows; Great Valley: rare. *Fl.* July. *Fr.* Sept.

Obs. This stout and remarkable grass was at one time extolled as an article of fodder, for Stock; but I think it can never take the place of the present cultivated grasses.

§ 2. SPIKELETS POLYGAMOUS: Fertile spikelets *with* 1 *perfect, and one sterile floret;* lower palea *of the perfect floret awned.*

508. ANDROPO'GON, *L.*

[Greek; literally *Man's beard,*—in allusion to the hairy spikelets.]

Spikelets 2-flowered, *in pairs* upon each joint of the slender *rachis,* spiked, or racemose,—one of the spikelets pedicellate and sterile, often a mere rudiment,—the other sessile, with the *lower floret* neutral and of a single *palea,* the *upper one* perfect, of 2 thin hyaline *paleae,* which are shorter than the subcoriaceous *glumes. Stamens* 1 to 3. *Grain* free, enveloped by the glumes and paleae. *Perennials: culms* rigid; *nodes* smooth; *spikes* terminal and lateral, digitate, simple, or clustered, the *rachis* hairy, or plumose-bearded.

† Spikes *digitate;* sterile spikelets *staminate* (3 *stamens*), *awnless.*

1. A. furcàtus, *Muhl.* Spikes hairy, often purple,—usually in threes or fours at the summit of the culm, in pairs on the branches. FORKED ANDROPOGON. Finger-spiked Indian-Grass.

Culm about 4 feet high, smooth, terete below, semi-terete above. *Leaves* 6 to 12 inches long; *sheaths* smooth; *ligule* obtuse, fringed. *Spikes* 2 to 3 inches in length.
Hab. Slaty hills, and sterile low grounds: frequent. *Fl.* Aug. *Fr.* Sept.

Obs. This, and all the following, are remarkably worthless grasses.

†† Spikes *simple;* sterile spikelet *neutral, the lower glume awned.*

2. A. scopàrius, *Mx.* Culms paniculate above with long slender branches; spikes terminal, loose and slender, on long peduncles. BROOM ANDROPOGON. Indian-Grass. Wood-Grass.

Culm 3 or 4 feet high, rather slender, smooth, somewhat compressed; *branches* in lateral fascicles, sometimes in pairs, often subdivided. *Leaves* 6 to 12 inches long; *sheaths* roughish; *ligule* truncate; *spikes* about 2 inches long; *rachis* plano-convex, pilose at the edges.
Hab. Sterile banks; old fields, &c.: common. *Fl.* Aug. *Fr.* Sept.

††† Spikes *clustered;* sterile spikelet *reduced to a mere plumose pedicel;* fertile florets *monandrous.*

3. A. Virginicus, *L.* Culms with remote short branches above; sheaths compressed, smooth; spikes 2 to 3, in distant appressed clusters.
VIRGINIAN ANDROPOGON.

Culm about 3 feet high, smooth, sparingly branched,—the *branches* partly con-

cealed by the sheaths. *Leaves* 3 to 12 inches long; *ligule* short, ciliate. *Spikes* about an inch long, in scattered lateral fascicles on the short slender branches; *rachis* filiform, pilose with long white silky hairs.
Hab. Sterile hills; dry swamps: frequent. *Fl.* Sept. *Fr.* Octo.

4. A. macroùrus, *Mx.* Culms rather stout, corymbosely bushy-branched at summit; sheaths roughish; spikes in pairs, on sheathed peduncles.
LARGE-TAILED ANDROPOGON. Cluster-flowered Indian-Grass.

Culm 1½ to 3 feet high, smooth. *Leaves* 3 to 12 inches long; *sheaths* rather open; *ligule* short, truncate, minutely fringed. *Spikes* scarcely an inch long, partly concealed in the compressed boat-shaped sheaths; *rachis* filiform, clothed with long white silky hairs.
Hab. Swampy sterile grounds: frequent. *Fl.* Sept. *Fr.* Octo.

509. SOR'GHUM, *Persoon.*

[The ancient name of a cultivated species.]

Spikelets 2 or 3 together, on the branches of a mostly loose and open *panicle*,—the *lateral* ones sterile, or often mere rudiments,—the *middle* (or *terminal*) one, only, fertile. *Glumes* coriaceous, sometimes awnless. *Stamens* 3. For the rest, as in *Andropogon*.

† Culm *slender, fistular.*

1. S. nùtans, *A. Gray.* Leaves lance-linear; ligule elongated, truncate; panicle narrowly oblong; fertile spikelets russet-brown. Andropogon nutans. *L. & Fl. Cestr. ed.* 2. *p.* 88.
NODDING SORGHUM. Oat-like Indian-Grass.

Perennial. Culm 3 to 5 feet high, simple, terete, smooth; *nodes* bearded with white appressed hairs. *Leaves* 6 to 18 inches long, roughish. *Panicle* 6 to 9 inches in length,—the pedicels of the upper spikelets plumosely hairy; *perfect spikelets* clothed with tawny hairs, shorter than the twisted awn, finally drooping.
Hab. Sterile soils; neglected old fields: frequent. *Fl.* Aug. *Fr.* Sept.

†† Culm *stout, solid with pith.*

2. S. SACCHARÀTUM, Pers. Leaves linear-lanceolate; ligule short, ciliate; panicle with long verticillate branches, loosely expanding.
SUGAR SORGHUM. Broom-Corn.

Annual. Culm 6 to 9 feet high, half an inch to an inch in diameter; *nodes* tumid, with a ring of short appressed hairs at the base of the sheaths. *Leaves* about 2 feet long, and 2 inches wide. *Panicle* 1 to 2 feet long,—the *branches* numerous, nearly simple, long and slender; *spikelets* mostly in pairs (the terminal ones in threes), in racemose clusters near the extremities of the branches, clothed with glossy appressed hairs; *stigmas* greenish-yellow.
Hab. Fields and gardens. Nat. of India. *Fl.* Aug. *Fr.* Octo.

Obs. Cultivated for the *panicles*,—of which brooms and brushes are made. According to Mr. WATSON'S *Annals*, CHARLES THOMSON, the Secretary of the Revolutionary Congress, said he well remembered the first introduction of *Broom Corn* into our Country. Dr. FRANKLIN chanced to see an imported Corn Whisk in the possession of a Lady, and while examining it, as a novelty, spied a grain of it still attached to the stalk. This he took and planted.

3. S. VULGÀRE, Pers. Panicle erect, somewhat contracted; glumes of the fertile spikelets pubescent.

COMMON SORGHUM. Indian Millet.

Annual. Culm 5 to 9 feet high; *nodes* pubescent. *Leaves* 9 to 18 inches long.—*Panicle* 6 to 12 inches in length.

Hab. Gardens. Nat. of India. *Fl.* Aug. *Fr.* Octo.

Obs. This is sometimes cultivated; but rather as a curiosity, than for any important object. There is a *variety* (*bicolor,*) called *Chocolate Corn,*—with a *spreading panicle,* and *glumes* smoothish, with fringed margin,—which has also been cultivated, and the grains used as a poor substitute for coffee.

4. S. CÉRNUUM, Willd. Panicle densely contracted, oval, mostly rigidly recurved or nodding; glumes villous, fringed.

DROOPING SORGHUM. Guinea-Corn.

Annual. Culm 5 to 8 feet high; lower nodes emitting verticillate radicles.—*Leaves* 12 to 18 inches long. *Panicle* 4 to 6 inches long; *florets* villous, fringed, scarcely awned.

Hab. Fields, and Gardens. Nat. of India. *Fl.* Aug. *Fr.* Octo.

Obs. Occasionally cultivated, as food for poultry; but more as a curiosity. I sometimes observe a very similar plant, in the gardens, with the dense oval panicle *erect,*—perhaps only a *variety.*

SERIES II.

CRYPTOG'AMOUS OR FLOWERLESS PLANTS.

VEGETABLES destitute of proper *flowers* (*stamens* and *pistils*), and producing seeds of homogeneous structure (called *spores*), in which there is no *embryo* or plantlet manifest, before germination.

CLASS III.

ACRO'GENOUS OR APEX-GROWING PLANTS.

Cryptogamous Plants with a distinct *axis* (*stem* and *branches*), growing from the *apex only*,—containing *woody fibre* and *vessels*, and usually with a distinct *foliage*.

ORDER CXIX. EQUISETA'CEAE.

Leafless plants, with rush-like hollow articulated *stems*, rising from creeping *rhizomas*, and terminated by the *fructification*, which is in the form of a *cone*, or *spike*, composed of peltate pedicellate *scales* bearing the *sporanges* (or spore-cases) underneath.

510. EQUISE'TUM, *L.*

[Latin, *Equus*, a horse, and *Seta*, a bristle; resembling a horse-tail.]

Sporanges 6 or 7, adhering to the under side of the angular scales of the cone, 1-celled, opening down the inner side and discharging the numerous loose spores. *Spores* embraced by 4 hygrometric clavate filaments (called *elaters*), which relax or uncoil when dry. *Stems* striate-grooved; *joints* separable, embraced by *sheaths* which are toothed at summit; *branches*, when present, verticillate.

‡ 1. Stems *annual*,—*the fertile stems different from the sterile ones.*

† Fertile stems *never branching.*

1. E. arvénse, *L.* Sterile stems with simple ascending 3- or 4-angled branches; sheaths of the fertile stems remote.

FIELD EQUISETUM.

Fertile stems appearing first, 6 to 9 inches high, with an ovoid-oblong brownish *spike* about 2 inches in length; *sheaths* large, loose, with long acute teeth, dark purplish-brown, whitish at base. *Sterile stems* 9 to 15 inches high, with a verticil of slender articulated branches from the base of the sheaths; *branches* 4 to 8 inches long, scabrous, green,—each branch with its own sheath at base, and sheathed at each articulation.

Hab. Moist grounds; borders of thickets: frequent. *Fr.* April, May.

†† Fertile stems *producing branches after fructification.*

2. E. sylváticum, *L.* Sterile and fertile stems both branching; branches compound, curved downward.

WOOD EQUISETUM. Horse-tail.

Stems 9 to 18 inches high,—the *joints* invested with loose *sheaths* which are divided at summit into several broad lanceolate tawny-ferruginous teeth, or sometimes parted into 2 or 3 lance-oblong segments; *fertile stems* with verticils of rather short, divaricate, or deflected branches, from the base of the 3 or 4 uppermost sheaths, and terminating in an oblong-ovoid brownish *spike* about an inch in length; *ster-*

ile stems usually taller and more slender,—the joints nearly all furnished with verticils of branches which are longer, and considerably subdivided.
Hab. Low grounds; borders of woods: frequent. *Fr.* May.

§ 2. Stems *evergreen, all alike, and mostly branchless.*

3. E. hyemàle, *L.* Stems rather stout, very rough; sheaths short, close, whitish, with small blackish deciduous teeth at summit.
WINTER EQUISETUM. Scouring Rush.

Stems 1 to 2 feet high, glaucous (purplish-black at base), terminating in an ovoid blackish *spike* about half an inch in length; *sheaths* whitish, with a purplish black band at base, and at summit a ring of small blackish teeth, which soon fall off, leaving the sheath truncate and entire.
Hab. Margins of Swamps: frequent. *Fr.* June.

ORDER CXX. FIL'ICES. FERNS.

Plants consisting chiefly of horizontal *rhizomas*, and *stipitate leaf-like expansions*, called *fronds*, which are mostly *circinate* in the bud, and bearing on the veins of their lower surface, or along the margins, the simple *fructification*, which consists of 1-celled *sporanges*, opening in various ways, and discharging the numerous minute *spores*.

SUBORDER I. POLYPODIN'EAE.

Sporanges collected in dots, lines, or variously shaped clusters (called *sori*), on the back or margins of the *frond*, or its divisions, reticulated and pellucid, pedicellate, surrounded by an elastic *vertical ring*, and which by straightening at maturity ruptures the sporange tranversely on the inner side, discharging the *spores; sori* often covered by a membranaceous scale, or modified margin of the frond, which is termed the *indusium*.

§ 1. POLYPODIEAE: Sori *without a special indusium, orbicular.*

511. POLYPO'DIUM, *L.*

[Gr. *Poly*, many, and *Pous*, a foot; from its numerous stipes.]

Sori scattered irregularly on the back of the frond; *veins* simple, forked, or pinnate. *Rhizoma* covered with tawny chaff-like scales.

† Fronds *simply pinnatifid, evergreen;* sori *large.*

1. P. vulgàre, *L.* Fronds lance-oblong, smooth, deeply pinnatifid; pinnae linear-oblong, obtuse, crenate-serrulate.
COMMON POLYPODIUM.

Fronds 4 to 8 or 10 inches long, and 1 to 2 inches wide; *stipe* (or *petiole*) naked and smooth, flattish and somewhat channelled on the upper side. *Sori* in 2 rows on the back of each segment, distinct, or finally in contact.
Hab. Rocky woodlands: frequent. *Fr.* July.

†† Fronds *bipinnatifid, annual;* sori *small.*

2. P. hexagonópterum, *Mx.* Fronds broadly triangular; lower divisions connected by an oblong hexagonal wing.
HEXAGONAL-WINGED POLYPODIUM.

Fronds 6 to 9 inches long, and about the same width, at base,—forming, in their outline, a nearly equilateral triangle; *pinnae* lanceolate, pinnatifid; *stipe* 8 to 12 or 15 inches long, slender, naked. *Sori* distinct, somewhat in 2 rows, but often irregular, on the back of the lance-oblong *pinnules*.
Hab. Moist woodl ands, and thickets: frequent. *Fr.* July.

§ 2. PTERIDEAE: Sori *covered by a special indusium, which is marginal, and laterally continuous, or sometimes interrupted.*

512. PTE'RIS, *L.*

[Gr. *Pteron*, a wing; a name given to Ferns, on account of their winged fronds.]

Sori linear, continuous laterally in a line which *borders* the divisions of the frond,—the *indusium* fixed at the very margin, with the inner edge free; *veins* forked and free, bearing the *sporanges* at their apex. *Fronds* subcoriaceous, pinnately dissected.

1. P. aquilina, *L.* Frond 3-parted, on a tall erect stout stipe; branches bipinnate; pinnules lance-oblong; indusium narrow.

AQUILINE PTERIS. Brake, or Bracken.

Fronds 1 to 3 feet long, decompound, spreading; *pinnae* oblong-lanceolate; *stipe* 1 to 2 feet high, angular, smooth, tawny. *Sori* resembling a narrow russet border, or *hem*, along the edge of the pinnules, on the under side.

Hab. Moist woodlands, and thickets: frequent. *Fr.* July, Aug.

2. P. atropurpùrea, *L.* Frond simply pinnate, or subbipinnate, on a short dark purple stipe; pinnae obliquely truncate, or subcordate, at base.

DARK-PURPLE PTERIS.

Fronds 3 to 6 or 8 inches long, and 1 to 3 or 4 inches wide across the lower divisions, which are often ternate, or odd-pinnate in fives or sevens; *pinnae* and *pinnules* subsessile, varying from oval to linear-oblong; *stipes* 2 to 4 inches long, terete, often numerous, with a dense tuft of tawny-ferruginous chaffy hairs at base.

Hab. Limestone rocks; Great Valley: rare. *Fr.* July.

513. ADIANT'UM, *L.*

[Gr. *a*, not, and *diaino*, to moisten; its surface repelling rain-drops.]

Sori oblong, or somewhat lunate, interrupted, occupying the edge of the *pinnae*, or lobes of the frond,—the *indusium* appearing as a reflexed portion of its margin, bearing the *sporanges* on its under side, on the free ends of the simply forking *veins*. *Stipe* and *rachis* black and polished.

1. A. pedàtum, *L.* Frond forked, the forks pedately branching; divisions pinnate; pinnae semi-rhomboid, stipitate,—the upper margin incisely lobed.

PEDATE ADIANTUM. Maiden's Hair.

Fronds 6 to 9 inches long, and 9 to 12 inches wide, glabrous, pale bluish-glaucous green; *pinnae* ⅓ of an inch to an inch long, entire on the lower margin, as if halved; *stipes* 6 to 12 or 15 inches high, slender, compressed, chaffy at and near the base.

Hab. Rich, rocky woodlands: frequent. *Fr.* July.

514. CHEILAN'THES, *Swartz.*

[Gr. *Cheilos*, a lip, and *anthos*, a flower; from the shape of the indusium.]

Sori roundish, solitary, or contiguous, on the margins of the pinnule-lobes; *indusium* usually reniform, fixed to the margin at the point where the *sporanges* arise, free along the inner edge. *Frond* bi- tri-pinnatifid; *stipe* roughish-hairy.

1. C. vestita, *Willd.* Fronds bipinnate, hairy on both sides;

pinnae subsessile; pinnules short, pinnatifid, the lobes roundish; sori finally crowded, or confluent.

CLOTHED CHEILANTHES.

Fronds 3 to 6 inches long, and about an inch wide, lance-oblong in their outline; *pinnae* about half an inch long, ovate-lanceolate,—the *lower* ones distant, pinnate (the upper ones only pinnatifid); *pinnules* oblong, obtuse, crenately pinnatifid; *stipe* 1 to 3 inches in length.

Hab. Rocky banks: frequent. *Fr.* July, Aug.

§ 3. ASPLENIEAE: Sori *elongated, oblique to the midrib,—each covered with a special indusium, free along one side.*

a. Veins *reticulated, except next the margin.*

515. CAMPTOSO'RUS, *Link.*

[Gr. *Kamptos*, bent, and *Soros*, fruit-dot; descriptive of the sori.]

Sori linear, irregularly scattered on the reticulated veins of the *simple frond*,—often approximating in pairs by their free margins,—or becoming confluent at their ends, and forming crooked lines.

1. C. rhizophyl'lus, *Link.* Fronds auriculate-cordate at base, lanceolate, with a long slender acumination which often takes root at apex.

Asplenium rhizophyllum. *L. & Fl. Cestr. ed.* 2. p. 580.

ROOTING-LEAVED CAMPTOSORUS. Walking-Leaf.

Frond 3 to 9 inches long, and ⅓ of an inch to an inch wide, evergreen, sometimes bifid, with 2 acuminations; *stipe* 1 to 4 inches long, slightly margined above, smooth. *Sori* often ¼ of an inch in length.

Hab. Rocky woodlands: frequent. *Fr.* July.

Obs. The rooting apex of the runner-like frond, often gives rise to new fronds,—and those again to others.

b. Veins *forked, free,—none of them reticulated.*

516. ASPLE'NIUM, *L.*

[Gr. *a*, privative, and *Splen*, the spleen; from supposed remedial virtues.]

Sori linear-oblong, oblique, never in pairs, all attached lengthwise to the upper side of the simple, forked, or pinnate, free *veins; indusium* opening along the side toward the midrib.

† Indusium *straight, fixed by the whole length.*

1. A. Ruta-murària, *L.* Fronds bipinnate at base, simply pinnate above; pinnae rhomboid-cuneate, stipitate, small.

WALL-RUE ASPLENIUM.

Fronds 1 to 2 inches long, and half an inch to an inch wide, smooth, dingy green; *pinnae* 2 to 4 lines long, dentate or partially lobed, above the middle; *stipe* 1 to 2 inches long, flat, smooth. *Sori* finally confluent, of a dark ferruginous color.

Hab. Limestone rocks, and cliffs; Great Valley: rare. *Fr.* July.

2. A. Trichómanes, *L.* Fronds spreading, simply pinnate; pinnae subsessile, roundish-obovate, obliquely cuneate at base; stipe dark purple.

Fronds 2 to 4 inches long, and ⅓ to ½ an inch wide, lance-linear in their outline, often procumbent; *pinnae* 2 to 3 lines long, crenate at apex, entire at base, and often a little auriculate on the upper edge; *stipe* 1 to 2 inches long, semi-terete, slightly margined, smooth and polished. *Sori* finally oval.

Hab. Shady rocky banks: frequent. *Fr.* July.

3. A. ebenèum, *Aiton.* Fronds erect, simply pinnate; pinnae sessile, lance-oblong, sub-falcate, auriculate on the upper edge; stipe black.
EBONY ASPLENIUM.

Fronds 6 to 12 inches long, and ¾ of an inch to 1½ inches wide; *pinnae* ⅓ to ¾ of an inch long, serrate, sometimes a little cordate at base; *stipe* 1 to 3 inches in length. *Sori* oblong, finally confluent.
Hab. Rocky woodlands: frequent. *Fr.* July.

4. A. thelypteroides, *Mx.* Fronds pinnate, with the pinnae deeply pinnatifid; lobes oblong, obtuse, crenulate.
THELYPTERIS-LIKE ASPLENIUM.

Fronds 12 to 18 inches long, and 4 to 6 inches wide,—in their outline oblong-lanceolate, acuminate, rather flaccid, smoothish, and pale glaucous-green; *pinnae* 2 to 5 inches long, acuminate, pinnatifid,—the acumination crenate-serrate; *common rachis* slender, slightly pubescent; *stipe* 6 to 10 inches long, slender, slightly chaffy. *Sori* acute at each end; *indusium* convex, thickish.
Hab. Moist woods; shaded banks of streams: frequent. *Fr.* July.

†† Indusium *finally lunate, or reniform, free at the ends.*

5. A. Filix-fœmina, *R. Br.* Fronds bipinnate; pinnae lanceolate; pinnules lance-linear, incised-serrate, confluent at base; sori oblong, lunate, at first straight.
Aspidium asplenioides. *Willd. & Fl. Cestr. ed.* 2. *p.* 579.

Fronds 12 to 18 inches long, and 4 to 8 inches wide; *pinnae* 2 to 4 inches long, subsessile; *pinnules* oblong, doubly and unequally incised-serrate; *common rachis* 3-grooved above, naked, and smoothish; *stipe* 6 to 12 inches long, smooth. *Sori* short, in a double row, near the midrib of the pinnules,—the *indusium* bursting along the convex margin.
Hab. Moist woodlands: frequent. *Fr.* July.

¿4. DICKSONIEAE: Sori *round and dot-like, marginal, with a kind of double, or 2-lobed indusium.*

517. DICKSO'NIA, *L'Heritier.*

[Dedicated to *James Dickson;* an English Botanist.]

Sori globular, small,—each placed on the apex of a free *vein,* or fork, and inclosed in a little 2-*lipped sac,* consisting of a reflexed and *modified lobelet,* or tooth of the frond, united by its edges with those of a nearly similar *proper indusium,* which is fixed along its base on the inner side; the *receptacle* elevated.

1. D. punctilóbula, *Hooker.* Fronds thin and pale green, bipinnately dissected; pinnae lanceolate, bipinnatifid, and incised-serrate; sori solitary, one at the upper margin of each lobe.
D. pilosiuscula. *Willd. & Fl. Cestr. ed.* 2. *p.* 584.
DOTTED-LOBED DICKSONIA.

Minutely glandular and hairy, somewhat odorous. *Fronds* 1 to 2 feet long, and 4 to 6 inches wide, lance-oblong in their outline; *pinnae* 3 to 4 inches long, mostly alternate, sessile; *pinnules* about half an inch in length, pinnatifid, the *lobes* with 2 to 4 teeth; *stipe* 4 to 8 inches long, hairy, pale green, or reddish tawny.
Hab. Moist shaded grounds: frequent. *Fr.* July.

§ 5. ASPIDIEAE: Sori *mostly orbicular,—rarely oblong, and then placed across the vein;* indusium *orbicular, reniform, or hooded.*

a. Veins *all free, none reticulated.*

++ Indusium *inflated, fixed by half, or all, the margin.*

518. WOODS'IA, *R. Brown.*

[Dedicated to *Joseph Woods;* an English Botanist.]

Sori globular, borne on the back of simply forked *veins; indusium* thin, attached all round the receptacle, open, or early bursting, at the *top*, or *centre*,—the orifice jagged, and often fringed with *hairs* which involve the *sporanges.*

† Indusium *soon spreading open, larger than the sorus, and appearing as if placed under it, jagged-lobed, but not fringed with hairs.*

1. W. obtùsa, *Torrey.* Fronds sub-bipinnate, glandular-hairy; pinnae rather remote; pinnules oblong, very obtuse, crenately pinnatifid.

W. Perriniana. *Hook. & Grev. & Fl. Cestr. ed. 2. p.* 580.

OBTUSE WOODSIA.

Fronds 3 to 6 or 8 inches long, and 1 to 2 or 3 inches wide, lance-oblong in their outline; *pinnae* ½ an inch to 1½ inches long, subsessile; *common rachis* slightly chaffy above; *stipe* 2 to 3 inches long, chaffy. *Sori* near the margin of the lobes, finally almost confluent; *indusium* sub-hemispherical, at length resembling a calyx, with small spreading denticulate segments.

Hab. Rocky banks; along streams: frequent. *Fr.* July.

†† Indusium *minute, soon opening flat, and concealed under the sorus, except its marginal fringe.*

2. W. Ilvénsis, *R. Br.* Fronds pinnate, thickly clothed beneath with russet bristle-like chaff; pinnae crowded, deeply pinnatifid, the lobes obscurely crenate.

ELBA WOODSIA.

Fronds 2 to 4 inches long, and about an inch wide, oblong-lanceolate in their outline; *pinnae* ⅓ to ¾ of an inch long, subsessile; *common rachis* chaffy; *stipe* 1 to 3 or 4 inches long, chaffy, with a tuft of tawny chaff at base. *Sori* finally confluent; *sporanges* slightly pedicellate.

Hab. Rocky banks of streams; Schuylkill: not common. *Fr.* July.

++ ++ Indusium *flat, reniform, or orbicular and umbilicate, opening round the whole margin.*

519. DRYOP'TERIS, *Adanson.*

[Gr. *Drys*, an oak, and *Pteris*, a fern; from their growing usually in woods.]

Sori roundish, borne on the back, or near the apex, of the simple and free pinnate *veins*, or their forks. *Indusium* flattish, roundish-reniform, fixed at the sinus, opening round the margin. *Fronds* thinnish, simply, or bi- tri- pinnate.

† Veins *simple and straight, or simply forked;* stipes *nearly naked;* fronds *pinnate.*

1. D. Thelyp'teris, *A. Gray.* Fronds lanceolate; pinnae linear-lanceolate, deeply pinnatifid,—the lobes nearly entire, with revolute margins; sori soon confluent.

Aspidium Thelypteris. *Willd. & Fl. Cestr. ed.* 2. *p.* 577.

Fronds 6 to 12 inches long, and 3 or 4 inches wide; *pinnae* 1 to 2 inches long, subsessile, slightly pubescent; *stipe* 9 to 15 inches long. *Sori* commencing in small marginal dots, finally confluent, and usually covering the under surface of all the lobes of the frond.

Hab. Swamps, and wet thickets: frequent. *Fr.* July.

2. D. Noveboracénsis, *A. Gray.* Fronds oblong-lanceolate; pinnae lance-oblong, pinnatifid,—the lobes flat, ciliate; sori never confluent.

Aspidium Noveboracense. *Willd. & Fl. Cestr. ed.* 2. *p.* 577.

New-York Dryopteris.

Fronds 9 to 18 inches long, and 3 to 5 inches wide; *pinnae* 2 to 3 inches long, thin and delicate, pale green; *stipe* 3 to 6 inches long, slender, channelled above. *Sori* small, marginal, in 2 rows on each lobe; the fronds, however, are often sterile.

Hab. Moist woodlands: frequent. *Fr.* July.

†† Veins *more than once forked, or somewhat pinnately branching;* stipes *chaffy.*

* Fronds *sub-tripinnate* (i. e. *the pinnules pinnatifid*).

3. D. intermèdia, *A. Gray.* Fronds ovate-oblong; pinnae lance-oblong; pinnules oblong-linear, distinct, incisely pinnatifid,—the lobes mucronate.

Aspidium dilatatum. *Fl. Cestr. ed.* 2. *p.* 578. not of *Sw.* and *Willd.*

Intermediate Dryopteris.

Fronds 12 to 20 inches long, and 5 to 8 or 9 inches wide, elliptic-lanceolate in their outline; *pinnae* 3 to 5 inches long, and 1 to 2 inches wide; *common rachis* somewhat chaffy; *stipe* 6 to 15 inches long, clothed with large brownish-tawny chaffy scales. *Sori* rather large, numerous; *indusium* orbicular-reniform, umbilicate in the centre.

Hab. Moist woodlands: frequent. *Fr.* July.

** Fronds *bipinnate only, with the pinnules (or sometimes only lobes) merely incised, or toothed;* stipes *somewhat chaffy.*

4. D. cristàta, *A. Gray.* Fronds linear-oblong; pinnae short, triangular-ovate, subcordate at base, deeply pinnatifid; lobes oblong, obtuse, incised-serrate at apex.

Aspidium Lancastriense. *Fl. Cestr. ed.* 2. *p.* 577.

Crested Dryopteris.

Fronds 18 inches to 2 feet long, and 3 or 4 inches wide, smoothish, deep green; *pinnae* 1½ to 3 inches long, sub-opposite,—the lower ones stipitate, the upper ones sessile and confluent: *stipe* 8 to 12 inches long, rather slender, often smoothish,—the chaff being deciduous. *Sori* medium size, distinct, dark-brown, in 2 rows, generally confined to the upper half of the frond; *indusium* orbicular-reniform.

Hab. Moist woodlands: not very common. *Fr.* July.

5. D. marginàlis, *A. Gray.* Fronds ovate-oblong; pinnae lanceolate, broad at base, deeply pinnatifid; lobes oblong, crenate-serrate,—the lower ones nearly distinct; sori marginal.

Aspidium marginale. *Willd. & Fl. Cestr. ed.* 2. *p.* 578.

Marginal Dryopteris.

Fronds 9 to 15 inches long, and 4 to 6 inches wide; *pinnae* 2 to 4 inches long, sub pinnate,—the acumination crenate; *stipe* 4 to 8 inches long, clothed with a

tawny membranaceous chaff, especially at base. *Sori* medium size,—one at each notch in the lobes of the upper pinnae,—the lower ones being mostly sterile; *indusium* orbicular-reniform.

Hab. Rocky woodlands: frequent. *Fr.* July.

520. POLYS'TICHUM, *Roth.*

[Gr. *Poly*, many, and *Stichos*, a row, or line; the sori sometimes in close lines.]

Sori round, borne on the back of pinnately-forked *veins*. *Indusium* orbicular, umbilicate (i. e. fixed by the depressed centre), opening all round the margin. *Fronds* subcoriaceous and evergeen, simply, or bi- tri-pinnate; *pinnae* auricled at base, on the upper edge; *stipe* chaffy.

1. P. acrostichoides, *Schott.* Fronds lance-oblong, simply pinnate; pinnae lance-linear, sub-falcate, bristly-cuspidate; sori finally confluent.

Aspidium acrostichoides. *Willd. & Fl. Cestr. ed.* 2. *p.* 576.

ACROSTICHUM-LIKE POLYSTICHUM.

Fronds 9 to 18 inches long, and 2 to 4 inches wide; *pinnae* 1 to 2 inches long, alternate, finely serrate, the serratures bristly-mucronate; *rachis* clothed with lance-linear chaff; *stipe* 2 to 5 inches long, chaffy. *Sori* in a single, or more commonly in a double row, near the midrib of the smaller pinnae toward the summit of the frond, at first distinct.

Hab. Rocky woodlands: common. *Fr.* July.

b. Veins *of the sterile frond finely reticulated.*

521. ONOCLE'A, *L.*

[An ancient Greek name; applied to this genus.]

Fertile frond bipinnate, much contracted,—the *pinnules* short and revolute, usually rolled up into closed *berry-like involucres* filled with *sporanges*, and forming a one-sided *spike*, or *raceme*. *Sori* one on the middle of each simple primary *vein*, round, soon all confluent. *Indusium* very thin, hood-like, lateral, fixed by its lower side, free on the upper (i. e. toward the apex of the pinnule). *Sterile frond* rising separately, pinnate.

1. O. sensibilis, *L.* Sterile fronds oblong-triangular; pinnae lanceolate,—the lower ones distinct, pinnatifid-dentate,—the upper confluent, repand-dentate, or entire.

SENSITIVE ONOCLEA.

Sterile fronds 6 to 15 inches long, and 5 to 12 inches wide at base; *lower pinnae* 3 to 6 inches long; *stipe* 6 to 10 inches long, slender, angular, naked. *Fertile fronds* 4 to 8 or 10 inches long; *pinnae* 1 to 3 inches long, nearly erect; *pinnules* triangular-globose, smoothish, dark brown, resembling *berries* in 2-rowed unilateral spikes; *stipes* 8 to 12 inches long, rather stout, terete, naked.

Hab. Moist woodlands: frequent. *Fr.* July.

SUBORDER II. OSMUNDIN'EAE.

Sporanges variously collected, destitute of any proper *ring*, cellular-reticulated, opening *length-wise* by a regular slit,—sometimes striate-rayed on the top.

522. OSMUN'DA, *L.*

[A name supposed to be of Celtic origin.]

Sporanges globose, stipitate, naked, entirely covering the fertile

pinnules (which are contracted to the mere *rachis*), thin and reticulated, not striate-rayed at summit, opening by a slit across the top into 2 *valves*. *Spores green*. *Fronds* tall and upright, bipinnate, or simply pinnate; *veins* forking and free.

† Fronds *bipinnate,—the pinnules substipitate, serrulate.*

1. O. spectábilis, *Willd.* Smooth; sterile pinnules lance-oblong, oblique but not auricled at base; fertile pinnules forming a terminal racemose panicle.

SHOWY OSMUNDA. Flowering Fern.

Fronds 3 to 4 feet high, branching, pale greyish green; *sterile pinnules* 1 to 2 inches long, the *veins* a little prominent; *fertile pinnules* contracted, covered with clusters of small capsules, which are, at first, pale greenish-tawny, finally ferruginous; *panicle* oblong, 4 to 8 inches in length.

Hab. Moist meadows, and thickets: frequent. *Fr.* July.

†† Fronds *pinnate,—the fertile portion bipinnate;* sterile pinnae *merely pinnatifid.*

2. O. Claytoniàna, *L.* Loosely woolly when young, soon smooth; pinnae oblong-lanceolate, some of the middle ones fertile; sporanges brownish.

O. interrupta. *Mx. & Fl. Cestr. ed.* 2. *p.* 585.

CLAYTON'S OSMUNDA.

Fronds 1 to near 2 feet long, and 3 to 6 inches wide, lance-oblong in their outline; *pinnae* 2 to 4 inches long. *Fertile pinnae* in 2 to 4 pairs, near the middle of the frond; *common rachis* channelled above; *stipe* 6 to 9 inches long, channelled, smoothish, chaffy-tomentose at base.

Hab. Moist low grounds, and thickets: frequent. *Fr.* June, July.

3. O. cinnamòmea, *L.* Clothed with russet wool when young,—the sterile fronds finally smooth; fertile fronds separate, contracted, racemose, covered with cinnamon-colored sporanges.

CINNAMON-COLORED OSMUNDA.

Sterile and *fertile fronds* growing together in bunches, but distinct,—the *sterile* ones most numerous, 1 to 2 feet in length, and 5 to 10 inches wide, lance-oblong in their outline; *pinnae* 3 to 6 inches long; *stipe* 9 to 18 inches long. *Fertile fronds* 9 to 18 inches long, and about an inch wide; *pinnae* all fertile 1 to 1½ inches long, erect, lanuginous; *pinnules* crowded, covered with clusters of minute capsules; *stipe* 1 to 2 feet long, rather stout, and, with the *rachis*, clothed with a long loose membranaceous reddish tomentum.

Hab. Moist low grounds: frequent. *Fr.* July, Aug.

SUBORDER III. OPHIOGLOSSÆAE.

Sporanges spiked, in double rows, naked, coriaceous and opaque, not reticulated, destitute of a *ring*, opening by a *transverse* slit into 2 *valves*, discharging the copious dust-like sulphur-colored *spores*. *Fronds* straight, never *circinate* in the bud.

523. BOTRYCH'IUM, *Swartz.*

[Gr. *Botrys*, a cluster of grapes; in allusion to the fructification.]

Frond rising straight from the clustered roots, with the sterile and fertile portions distinct,—the *lateral* portion sterile, spreading, ternately divided, with forking free *veins*,—the *terminal* portion wholly fertile, erect, contracted into pinnately *panicled spikes*.—*Sporanges* clustered, but distinct.

1. B. lunarioides, *Sw.* Sterile division of the frond near the base of the stipe, biternately dissected, stipitate.
B. fumarioides. *Willd. Also*, B. dissectum, *Muhl. & Fl. Cestr. ed. 2. p.* 587.
LUNARIA-LIKE BOTRYCHIUM. Moon-wort.

Sterile portion of the frond about 3 inches long, and 4 inches wide, triangular in the outline, *sub-divisions*, or leaflets, varying from obliquely lance-ovate to cuneate-oblong and linear, finely crenate, or incised-dentate, connected with the base of the upright fertile portion by a partial stipe, or petiole, 2 to 3 inches in length. *Fertile portion* on a scape-like *erect stipe* 6 to 9 inches high, in a tawny compound spike 2 to 4 inches in length.
Hab. Moist low grounds: frequent. *Fr.* July, Aug.

2. B. Virginicum, *Sw.* Sterile division of the frond about the middle of the stipe, ternately divided to the base, sessile.
VIRGINIAN BOTRYCHIUM. Rattlesake Fern.

Somewhat hairy. *Sterile portion* of the frond 3-parted; the *divisions* 4 to 6 inches long, broad-ovate, or somewhat deltoid, in their outline, bipinnatifid, green; *pinnae* 1 to 3 inches long, deeply pinnatifid, the lobes cuneate-oblong, incised-dentate at apex. *Fertile portion* on an *erect stipe* 9 to 18 inches high, in a reddish-tawny compound spike 2 to 5 inches in length.
Hab. Rich hilly woodlands: frequent. *Fr.* June, July.

524. OPHIOGLOSS'UM, *L.*

[Gr. *Ophis*, a serpent, and *Glossa*, a tongue; from the form of the spike.]

Frond erect and scape-like, bearing a *lateral* sterile portion in the form of an oblong-ovate entire *leaf* with finely reticulated immersed veins, and a *terminal, simple spike*, on which the *sporanges* are closely packed, and more or less coherent together.

1. O. vulgàtum, *L.* Sterile division sessile near the middle of the stipe, obtuse, shorter than the spike.
COMMON OPHIOGLOSSUM. Adder's-tongue.

Sterile portion of the frond 1½ to 3 inches long, and 1 to 2 inches wide, somewhat clasping at base, smooth, light green. *Fertile portion* on a scape-like erect *stipe* 4 to 10 inches high, in a compressed lance-linear 2-rowed *spike* 1 to 1¼ inches in length. *Sporanges* partially imbedded in the rachis, at first connate, finally distinct, pale tawny.
Hab. Moist low grounds; woods, and thickets: frequent. *Fr.* June.

ORDER CXXI. LYCOPODIÀCEAE.

Humble evergreens, usually of Moss-like aspect; *stems* solid, and often woody, thickly clothed with simple sessile lanceolate or subulate *leaves*, and bearing the 2- to 4-valved *sporanges* sessile in their axils.

525. LYCOPO'DIUM, *L.*

[Gr. *Lykos*, a Wolf, and *Pous*, a foot; from some fancied resemblance.]

Sporanges of only *one kind*, resembling those of *Ophioglossum*, coriaceous, flattened and usually reniform, 1-celled, opening by a transverse line round the margin, thus 2-valved, discharging the minute *spores* in the form of a copious sulphur-colored inflammable powder. *Leaves* 1-nerved, imbricated or crowded in several ranks.

§ 1. SELAGO: Sporanges *scattered in the axils of the uniform (dark-green, shining, rigid, and 8-ranked) leaves.*

1. L. lucídulum, *Mx.* Stems ascending, thickish, bifid, or 2 or 3 times forked; leaves lance-linear, acute, denticulate, spreading, or reflexed.
BRIGHTISH LYCOPODIUM.

Stem 6 to 12 inches long, nearly erect, or sometimes decumbent and radicating near the base. *Leaves* ⅓ to near ½ an inch long. *Sporanges* subreniform, or semi-orbicular, palish yellow, seated in the axils of the leaves about an inch from the summit of the stem, or branches; also in *interrupted series, below,*—these lower series being the persistent sporanges of preceding years.
Hab. Moist woods, and low grounds: frequent. *Fr.* July.

§ 2. LYCOPODIUM proper: Sporanges *borne only in the axils of the upper, or bracteal leaves,—thus forming terminal spikes.*

a. Leaves *of the stem and branches—and those of the simple spike—all alike, and many-ranked.*

2. L. inundàtum, *L.* Sterile stems creeping, flaccid, forking; fertile ones erect, solitary, bearing a short thick spike.
FLOODED LYCOPODIUM.

Sterile stems 4 to 8 inches long; *fertile* ones 1 to 4 inches high. *Leaves* ¼ to ½ an inch in length, lance-subulate, spreading. *Spike* an inch to an inch and half in length.
Hab. Wet, sandy places; New London: rare. *Fr.* Aug.

Obs. This was collected, in 1848, by Mr. VINCENT BARNARD,—an intelligent and enterprising young Naturalist, of this County.

b. Leaves (bracts) *of the ament-like spikes scale-like, imbricated, ovate, yellowish,—unlike those of the sterile branches.*

† Spikes *sessile (or the branches equally leafy up to the spikes).*

3. L. dendroideum, *Mx.* Stem erect, simple below, bushy-branched at summit,—the branches spreading, fan-like; leaves 4- to 6-ranked; spikes mostly several.
TREE-LIKE LYCOPODIUM. Ground Pine.

Stem 6 to 9 inches high, terete, flexuose. *Leaves* about 2 lines long, those on the branches somewhat 4-rowed, obliquely subulate-linear, deep-green. *Spikes* mostly several (1 to 6), about 2 inches long, erect, terete, a little tapering to the summit.
Hab. Woodlands, and shaded thickets: frequent. *Fr.* July.

Obs. This pretty species—of unfading verdure (together with *L. complanatum, L.*)—is much employed in making garlands, and festoons, wherewith to decorate Country parlors; and is, moreover, regularly sought after, by those who venerate pleasing ancient usages, for the purpose of trimming Churches, at Christmas.

†† Spikes *pedunculate* (i. e. *the leaves very minute on the fertile branches).*

* Leaves *homogeneous and equal, many-ranked;* stems *terete.*

4. L. clavàtum, *L.* Stems creeping extensively, with similar, short, ascending branches; spikes mostly in pairs, on terminal peduncles.
CLAVATE LYCOPODIUM. Club-Moss.

Stem 2 to 4 or 6 feet long, rather stout, prostrate and somewhat radicating

branches 1 to 4 or 5 inches long, alternate, often subdivided, very leafy. *Leaves* 3 to 5 lines in length, pale green, incurved-spreading, subulate-linear, with a long hair-like point, forming a hairy tuft at the summit of the branches. *Spikes* (sometimes 1—rarely 3,) ½ an inch to nearly an inch in length, yellowish, erect on an ascending leafy branch-like *peduncle* 2 to 4 inches long; *scales* ovate, setaceously acuminate.

Hab. Woodlands, and thickets: frequent. *Fr.* July.

** Leaves *of 2 forms and unequal, few-ranked;* stems *or* branches *flattened.*

5. L. complanàtum, *L.* Stems trailing extensively; branches ascending, dichotomously and pedately subdivided, spreading and fan-like; spikes several.

FLATTED LYCOPODIUM.

Stem 2 to 6 or 8 feet long, rather slender, somewhat leafy, procumbent (sometimes *rhizoma-like*, and more or less buried); *branches* 1 to 3 or 4 inches long, erect or ascending, yellowish-green, somewhat pedately divided at summit, and these divisions dichotomously subdivided into numerous spreading *flatted branchlets* with winged serrated margins. *Peduncles* 4 to 6 inches long, slender, terete, with a few remote subulate leaves, dichotomously subdivided at summit 2 or 3 times, so as to bear 4 to 8 pedicellate *spikes* each about an inch in length; *scales* orbicular-ovate, acuminate.

Hab. Borders of woods, and thickets: frequent. *Fr.* Octo.

Obs. My friend, JOSHUA HOOPES, finds specimens on our slaty hills, which he regards as almost specifically distinct,—having the trailing *stems* mostly buried and rhizoma-like, the *branches* of a brighter green, the ultimate *branchlets* not so coarse, and twice as numerous, while the *spores* are matured 2 or 3 months earlier than on the common form.

526. SELAGINEL'LA, *Beauvois.*

[Diminutive of *Selago*, an ancient name of Lycopodium.]

Sporanges of *two kinds*,—one, like those of *Lycopodium*, but very minute and oblong, or globular, containing powdery orange-colored *spores*,—the other, of 3- or 4-valved *tumid vesicles* (by way of distinction, termed *sporocarps*,) filled by a few much larger globose-angular spores; these *latter* either intermixed with the former in the same axils, or solitary in the lower axils of the leafy, 4-ranked, sessile *spike*.

† Leaves *all alike, equally imbricated.*

1. S. rupéstris, *Spring.* Stem creeping; branches ascending, rather rigid; leaves subulate, bristle-tipt, densely appressed-imbricated, greyish-green.

Lycopodium rupestre. *L. & Fl. Cestr. ed.* 2. *p.* 589.

ROCK SELAGINELLA.

Stem 1 to 3 inches long, much subdivided; *branches* ½ an inch to an inch long, ascending, terete. *Leaves* serrulate-ciliate,—their membranaceous hair-like points forming a bluish-white pencil-tuft at the summit of the branches. *Spikes* ⅓ to half an inch long, somewhat 4-angled, sessile and terminal on the branches; *scales* ovate-lanceolate.

Hab. Rocky banks; Chester Creek: not common. *Fr.* July.

†† Leaves *of two sorts, appearing 2-ranked.*

2. S. àpus, *Spring.* Stem nearly prostrate, flaccid, much branched; leaves obliquely ovate, pellucid, spreading, with 2 rows of smaller appressed ones.

Lycopodium apodum. *L. & Fl. Cestr. ed.* 2. *p.* 589.

FOOTLESS SELAGINELLA.

Plant pale green, smooth, resembling a *Moss*. *Stem* 1 or 2 inches long, filiform. *Leaves* less than a line in length, distichous, with smaller acuminate ones, mostly appressed, on the upper side of the branches, nearly opposite the lateral ones. *Spikes* ½ an inch to an inch in length, terminal and sessile,—apparently a mere continuation of the branches.

Hab. Moist, rocky, shaded spots: frequent. *Fr.* July, Aug.

ORDER CXXII. HYDROPTÉRIDES.

Cryptogamous aquatics, of diverse habit; the *fructification* borne either at the *bases* of the leaves, or on submerged branches,—consisting of *two sorts* of organs, contained in indehiscent or irregularly bursting *involucres*, called *sporocarps*.

SUBORDER I. ISOETIN′EAE.

Apparently *stemless perennials*,—growing in and mostly under water; *sporocarps* in the axils, and immersed in the *inflated base*, of the somewhat grass-like or rather chive-looking *leaves* (clustered subulate-linear *fronds*).

527. ISO′ETES, *L.*

[Gr. *Isos*, equal, and *Etos*, year; having the same appearance all the year.]

Stem a mere disk-like succulent *rhizoma*, rooting from beneath, and covered above with the dilated imbricated bases of the elongated sub-terete cellular *fronds*. *Sporocarps* ovoid, and plano-convex, rather large, sessile in the axils of the fronds, adherent to their excavated dilated bases and covered by an interior thin membranaceous *scale*, indehiscent, traversed internally by *filaments* forming a kind of partitions; those of the *central* fronds filled with minute *powdery spores*,—the *exterior* ones filled with larger *roundish-quadrangular spores*.

1. I. lacústris? *L.* Rhizoma broad and depressed; fronds mostly submersed, dark green; spores roughish-granulated, scarcely reticulated.

LAKE ISOETES. Quill-wort.

Fronds numerous, 4 to 12 or 15 inches long, whitish at base, and imbricated in a dense tuft, semi-terete and angular above the base, composed of longitudinal tubes which are jointed, or interrupted by transverse partitions.

Hab. Shallow ponds, and shaded wet places: not very common.

Obs. There is some doubt whether our plant may not prove to be the *I. Engelmánni, Braun;* but I have not had an opportunity to determine the matter, satisfactorily. In the last edition of his valuable *Text Book*, Prof. A. GRAY intimates that this *Suborder* should rather be appended to the preceding Family of LYCOPODIÀCEAE; in which case, perhaps, the Selaginellas, or some of them, might be arranged in the same *Suborder* with *Isòetes*.

CLASS IV.

AN'OPHYTES.*

Cryptogamous acrogenous plants, composed of *cellular tissue only*, but with the general *type* or habit of the *superior orders*,—growing upward by an axis or *stem*, emitting *roots* downward, and usually furnished with *distinct leaves* (sometimes the stem and foliage confluent into a *frond*).

ORDER CXXIII. MUS'CI.

Low tufted plants, mostly *perennial*, with a *stem* and *distinct* (sessile) *leaves*,—producing *spore-cases* (or *capsules*) which usually open by a terminal *lid* (*operculum*), and contain simple *spores only*.†

SUBORDER I. BRYA'CEAE.

Calyptra circumscissed at base; *fruit* terminal, or lateral; *lid* opening elastically, or sometimes indehiscent; *orifice* of the capsule naked, or more commonly with a *peristome*; *columella* manifest.

DIVISION I. ACROCARPI: Pedicel *or* fruitstalk *terminal.*

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*For the *Mosses* and *Hepaticae* of *Chester*—so far as they are yet known—I am indebted to my friend THOMAS P. JAMES, of Philadelphia,—an acute and zealous Bryologist, who (as his other engagements permitted,) has diligently explored the ANOPHYTES of our ancient Bailiwick; and has, morever, prepared and presented to the *Chester County Cabinet of Natural Science*, an elegant Collection of those interesting little plants. The intelligent reader will perceive that the descriptions are chiefly derived from the Contributions of that eminent Botanist, WILLIAM S. SULLIVANT, Esq. to GRAY'S MANUAL.

† The *reproductive organs of the* MOSSES are of *two kinds*:—"1. The *sterile flower*, consisting of numerous (4—20) minute cylindrical sacs (*antheridia*), which discharge from their apex a mucous fluid filled with oval particles, and then perish. 2. The *fertile flower*, composed of numerous (4—20) flask-like bodies (*pistillidia*), each having a membranous covering (*calyptra*), terminated by a long cylindrical funnel-mouthed tube (*style*). The ripened *pistillidium* (seldom more than one in a flower maturing,) becomes the *capsule*, which is rarely indehiscent, or splitting by 4 longitudinal slits, but usually opens by a *lid* (*operculum*): beneath the lid, and arising from the mouth of the capsule, are commonly either one or two rows of rigid processes (collectively the *peristome*), which are always some multiple of 4; those of the outer row are called *teeth*—of the inner, *cilia*. An elastic ring of cells (*annules*) lies between the rim of the capsules and operculum. The powdery particles filling the capsule are *spores*. The thread-like stalk (*pedicel*, or *seta*,) supporting the capsule is inserted into the elongated torus (*vaginula*) of the flower. The pedicel continued through the capsule forms the *columella*; enlarged under the capsule it sometimes forms an *apophysis*. The calyptra, separating early at its base, is carried up on the apex of the capsule; if it splits on one side it is hood-shaped or *cuculliform*,—if not, it is mitre-shaped or *mitriform*. Intermixed with the reproductive organs are cellular jointed filaments (*paraphyses*). The leaves surrounding the antheridia are called the *perigonial* leaves, those around the pistillidia or pedicel the *perichaetial* leaves."—GRAY'S *Manual*.

TRIBE 1. PHASCA'CEAE.

528. PHAS'CUM, *L.* Earth-Moss.

[Gr. *Phaskon;* the ancient name for some Moss.]

Calyptra mitriform, or cuculliform. *Capsule* indehiscent (*lid* persistently closed). *Fructification* monoicous, or dioicous. Very diminutive Mosses.

1. P. crassinérvium, *Schwaegr.* [*Thick-nerved*]: Stemless; leaves lance-linear, or subulate, denticulate, erect-spreading, rigid, the broad nerve excurrent; calyptra mitriform; capsule globular, subsessile. Moist grounds.

2. P. cuspidàtum, *Schreb.* [*Cuspidate*]: Stem simple, or forked-branched; leaves erect, ovate-lanceolate, entire,—the nerve excurrent; calyptra cuculliform; capsule immersed, roundish.—Clay soil; old fields.

3. P. crispum, *Hedw.* [*Curled*]: Stems usually branched; leaves lance-subulate, entire, flexuose, crisped when dry; capsule nearly spherical. Old fields.

4. P. alternifòlium, *Bruch & Schimper.* [*Alternate-leaved*]: Stems erect, branched; leaves lanceolate, spreading, the nerve excurrent. Old fields.

5. P. múticum, *Schreb.* [*Pointless*]: Stemless; leaves broadly ovate, concave, serrate, connivent, the nerve reaching to the point. Old fields; Coventry. Decem. 1850.

6. P. subulàtum, *L.* [*Subulate*]: Leaves subulate-setaceous, straight, the nerve disappearing below the summit. Old fields. April, 1850.

529. BRUCH'IA, *Schwaegr.*

[Named for Prof. *Bruch;* a distinguished Bryologist.]

Calyptra mitriform, laciniate at base. *Capsule* oval, beaked, indehiscent. *Fructification* dioicous. A very minute Moss, with straw-colored stems and fruit.

1. B. flexuòsa, *B. & S.* [*Flexuose*]: Stems mostly simple; leaves oblong-ovate, the nerve continued into a long flexuose point; capsule oblong-pyriform, with a short acute beak. Damp ground.

TRIBE 2. POTTIA'CEAE.

530. APHANOREG'MA, *Sulliv.*

[Greek; literally an *imperceptible seam,* or place of *rupture.*]

Calyptra bell-shaped, awl-pointed, 4- 5-laciniate at base. *Capsule* spherical. *Peristome* none. *Lid* hemispherical, apiculate. *Fructification* monoicous.

1. A. serràta, *Sulliv.* [*Serrate*]: Stems simple, or branched; leaves oblong-lanceolate, spreading, serrate, the nerve failing near the apex; capsule separating transversely by an indistinct suture. Damp grounds; Coventry.

TRIBE 3. FUNARIA'CEAE.

531. FUNA'RIA, *Schreb.* Cord-Moss.

[Latin, *Funis*, a cord; from the long twisting pedicel.]

Calyptra cuculliform, ventricose, with a subulate beak. *Capsule* pyriform, nodding, the orifice oblique. *Peristome* double,—the outer of 16 lance-subulate teeth coherent at apex, the inner of 16 cilia opposite the teeth. *Lid* plano-convex. Monoicous. *Paraphyses* clavate.

1. F. hygrométrica, *Hedw.* [*Hygrometric*]: Leaves oval-lanceolate, concave, imbricated, the nerve reaching to or beyond the point; capsule annulate, when dry grooved,—the orifice with a red border; pedicels 1 to 1½ inches long, twisting and incurved, very hygrometrical. Old walls; burnt grounds, &c.

532. PHYSCOMIT'RIUM, *B. & S.*

[Gr. *Physkon*, something inflated, and *Mitrion*, a little cap.]

Calyptra mitriform, lobed at base, or inflated-cuculliform, beaked. *Capsule* symmetrical, pyriform. *Peristome* none. *Lid* convex, with or without a point. Monoicous.

1. P. pyrifórme, *B. & S.* [*Pyriform*]: Leaves spatulate-lanceolate, serrate, spreading, the nerve nearly percurrent; capsule roundish-pyriform, or obovoid, on an exserted pedicel ¼ to ½ an inch in length; lid with a short point; calyptra mitriform, torn at base. Wet banks.

TRIBE 4. WEISSIA'CEAE.

533. WEISS'IA, *Hedw.*

[Dedicated to *Frederick William Weiss*,—a German Botanist.]

Calyptra cuculliform. *Capsule* regular. *Peristome* single, of 16 lanceolate entire erect equidistant teeth. *Lid* beaked. Monoicous.

1. W. controvérsa, *Hedw.* [*Disputed*]: Leaves lance-linear, with involute margins, crisped when dry; nerve strong, excurrent; capsule ovoid-elliptical; pedicels very slender, ¼ to ⅓ of an inch long. Waste fields: very common.

534. DIDYM'ODON, *Hedw.*

[Gr. *didymos*, twin, and *Odous*, a tooth; the teeth being in pairs.]

Calyptra cuculliform. *Capsule* regular. *Lid* conical, or beaked. *Peristome* single, of 16 or 32 teeth approximated in pairs or united at base.

1. D. cylindricus, *var? Wilson.* [*Cylindrical*]: Stems tufted, somewhat elongated; leaves linear-acuminate, flexuose and crisped; capsule nearly cylindrical; pedicels very slender, ½ to ¾ of an inch long. Shaded bank, near Judge SHAFER'S, Coventry. Dec. 1850.

Obs. Mr. JAMES gives the *Weissia tenuirostris, Hook. & Taylor*, as a synonym of this,—and adds, "possibly *sp. nova.*"

TRIBE 5. GRIMMIA'CEAE.

535. GRIMM'IA, *Ehrh.*

[Named for *F. C. Grimm;* a German Botanist.]

Calyptra mitriform, lobed at base. *Capsule* regular. *Peristome* of 16 equidistant lanceolate teeth, which are entire or perforated, rarely 2- or 3-cleft at apex. Monoicous, or dioicous. *Sterile fl.* axillary.

1. G. Pennsylvánica, *Schwaegr.* [*Pennsylvanian*]: Leaves elongated-lanceolate, with a long diaphanous point; capsule oval, immersed; lid conical, pointed. On rocks; common.

2. G. apocárpa, *Hedw.* [*Fruitful*]: Leaves ovate-lanceolate, recurved-spreading, rather diaphanous at apex; capsule oval, immersed; teeth of the peristome entire or sparingly perforated, bright purple. On rocks, along streams.

3. G. Muhlenbérgii, *Brid.* [*Muhlenberg's*]: Leaves linear-lanceolate, obtuse, concave, when dry incurved, the nerve vanishing below the point; pedicel exserted; capsule erect, oval; teeth of the peristome linear, deeply cleft; lid subulate from a conic base; calyptra large, mitriform, longitudinally plicate, crenate-lacinate at base. Dry rocks.

4. G. trichophyl'la, *Grev.* [*Hair-leaved*]: Stems elongated, loosely tufted; leaves lax, wavy, lanceolate, gradually tapering into a diaphanous point, the margins recurved; pedicel flexuose and curved; capsule elliptic-ovate, sulcate; lid beaked. On rocks, in streams. April, 1851.

536. RACOMIT'RIUM, *Brid.*

[Gr. *rakos*, a shred, and *mitrion*, a little cap; from the torn calyptra.]

Calyptra mitriform, or campanulate-subulate, laciniate at base. *Capsule* regular. *Peristome* of 16 filiform and deeply 2- or 3-cleft teeth. *Lid* conical, subulate. Dioicous.

1. R. microcárpon, *Brid.* [*Small-fruited*]: Stems ascending, branched; leaves spreading, lanceolate, acuminate,—the upper ones with the points diaphanous and somewhat dentate. Moist rocks.

537. HEDWIG'IA, *Ehrh.* not of *Hook.*

[Dedicated to Prof. *J. G. Hedwig;* a German Botanist.]

Calyptra conical. *Capsule* globose. *Peristome* none. *Lid* planoconvex. Monoicous. *Sterile* fl. axillary.

1. H. ciliàta, *Hedw.* [*Ciliate*]: Leaves spreading, sometimes secund, ovate-lanceolate, the apex diaphanous and erose-denticulate; perichaetial leaves ciliate; calyptra minute, smooth, or hairy. On rocks: common. Plant glaucous green; stems 1 to 3 or 4 inches long, branching. The *Hedwigia* of HOOKER (*English Flora*), belongs among the PLEUROCARPI.

TRIBE 6. ORTHOTRICHA'CEAE.

538. ORTHO'TRICHUM, *Hedw.* Bristle-Moss.
[Gr. *orthos*, straight, & *Thrix*, hair; the calyptra often clothed with straight hairs.]
Calyptra campanulate, plicate, usually hairy. *Peristome* double, or single,—the outer of 16 teeth approximated in pairs, when dry reflexed,—the inner of 16 or 8 horizontal cilia (sometimes wanting). *Lid* elongated-conical. Monoicous, or dioicous.

† Peristome *double;* cilia 8.

1. O. crispum, *Hedw.* [*Curled*]: Leaves spreading, linear-lanceolate, when dry very much crisped; capsule elongated, clavate, grooved; calyptra very hairy. On trees: common.

2. O. Hutchinsiae, *Hook. & Tayl.* [*Miss Hutchins's*]: Leaves dark green, lanceolate, erect, when dry appressed; capsule exserted, grooved; calyptra hairy. On shaded rocks.

3. O. Ludwigii, *Schwaegr.* [*Ludwig's*]: Leaves erect-spreading, yellowish-green, lanceolate, acuminate, crisped when dry; capsule exserted, pyriform, smooth, grooved only at summit, the orifice much contracted; calyptra hairy, laciniate at base. On trees.

†† Peristome *single.*

4. O. strangulàtum, *Beauv.* [*Strangulated*]: Leaves lanceolate, obtuse, straight when dry, and tawny brown; capsule immersed, grooved; teeth of the peristome never recurved; calyptra plicate-ribbed, smooth, or slightly hairy. On trees: very common.

539. DRUMMOND'IA, *Hook.*
[Dedicated to *Thomas Drummond*; a Scotch Botanical Collector.]
Calyptra large, cuculliform, beaked, ventricose and somewhat plicate at base. *Capsule* exserted. *Peristome* of 16 very short truncated teeth. *Lid* convex-beaked.

1. D. clavellàta, *Hook.* [*Clubbed*]: Stems prostrate and creeping, with crowded erect branches; capsule ovoid, pedicellate; leaves oblong, acuminate, densely imbricated, the nerve vanishing near the apex; beak of the lid long, oblique from a convex base.—On trees, forming large dark-green patches.

TRIBE 7. TETRAPHID'EAE.

540. TE'TRAPHIS, *Hedw.* Four-toothed Moss.
[Gr. *Tetra*, four, and *phys*, brought forth; alluding to the 4-toothed peristome.]
Calyptra mitriform, plicate, and rather lacerated at base. *Peristome* single, of 4 equidistant erect 3-sided-pyramidal teeth, ribbed on the back, not articulated. *Lid* conical. Monoicous.

1. T. pellùcida, *Hedw.* [*Pellucid*]: Stems sparingly branched; lower leaves minute,—upper ones lance-ovate and oval, acuminate, nerved to near the apex; capsule oblong-cylindrical; pedicel about ½ an inch long. Woodlands; on rotten stumps.

TRIBE 8. TRICHOSTOMA'CEAE.

541. TRICHOS'TOMUM, *Hedw.* Fringe-Moss.

[Gr. *Thrix*, hair, and *Stoma*, mouth; from the hair-like teeth of the peristome.]

Calyptra cuculliform. *Peristome* of 32 slender capillary teeth approximated in pairs. *Lid* elongated-conical.

1. T. pállidum, *Hedw.* [*Pale*]: Monoicous; stems short; leaves setaceous from a lanceolate base, the nerve excurrent, denticulate at apex; capsule oblong, erect, or slightly curved; pedicel 1 to 2 inches long, straw-colored; lid conical, short-beaked. Open woods, on the ground.

2. T. tórtile, *Schrad.* [*Twisted*]: Dioicous; leaves spreading, lance-subulate, channelled, denticulate at the apex of the excurrent nerve; capsule erect, oblong-elliptical; pedicel ½ to ⅔ of an inch in length; teeth of the peristome somewhat oblique. Clay grounds; roadsides, &c.

542. BAR'BULA, *Hedw.* Beard-Moss.

[Latin, diminutive of *Barba*, a beard; in reference to the capillary peristome.]

Calyptra cuculliform. *Peristome* of 32 filiform spirally-twisted teeth. *Lid* elongated-conical.

1. B. unguiculàta, *Hedw.* [*Clawed*]: Dioicous; stems elongated, dichotomous; leaves erect-spreading, oblong-lanceolate, obtuse, pointed by the excurrent nerve, the margins revolute; capsule cylindrical; pedicel about ½ an inch long; lid long-beaked, subulate. Clay grounds.

2. B. caespitòsa, *Schwaegr.* [*Tufted*]: Monoicous; stems short; leaves pale green, crowded, linear-oblong, taper-pointed, mucronate by the excurrent nerve, wavy; capsule cylindrical, slightly curved, yellowish; pedicels ½ an inch to an inch long; teeth of the peristome long, and, with the lid, red. Dry woods, at the base of trees.

TRIBE 9. DICRANA'CEAE.

543. CERAT'ODON, *Brid.*

[Gr. *Keras*, a horn, and *Odous*, a tooth; the teeth nodulose, like a goat's horn.]

Calyptra cuculliform. *Capsule* oblong, somewhat strumose. *Peristome* single, of 16 lanceolate teeth 2-cleft nearly to the base, their articulations prominent. *Lid* conical-beaked. Dioicous.

1. C. purpúreus, *Brid.* [*Purple*]: Stems tufted, fastigiately branched; leaves keeled, oblong-lanceolate, nerved to the apex, the margins reflexed; capsule cylindrical, nodding, striate; pedicel ¾ of an inch long, and, with the capsule, dark shining purple. Old roofs; and on the ground: common.

544. DICRA'NUM, *Hedw.* Fork-Moss.

[Gr. *Dikranon*, a flesh-fork; the peristome-teeth cleft, or forked.]

Calyptra cuculliform. *Peristome* single, of 16 equidistant teeth which are 2- or 3-cleft nearly to the middle, the lobes equal and parallel. *Lid* beaked.

1. D. scopàrium. *Hedw.* [*Broom*]: Stems 2 inches long, ascending, branched; leaves falcate, secund, lance-subulate, channelled, serrulate; capsule subcylindric, rather nodding; pedicel 1½ inches long; lid long-beaked. Woodlands; on the ground, and decayed logs.

2. D. undulàtum, *Ehrh.* [*Wavy*]: Stems about an inch long; leaves subsecund, lanceolate, nearly flat, thin, serrulate, transversely undulate; capsule subcylindric, curved; pedicels fascicled (2 to 5 from the same perichaeth), 1½ inches in length. On the ground.

3. D. Schradèri, *Web. & Mohr.* [*Schrader's*]: Stems erect; leaves crowded, erect, not secund, linear-lanceolate, acuminate, slightly denticulate, when dry somewhat rugose; capsule oblong; pedicel 1, or 1½ inches long. Damp woods.

4. D. flagellàre, *Hedw.* [*Whip-like*]: Stems erect, near 2 inches high, densely crowded, emitting from near their summits slender and rigid innovations furnished with minute imbricated leaves; stem-leaves linear-subulate, secund; capsule subcylindric, erect; pedicels about an inch long. Damp woods; decayed logs.

5. D. longifòlium, *Ehrh.* [*Long-leaved*]: Stems ascending, branched; leaves falcate, secund, elongated, bristly-subulate, slightly serrulate, the nerve very broad; capsule oblong, erect; pedicel about an inch long. Hilly woodlands.

6. D. heteromállum, *Hedw.* [*Part-villous*]: Stem erect, nearly simple; leaves falcate, secund, subulate from a broad base, slightly serrulate; capsule obovoid-oblong, slightly nodding; pedicel ½ an inch to ¾ in length, and, with the capsule, reddish-brown; lid with an oblique subulate beak. Shaded banks.

7. D. vàrium, *Hedw.* [*Various*]: Stems short, nearly simple; leaves erect-spreading, sometimes secund, lance-subulate; capsule obovoid, rather oblique; pedicel ⅓ to ½ an inch long; lid conic, with a short beak. Moist grounds. Whole plant reddish-brown.

TRIBE 10. LEUCOBRYA'CEAE.

545. LEUCO'BRYUM, *Hampe.*

[Gr. *Leukos*, white, and *Bryon*, Moss; from its pallid color.]

Calyptra cuculliform. *Capsule* oblong. *Peristome* single, of 16 slender 2-cleft densely-jointed teeth,—the lobes equal, divergent. *Lid* with a subulate beak.

1. L. vulgàre, *Hampe.* [*Common*]: Stems erect, 2 inches high, divided above, fastigiate, fragile; leaves closely imbricated, erect, ovate-lanceolate, channelled, rather obtuse, nerveless, entire; capsule slightly strumose and curved, striate when dry; pedicel about ½ an inch long. Wet woods; growing in dense glaucous-green tussocks.

TRIBE 11. FISSIDEN'TEAE.

546. FISS'IDENS, *Hedw.* Split-tooth Moss.

[Latin, *fissus*, split, and *dens*, tooth; the teeth of the peristome being cleft.]

Calyptra cuculliform, rarely conic-mitriform. *Pedicel* sometimes

lateral, or from the root. *Peristome* single, of 16 linear-lanceolate 2-cleft teeth, the divisions unequal, divergent. *Lid* conic-beaked. *Frond-like* plants; *leaves* bifarious, vertical,—"their proper lamina infolded-boat-shaped, producing from the keel an equitant blade which forms the principal portion of the leaf."

† Pedicel *terminal.*

1. F. minùtulus, *Sulliv.* [*Very small*]: Dioicous; stems simple; leaves lance-linear, margined by a transparent rather wavy border; capsule erect, oval; pedicel 1 to 2 lines long; lid elongated-conic. On stones in brooks; very diminutive.

2. F. bryoides, *Hedw.* [*Bryum-like*]: Monoicous; stems nearly simple, ascending; leaves oblong-lanceolate, margined, minutely pointed by the excurrent nerve; capsule oblong-oval; pedicel ⅓ to ¾ of an inch long, lid conic-pointed. Moist places.

†† Pedicel *lateral.*

3. F. adiantoides? *Hedw.* [*Adiantum-like*]: Stems much branched; leaves oblong-lanceolate, serrulate, the marginal cells transparent, the nerve percurrent; capsule oblique; lid with a long beak. Shaded, moist places, on the ground; 1 to 2 inches high.—Inflorescence as in *F. bryoides.*

Obs. This has not been found *in fruit*, within the County.

††† Pedicel *arising from the root.*

4. F. taxifòlius, *Hedw.* [*Yew-leaved*]: Stems short, tufted; perichaetial leaves ovate, sheathing, convolute, pointed; capsule oblong; pedicel ⅓ to ½ an inch long; lid conic-pointed. Moist places.

547. CONOMIT'RIUM, *Montagne.*

[Gr. *Konos,* a Cone, and *mitrion,* a cap; in reference to the Calyptra.]

Calyptra conic-mitriform, wavy at base. *Capsule* terminal upon axillary branches. *Peristome* of 16 short and truncated irregularly divided or perforated teeth. *Lid* conical, minutely beaked. Monoicous. *Sterile* fl. axillary.

1. C. Julianum, *Mont.* [*Julian*]: Stems 2 to 5 inches long, filiform, floating, much divided; leaves distant, narrowly lanceolate, acute, the nerve extending to near the apex; capsule obconic, tapering to a short pedicel; lid conic, with a long erect beak, which alone is covered by the calyptra,—the latter fleshy and sometimes throwing out rootlets from it base. Immersed in springs and brooks.

TRIBE 12. POLYTRICHA'CEAE.

548. A'TRICHUM, *Beauv.* Smooth-cap Moss.

[Gr. *a,* privative, and *Thrix,* hair; from the smooth calyptra.]

Calyptra narrowly cucullate, naked, spinulose at apex. *Capsule* elongated-cylindraceous, slightly curved. *Peristome* single, of 32 short ligulate teeth, incurved and adhering by their summits to the margin of the disk-like apex of the *columella. Lid* subulate-beaked. *Sterile* fl. cup-shaped.

1. A. undulàtum, *Beauv.* [*Wavy*]: Monoicous; stems about 2 inches high, erect, mostly simple; leaves long, ligulate-lanceolate, undulate, spinulose-toothed, narrowly margined, the nerve with 2 to 4 narrow lamellae; capsule about ¼ of an inch long; pedicel 1 to 1½ inches in length. Moist grounds.

2. A. angustàtum, *Beauv.* [*Narrowed*]: Dioicous; stems shorter and more slender than the preceding; leaves narrower, not denticulate below the middle, the nerve with more and broader lamellae; pedicel ½ an inch to near an inch long. Shady woods; along fences, &c.

549. POGONA'TUM, *Beauv.* Hair-cap Moss.

[Gr. *Pogon*, beard; in allusion to the hairy calyptra.]

Calyptra cuculliform, densely hairy. *Capsule* cylindrical. *Peristome* single, of 32 teeth, adherent by their summits to the membranous-dilated apex of the *columella*. *Lid* beaked. Dioicous. *Sterile* fl. cup-shaped.

1. P. brevicaùle, *Brid.* [*Short-stemmed*]: Stems about 1 line long; leaves few, crowded and appressed, subulate from a membranaceous base, denticulate; lid with a short oblique beak; capsule smooth; pedicel about an inch long; calyptra apparently a dense web of hoary hairs. Moist clayey banks: "the ground around is always covered by a green stratum of confervoid filaments."

550. POLY'TRICHUM, *L.* Hair-Moss.

[Gr. *Polys*, many, and *Thrix*, hair; the calyptra consisting chiefly of hairs.]

Calyptra cuculliform, densely hairy. *Capsule* 4- or 6-sided, with a discoid *apophysis*. *Peristome* single, of 64 teeth, adherent by their summits to the membranous-dilated apex of the *columella;* otherwise as in *Pogonatum*.

1. P. commùne, *L.* [*Common*]: Stems simple, nearly erect, 1 to 2 inches high; leaves spreading or recurved, linear-lanceolate, serrate on the margins and back; capsule oblong, 4-sided, the angles acute; lid short-beaked from a convex base; pedicels 2 to 3 inches long. Shady moist places.

2. P. formòsum, *Hedw.* [*Handsome*]: Nearly allied to the preceding; capsule longer and slightly curved, with the angles obtuse; apophysis smaller and tapering into the pedicel; lid conical. Woods, at the base of trees.

3. P. junipérinum, *Hedw.* [*Juniper-like*]: Stem 1 to 2 inches high, simple, or divided; leaves lance-linear, awn-pointed, the margins involute, entire; capsule and lid as in No. 1; pedicel about 1½ inches long. On high ground.

TRIBE 13. BUXBAUMIA'CEAE.

551. DIPHYS'CIUM, *Web. & Mohr.*

[Gr. *dis*, twice, and *Physke*, a bladder; from the two membranes of the capsule.]

Calyptra conic-mitriform. *Capsule* immersed, ovoid-ventricose, oblique at base. *Peristome* double; the exterior of 16 minute crena-

tures; the interior a white plicate cone-shaped membrane. *Lid* conical. Monoicous. *Sterile* fl. terminal.

1. D. foliòsum, *W. & M.* [*Leafy*]: Stems about a line high; lower leaves ligulate, upper ones ovate-lanceolate, somewhat laciniate at apex, with a long excurrent nerve; capsule remarkably large, slightly pedicellate. Shady woods.

TRIBE 14. BARTRAMIA'CEAE.

552. BARTRAM'IA, *Hedw.*

[Dedicated to *John Bartram*,—the Botanical Patriarch of our Country.]

Calyptra cuculliform. *Capsule* subglobose, unequal at base, ribbed and grooved. *Peristome* double; the outer of 16 lanceolate teeth; the inner a membrane divided into 16 two-cleft divisions. *Lid* small, depressed-conic.

1. B. pomifórmis, *Hedw.* [*Apple-shaped*]: Stems somewhat elongated (½ an inch to an inch), fork-branched,—the branches fastigiate; leaves spreading, subulate-linear, longish, serrulate, crisped when dry, the nerve excurrent; pedicel ½ an inch to ¾ in length; sterile and fertile fl. together. Moist banks, in woods; "grows in large cushion-like patches of a light-green color."

2. B. fontàna, *Brid.* [*Fountain*]: Dioicous; stems much elongated (2 or 3 inches),—the branches rather short; leaves glaucous-green, closely imbricated, oval, pointed, or elongated-lanceolate, rigid, often secund, serrulate, the nerve extending to the apex; capsule obliquely ovoid; pedicel 1 to 1½ inches long, lateral from innovations. *Sterile* fl. disk-like, or cup-shaped. In springy, wet places.

TRIBE 15. BRYE'AE.

553. BRY'UM, *L.* Thread-Moss.

[Gr. *Bryon*,—an ancient name for Moss.]

Calyptra cuculliform. *Capsule* smooth. *Peristome* double; the outer of 16 lanceolate teeth; the inner a membrane divided into 16 processes,—often with *ciliolae*, or filiform segments, between them: *annulus* mostly present.

§1. Innovations *proceeding from near the summit of the stem.*

† Ciliolae *smooth.*

1. B. pulchéllum, *Hedw.* [*Pretty*]: Dioicous; small; leaves lanceolate, serrulate at apex, nerved to the summit; capsule nodding, short-pyriform or obovoid, not annulate; pedicel ½ an inch to ¾ in length; lid convex, apiculate. Clay banks; New-Garden.

2. B. Wahlenbérgii, *Schwaegr.* [*Wahlenberg's*]: Leaves yellowish-green, glossy, ovate, lanceolate, serrulate at apex, with a nearly percurrent nerve; capsule short-pyriform or turbinate, inclined or drooping, not annulate; pedicel ¾ to an inch long; lid convex-mammillate; sterile fl. conspicuous, disked-shaped, on a separate individual. Springy places; New-Garden.

†† Ciliolae *with appendages at their articulations.*

3. B. pyrifórme, *Hedw.* [*Pear-shaped*]: Stem nearly simple; leaves setaceous-subulate, serrulate, the nerve broad, excurrent; capsule inclined, ventricose-pear-shaped; pedicel 1 or 1½ inches long, and, with the capsule, reddish orange-color when mature. Damp shaded places.

4. B. bimum, *Schreb.* [*Biennial*]: Stems elongated; leaves ovate-lanceolate, with reflexed margins, mucronate by the excurrent nerve,—obsoletely denticulate at apex; capsule oblong-pyriform, drooping; pedicel 1 to 2 inches long. Woods, and wet places.

5. B. caespititium, *L.* [*Turfy*]: Dioicous; stems short, much branched by innovations, forming dense tufts; leaves ovate-lanceolate, slightly denticulate at apex, the margins revolute, the nerve excurrent; capsule oblong-pyriform, drooping; pedicel about an inch long, reddish orange-color. Dry woods; old walls, &c.

6. B. argénteum, *L.* [*Silvery*]: Dioicous; stems and branches crowded, short, subcylindric; leaves closely imbricated, broadly oval, short-pointed, the nerve vanishing at the apex; capsule oval-oblong, nodding; pedicel ⅓ to ⅔ of an inch long, dark purple. Old roofs; roadsides, &c., common. The color of the leaves varying from glaucous green to silvery white.

§ 2. Innovations *proceeding from the base of the stem.*

☞ Ciliolae (*except in* B. roseum) *smooth.* † Leaves *margined.*

7. B. punctàtum, *Hedw.* [*Dotted*]: Dioicous; stems elongated; leaves large, distant, roundish-obovate or oval, narrowed at base, wavy-dotted, entire, with the margin thickened, the nerve disappearing below the summit; capsule oval, rather pendulous; pedicel about ¾ of an inch long; lid nearly conic, short-beaked; sterile fl. discoid. Wet places.

8. B. hórnum, *Hedw.* [*This year's*]: Dioicous; stems elongated; leaves oblong-lanceolate, erect-spreading, spinulose-serrate, and spinulose on the back, the nerve vanishing near the apex; capsule ovoid-elliptic, nodding; pedicel about 1½ inches long; lid hemispherical-conic, apiculate. Damp shady places.

9. B. cuspidàtum, *Hedw.* [*Cuspidate*]: Stems elongated; leaves obovate, acute, and pointed with the excurrent nerve, narrowed at base, the margins thickened and wavy-denticulate; capsule oval, nodding; pedicel ¾ of an inch long; lid conic-hemispherical, often obtuse. Damp woods.

10. B. affìne, *Brid.* [*Kindred*]: Dioicous; stems elongated: leaves oval-lanceolate, and ligulate-lanceolate, wavy, sharply serrate, the nerve excurrent; capsule elongated-oval, nodding; pedicel 1 to 1½ inches long, often 2 or more together; lid hemispherical-mamillate. Damp situations.

11. B. ròseum, *Schreb.* [*Rosaceous*]: Dioicous; stems ⅓ of an inch to 1½ inches long, nearly leafless below; leaves large, deep green; crowded and rosulate at the summit of the stem, spatulate,

flat, acute, or cuspidate, the nerve reaching to the point; capsule ovoid-oblong or subcylindric, slightly curved; pedicel about an inch long; lid as in the preceding. Moist woods, at the roots of trees.

†† Leaves *not margined.*

12. B. stellàre, *Hedw.* [*Starry*]: Leaves oval-oblong, pointed, irregularly serrate, the nerve vanishing considerably short of the apex; capsule oval, horizontal; lid hemispherical, without any apiculus. Woods. Dioicous: sterile fl. discoid.

554. AULACOM'NION, *Schwaegr.*

[Gr. *Aulax*, a furrow, and *mnion*, a name for Moss; the capsule ribbed and grooved.]

Calyptra small, cuculliform. *Capsule* ribbed when dry, annnulate. *Peristome* double; the outer of 16 lance-subulate teeth; the inner a membrane divided into 16 processes, with *ciliolae* interposed. *Lid* convex-beaked.

1. A. heterόstichum, *Br. & Sch.* [*One-sided*]: Monoicous; leaves obovate-oval, strongly serrate, turned to one side, the nerve proceeding nearly to the summit; capsule cylindric-oblong, slightly curved; pedicel about ¾ of an inch long; lid obliquely beaked; sterile fl. axillary. Woods; hill sides, &c.

2. A. palústre, *Schwaegr.* [*Marsh*]: Dioicous; leaves elongated-lanceolate, denticulate at apex, the nerve failing below the summit; capsule oblong, strongly ribbed and grooved, drooping; pedicel 1 to 1½ inches long; lid conical; sterile fl. discoid. Borders of swamps.

DIVISION II. PLEUROCAR'PI: Pedicel *or* fruitstalk *lateral.*

TRIBE 16. PTEROGONIA'CEAE.

555. PTEROGO'NIUM, *Swartz.*

[Gr. *Pteron*, a wing, and *gonos*, a shoot; from the winged branches.]

Calyptra cuculliform, smooth, or hairy. *Peristome* double; the outer of 16 lanceolate teeth; the inner a delicate membrane lining the inner face of the teeth, or divided into 16 free processes. *Lid* conic-beaked. Monoicous. *Sterile* fl. axillary.

1. P. intricàtum, *Hedw.* [*Tangled*]: Stems creeping, the branches entangled; leaves imbricated, ovate-lanceolate, secund, nerveless; capsule erect, oblong-ovoid; pedicel ½ an inch to ¾ in length; lid with a short oblique beak. On the bark of trees.

2. P. rèpens, *Schwaegr.* [*Creeping*]: Stems creeping, much branched; branches erect, crowded; closely imbricated, oval, short-pointed, with a short forked nerve at base, the margins reflexed; capsule erect, ovoid-cylindrical; pedicel about ¾ of an inch long.—On old logs, &c.

3. P. subcapillàtum, *Hedw.* [*Somewhat hairy*]: Stems matted together; leaves imbricated, lance-linear, acuminate; capsule inclined, cylindrical-oblong; pedicel minutely muricate, ⅓ to ½ an inch in length; calyptra sparsely hairy; lid rather long, beaked.—On trees. Resembles *P. intricatum,* but smaller.

4. P. hirtéllum, *Hedw.* [*Roughish-haired*]: Stems creeping, throwing up densely-crowded cylindrical branches; leaves closely imbricated, deltoid, pointed, minutely fringed on the margins, nerveless; capsule oblong, slightly ventricose at base; teeth of the peristome long and white; pedicel about ½ an inch long. "Woods, investing the bases of young trees (particularly of *Hickory & Hornbeam*) with dense glaucous-green mats."

556. LEPT'ODON, *Weber.*

[Gr. *Leptos*, slender, and *odous*, tooth; in reference to the peristome.]

Calyptra large, cuculliform, hairy. *Capsule* oblong. *Peristome* double; the outer of 16 linear-lanceolate teeth; the inner as in *Pterogonium*. *Lid* conic, somewhat beaked.

1. L. trichomitrion, *Mohr.* [*Hairy-cap*]: Main stem creeping, leafless, throwing out pinnate branches; leaves when moist erect-spreading, oblong-ovate, pointed, nerveless, the margins reflexed; perichaetial leaves large, scarious, convolute, as long as the pedicel; capsule ovoid-cylindrical. On trees.

557. LEUC'ODON, *Schwaegr.*

[Gr. *Leukos*, white, and *odous*, a tooth; in reference to the peristome.]

Calyptra cuculliform, large, rather ventricose, plicate at base.—*Capsule* roundish-oval or oblong-ovoid. *Peristome* double; the outer of 16 linear-oblong perforated teeth; the inner as in *Pterogonium*. *Lid* small, depressed-conic, rather short-beaked.

1. L. julàceus, *Hedw.* [*Ament-like*]: Main stem creeping, leafless; branches crowded, erect, simple, cylindrical; leaves densely imbricated, ovate, nerveless, spreading horizontally when moist; perichaetial leaves large, scarious, convolute, ⅔ the length of the pedicel. Woods, on trees.

2. L. brachypus, *Brid.* [*Short-pedicel*]: Allied to the preceding, but the branches longer, more slender and recurved; leaves elongated, when moist erect-spreading, secund; capsule oblong-ovoid, on a very short lateral pedicel. On trees and rocks.

TRIBE 17. NECKERA'CEAE.

558. NECKE'RA, *Hedw.*

[Dedicated to *N. J. Necker*,—a German Botanist.]

Calyptra halved-mitriform. *Peristome* double; the outer of 16 linear teeth; the inner 16 cilia arising from a very narrow membrane.—*Lid* conic, more or less beaked. Monoicous. *Sterile* fl. axillary.

1. N. pennàta, *Hedw.* [*Feathered*]: Stems decumbent; branches nearly pinnate, flat; leaves bifarious, lance-ovate, slightly wavy, membranaceous; capsule ovoid, erect, short-pedicelled, immersed in the large perichaetial leaves. On trees.

TRIBE 18. LESKEA'CEAE.

559. ISOTHE'CIUM, *Brid.*

[Gr. *Isos*, equal, and *Thekion* a little case; from the symmetrical capsule.]

Calyptra cuculliform. *Capsule* erect, annulate. *Peristome* double;

the outer of 16 linear teeth; the inner 16 cilia, connected at base by a very narrow membrane. *Lid* conic, more or less beaked.—Monoicous. *Sterile* fl. axillary.

1. I. cladorrhizans, *Hedw.* [*Branch-rooting*]: Stems prostrate; branches sub-pinnate, much compressed; leaves imbricated, concave, oblong-ovate, apiculate, shining; capsule erect, cylindrical; pedicel about ¾ of an inch long; lid elongated-conic. On old logs, forming large mats.

2. I. compréssum, *Hedw.* [*Compresed*]: Allied to the preceding, but smaller and more delicate, of a lax mode of growth; stems more regularly pinnate; leaves less densely imbricated; lid taper-beaked; fruit less copious.

3. I. sedúctrix, *Hedw.* [*Seductive*]: Allied to the preceding, but the branches cylindrical; leaves more closely imbricated; fruit more abundant, pedicels reddish-brown. Margins of swamps; roots of trees, &c.

4. I. brevisètum, *Wils. & Hook.* [*Short-bristled*]: Branches short, crowded, thick, not compressed; leaves rather loosely imbricated; acuminate, pale green; pedicels about an inch long, brownish yellow. On stumps, &c.

5. I. viticulòsum, *Hedw.* [*Vinelet*]: Stems creeping, loosely branched; branches nearly erect, elongated, simple, terete; leaves deep green, ovate-oblong, obtuse, crowded, spreading; capsule cylindric; lid conic, pointed. On trees, at the base; old logs, &c.

560. LES'KEA, *Hedw.*

[Dedicated to *N. G. Leske*,—a German Botanist.]

Calyptra cuculliform. *Capsule* erect, or inclined. *Peristome* double; the outer of 16 teeth; the inner of 16 cilia arising from a broad keeled membrane. *Lid* conic, more or less beaked. Monoicous.—*Sterile* fl. axillary.

1. L. attenuàta, *Schreb.* [*Attenuated*]: Stems creeping, much branched,—the branches often attenuated at apex; leaves ovate, rather obtuse and one-sided, spreading at apex, the strong nerve vanishing near the point; capsule erect, cylindric; pedicel ½ an inch to ¾ long: lid conical, obtusely pointed. Shaded rocks, and damp places.

2. L. imbricátula, *Hedw.* [*Imbricated*]: Stems creeping; branches crowded, attenuated; leaves closely imbricated, erect-spreading, ovate and lanceolate, acuminate, pale green and shining, the serrulate margin somewhat reflexed; capsule erect, cylindric; pedicel about ½ an inch long. Woods, on old stumps. Very variable.

3. L. obscùra, *Hedw.* [*Obscure*]: Leaves dark green, opaque, ovate, rather obtuse, the nerve extending to near the apex; capsule erect, oblong-elliptic; pedicel ½ an inch to ¾ in length; lid conic. Wet banks, on trees. Fruit copious.

4. L. rostràta, *Hedw.* [*Beaked*]: Stems ascending, variously divided; branches very crowded, short, erect, terete; leaves pale green, ovate-lanceolate, attenuated, the strong nerve percurrent; capsule ovoid-oblong; pedicel about ⅓ of an inch long; lid obliquely beaked from a conic base. Woods, at roots of trees.

5. L. denticulàta, *Sulliv.* [*Denticulate*]: Stems creeping and fastigiately branched; branches erect, crowded, a little compressed; leaves palish green, densely imbricated, ovate, concave, pointed, denticulate, nerveless; capsule oval-oblong; lid obliquely short-beaked. On rocks, and roots of trees. Fruit very rare.

6. L. frágilis, *Hook. & Wils.* [*Fragile*]: Stems creeping, irregularly divided; branches filiform, rigid and very fragile; leaves deep green, minute, appressed when dry, ovate-lingulate, rather acute, nerved to the middle. On trees. Fruit not seen.

TRIBE 19. HYPNA'CEAE.

561. HYP'NUM, *L.* Feather-Moss.

[An ancient Greek name for some Moss.]

Calyptra cuculliform. *Capsule* nodding, unequal (the upper side more convex), with an oblique orifice. *Peristome* double; the outer of 16 lanceolate teeth; the inner a keeled-furrowed membrane divided into 16 entire, or perforated *cilia*, with *ciliolae* interposed. *Lid* various. *Fructification* monoicous, or dioicous.

§ 1. Stems *and* branches *flat;* leaves *bifarious.*

1. H. sylváticum, *L.* [*Wood*]: Stems tender and fragile; branches lance-linear, frond-form, tapering, loose, sometimes rooting at apex; leaves broadly lanceolate, pointed, with narrowly reflexed margins, decurrent, shining; capsule oblong, erect-nodding; pedicel near an inch long; annulus large; peristome white; lid elongated-conic, acute. Crevices of moist rocks.

2. H. deplanàtum, *Br. & Sch.* [*Flatted*]: Stems tough, much divided; branches obtuse, rather short, rooting along their whole length; leaves slightly serrulate; capsule short, oblique, or somewhat horizontal. Woods, on roots of trees, &c.

3. H. Silesiacum, *Beauv.* [*Silesian*]: Stems decumbent; leaves lanceolate, with an attenuated flexuose point, serrulate; capsule cylindrical, erect-nodding; annulus large; pedicel ⅓ to ½ an inch long; lid hemispherical-conic, apiculate. At roots of trees.

4. H. ripàrium, *L.* [*Bank*]: Stems procumbent, extended, branched; branches divided, flaccid; leaves distant, divergent, ovate-lanceolate, flat, entire, nerved half-way up; capsule oblong, rather nodding; pedicel near an inch long; lid conic, mammillate. On logs in swamps: Variable in size.

5. H. serrulàtum, *Hedw.* [*Serrulate*]: Stems creeping, irregularly divided; leaves distant, lanceolate, acuminate, serrulate, the nerve extending above the middle; capsule oblong, nodding; annulus none; pedicel about ¾ of an inch long; lid conic, long-beaked. Dry woods, on the ground.

§2. Stems *and* branches *elongated, flaccid, rather compressed;* leaves *loosely placed;* pedicels *minutely roughened.*

6. H. hians, *Hedw.* [*Gaping*]: Stems prostrate, much extended, vaguely branched; branches ascending; leaves spreading, shining, ovate-cordate, serrulate, the nerve of uniform size, stopping about midway; lid beaked, as long as the nodding capsule; pedicel about an inch long. Woods, among decayed leaves, &c.

§3. Stems *procumbent, fasciculately branched, the terete branches turgid;* leaves *cordate-ovate, lurid green.*

7. H. ruscifòlium, *Neck.* [*Ruscus-leaved*]: Stems and branches floating, 1 to 3 or 4 inches long; leaves sometimes bifarious, spreading, loosely imbricated, concave, acute, serrulate, the nerve vanishing below the apex; capsule ovoid, nodding; pedicel about $\frac{2}{3}$ of an inch long; lid long-beaked. On wood and stones, in swift water.

§4. Branches *terete, plumose;* pedicels *smooth, or rough.*

8. H. pseudo-plumòsum, *Brid.* [*False-plumose*]: Stems variously branched; leaves erect-spreading, imbricated, ovate-lanceolate, entire, not striate, the nerve reaching to the middle; capsule ovoid-oblong, oblique; pedicel $\frac{3}{4}$ to an inch long, muricate-roughened above; lid conic, acute. On rocks, in running water.

9. H. Rutábulum, *L.* [*Poker*]: Stems vaguely branched; leaves ovate, acuminate, concave, serrulate, nerved halfway; capsule ovoid, gibbous, oblique, annulate; lid conic; pedicel about an inch long, muricate-roughened its whole length. Wet, springy places.

10. H. salebròsum, *Hoffm.* [*Rugged*]: Stems procumbent or ascending, variously branched; leaves pale green, nearly entire, ovate-lanceolate, acuminate, more or less striate, the nerve extending above the middle; capsule oblong, nodding; lid conic-acuminate; pedicel purple, about an inch long. On the ground, and decayed logs, &c. variable.

§5. Stems *elongated, flaccid;* branches *turgid, terete;* leaves *densely imbricated, obtuse;* pedicels *smooth.*

11. H. Bóscii, *Schwaegr.* [*Bosc's*]: Stems rather fasciculately branched; branches elongated, obtuse; leaves greenish-yellow, shining, ovate, apiculate, concave, serrulate, slightly auricled at base, nerve running $\frac{2}{3}$ the length; lid conic, beaked; pedicels near an inch long. Rocky banks.

§6. Stems *ascending;* branches *short, pinnately disposed;* leaves *shining, appressed, convolute at the pointed tips of the branches.*

12. H. Schrebéri, *Willd.* [*Schreber's*]: Branches rather compressed, tapering; leaves ovate, concave, entire, faintly 2-nerved at base; capsule oblong-ovoid, nodding; lid conic, acute; pedicels aggregated, slender, reddish, 1 to $1\frac{1}{2}$ inches in length. On dry hills, and banks.

§ 7. Stems *bi-tri-pinnately branched;* branches *spreading, rigid, attenuated;* leaves *minute, fragile;* pedicels *aggregated.*

13. H. tamariscinum, *Hedw.* [*Tamarix-like*]: Stems procumbent, tripinnately branched; leaves appressed when dry, cordate-ovate, acute, crenulate-serrate, papillose on the back, not shining; capsule oblong, nodding; pedicel an inch and half long; annulus distinct; lid conic, with a long curved beak. On the ground; old logs, &c.

14. H. minùtulum, *Hedw.* [*Little*]: Allied to the preceding, but smaller throughout; stems not so compound; leaves less evidently papillose, more crisped when dry. On dry ground.

15. H. grácile, *Br. & Sch.* [*Slender*]: Stems procumbent, rooting; divisions simply and densely pinnate; leaves as in *H. tamariscinum;* capsule obovoid-oblong, nodding; pedicel an inch or inch and quarter long; lid hemispherical-apiculate. Woods, and damp places.

16. H. scitum, *Beauv.* [*Goodly?*]: Mode of growth of No. 15, and the foliage of No. 13; but the capsule cylindrical, almost erect; lid conic, beaked. On the base of trees.

17. H. splèndens, *Hedw.* [*Glittering*]: Stems ascending, bipinnate, the branches interruptedly crowded; leaves loosely imbricated, spreading, cordate-ovate and ovate-lanceolate, acuminate, shining; pedicels clustered, $\frac{1}{3}$ of an inch long; capsule obovoid, nodding; lid conic, beaked. Hilly woods.

§ 8. Stems *prostrate, the divisions erect, naked below, fasciculately branched at summit (tree form).*

18. H. strigòsum, *Hoffm.* [*Strigose*]: Leaves cordate-ovate, more or less elongated, rather obtuse, serrulate above, the strong nerve nearly percurrent; capsule ovoid, oblique, nodding; pedicel $\frac{1}{2}$ an inch to $\frac{3}{4}$ long; lid conic, with an acute incurved beak. On the ground, in hilly woods.

§ 9. Stems *irregularly branched;* leaves *squarrose, or erect-spreading (mostly larger and robust species.)*

19. H. triquètrum, *L.* [*Three-sided*]: Stems 3 to 5 inches high, nearly erect, sparingly divided, firm, the divisions thickened at their tips, pinnate; branchlets somewhat recurved, attenuated; leaves squarrose, triangular-lanceolate, acuminate, serrulate, striate, 2-nerved at base; capsule oblong-ovoid, nodding; pedicel about $\frac{3}{4}$ of an inch long; lid conic, apiculate. Woods, on the ground.

§ 10. Leaves *rather squarrose, stellately expanding at the summit of the branches.*

20. H. stellàtum, *Schreb.* [*Stellate*]: Stems procumbent, the branches ascending; leaves yellowish-brown, ovate-lanceolate, long-acuminate, entire, nerveless or nerved halfway; capsule nearly cylindrical, curved, nodding; pedicel about $\frac{3}{4}$ of an inch long; lid conic, mucronulate. Wet ground.

21. H. hispidulum, *Brid.* [*Somewhat hispid*]: Stem and branches closely entangled; leaves distant, cordate-ovate, pointed, minutely crenate-denticulate, the point entire; capsule oblong, nodding; pedicel about an inch long; lid conic, acute. Woods, and rocky hills, on the ground. Fruit abundant, and, with the pedicels, reddish-brown.

§ 11. Stems *vaguely branched;* leaves *erect-spreading, elongated, acute.*

22. H. sérpens, *L.* [*Creeping*]: Leaves loosely placed, ovate-acuminate and linear-lanceolate, entire, the nerve vanishing below the apex; capsule rather large, cylindric, curved, erect-nodding; pedicel 1 to near 2 inches long, reddish-orange; lid convex-conic, acute. Wet places. Variable.

23. H. adnàtum, *Hedw.* [*Adnate*]: Stems creeping; branches crowded, terete; leaves closely imbricated, ovate-lanceolate, concave, entire, nerveless; perichaetial leaves erose-denticulate at apex; capsule small, ovoid, nodding, annulate; pedicel very slender, about ½ an inch long; lid short-conic, obtuse. Woods; on rocks, &c.

§ 12. Stems *much elongated, irregularly branched;* leaves *hooked, or curved (swamp species).*

24. H. adúncum, *L.* [*Claw-like*]: Leaves falcate, secund, lance-subulate, entire, nerved beyond the middle, the margins of the upper portion involute; capsule nearly cylindrical, nodding lid depressed-conic, acute. Swamps.

25. H. uncinàtum, *Hedw.* [*Hooked*]: Leaves bright green, or pale yellow, shining, setaceous-subulate, falcate, secund, striate, serrulate, the nerve vanishing below the summit; capsule cylindric, curved; pedicel about an inch long; lid conic, apiculate. Wet places.

§ 13. Stems *pinnately branched, or nearly so;* leaves *generally more or less falcate, and secund.*

26. H. impònens, *Hedw.* [*Imposing*]: Stems creeping, divided, pinnate; leaves pale green, lanceolate, pointed, nearly entire; perichaetial leaves long, reflexed, strongly serrulate; capsule slender, cylindrical, nearly regular, almost erect; pedicel about an inch long; lid elongated-conic, acute. Woods, on old logs.

27. H. recúrvans, *Mx.* [*Recurving*]: Stems creeping, pinnately branched; leaves tawny-yellowish-green, shining, lanceolate, pointed, the point strongly serrulate, margins narrowly reflexed; capsule obovoid-oblong, small, nodding; pedicel about ¾ of an inch long; lid conic, long-pointed. Old logs, and rocks.

28. H. curvifòlium, *Hedw.* [*Curved-leaved*]: Stems prostrate, pinnately branched; leaves ovate-lanceolate, long-pointed, nearly entire; perichaetial leaves large, convolute, whitish, striate; capsule oblong, curved, ribbed when dry; lid hemispherical-conic, acute. Woods, on decayed logs.

29. H. Haldaniànum, *Grev.* [*Haldan's*]: Stems prostrate, rather pinnately branched; branches long, compressed; leaves broadly lanceolate, pointed, entire, not falcate nor secund; capsule elongated-cylindrical, erect-nodding; pedicel about an inch long; lid conic, with a long curved beak. Wet woods.

30. H. Crista-castrénsis, *L.* [*Camp-Crest*]: Stems ascending, simply pinnate and plume-like; branches crowded; leaves pale green, imbricated, secund, strongly falcate, lance-subulate, striate, serrulate; capsule subcylindric, curved, nodding; pedicel about 2 inches long; lid conic, acute. Cold woods, on the ground.

31. H. mollúscum, *Hedw.* [*Soft*]: Stems procumbent, divided, simply pinnate, the plume-like branches revolute at their tips; leaves imbricated, falcate, serrulate, smooth; capsule oblong-ovoid; pedicel ½ to ⅔ of an inch long; lid conic, acute. Shady woods, on the ground.

562. CLIMA'CIUM, *Web. & Mohr.* Tree-Moss.

[Gr. *Klimakion*, a small ladder; from the appearance of the inner peristome.]

Calyptra cuculliform. *Capsule* equal and symmetrical. *Peristome* double; the outer of 16 linear-lanceolate teeth; the inner of 16 keeled processes splitting along the keel, arising from a very narrow membrane. *Lid* conic-convex, short-beaked. Dioicous. *Sterile* fl. axillary.

1. C. dendroides, *W. & M.* [*Tree-like*]: Stems creeping, subterranean, throwing up erect tree-like branches (innovations), which are about 3 inches high, nearly naked below, with the subdivisions or branches clustered above; leaves crowded, erect-spreading, ovate-lanceolate, concave, plicate, the upper half denticulate, nerved to near the apex; capsule erect, long and cylindrical; pedicel 1 to 1¼ inches long. Woods, and borders of swamps.

TRIBE 20. FONTINA'LEAE.

563. FONTINA'LIS, *L.* Fountain-Moss.

[Latin, *Fons*, a fountain; from its place of growth.]

Calyptra mitriform, somewhat lacerate at base. *Capsule* sessile, immersed. *Peristome* double; the outer of 16 linear-lanceolate teeth; the inner a conical tessellated membrane. *Lid* conic, pointed. Dioicous. *Sterile* fl. axillary.

1. F. squamòsa, *L.* [*Scaly*]: Stems floating, about 6 inches long, flexible, vaguely branched; leaves trifarious, elongated-lanceolate, concave, not infolded-keeled. In rivulets.

564. DICHELY'MA, *Myrin.* Brook-Moss.

[Gr. *dichao*, to halve, and *Elyma*, a covering; from the halved calyptra.]

Calyptra cuculliform, entire at base. *Capsule* pedicellate, emergent, or immersed. *Peristome* double; the outer of 16 linear teeth; the inner of 16 free *cilia*,—or as in *Fontinalis*. *Lid* conic, short-beaked.

1. D. capillàceum, *Myrin.* [*Hair-like*]: Stems elongated, sparingly branched; branches squarrose; leaves secund, subulate by the long excurrent nerve from an ovate base; capsule oblong, on a short pedicel. In rivulets.

SUBORDER II. SPHAGNA'CEAE.

Calyptra bursting in the middle, persistent; *fruit* on short terminal pedicels; *lid* opening elastically; *orifice* of the capsule naked; *columella* at maturity obsolete.

565. SPHAG'NUM, *Dillen.* Peat-Moss.

[From *Sphagnos*, the ancient Greek name.]

Calyptra irregularly torn. *Capsule* sessile on the pedicel-like torus (*vaginula*). *Peristome* none. *Lid* deciduous. Monoicous. Soft, flaccid, pale-colored or whitish Mosses, growing in bogs, or very wet places;—affording an excellent envelope for the roots of plants, which are to be removed to a distance.

1. S. cymbifòlium, *Ehrh.* [*Boat-leaved*]: Stems elongated (6 to 12 inches); branches cylindrical, turgid; leaves ovate, or oblong, obtuse, concave, closely imbricated. Swamps, &c.

2. S. acutifòlium, *Ehrh.* [*Acute-leaved*]: Leaves ovate-lanceolate, involute at apex, acute, crowded. Bogs, and wet places. Smaller than the preceding.

ORDER CXXIV. HEPAT'ICAE.

Moss-like plants, perennial, or *annual,* of a loose cellular texture, usually procumbent and emitting rootlets from beneath; the *calyptra* not separating from the base, but usually rupturing at apex; the *capsule* not opening by a lid, containing *spores* usually *mixed with elaters* (thin thread-like cells, containing one or two *spiral fibres* which uncoil elastically at maturity).*

SUBORDER I. JUNGERMANNIA'CEAE.

Annual, or *perennial;* frondose, or distinctly leafy, often stipulate (i. e. with *amphigastria*); *antheridia* scattered, free, stipitate or immersed; *pistillidia* solitary, or rarely several, in involucres immediately arising from the stem, or frond, calyptrate; *capsule* mostly 4-valved, pedicellate; *spores* mixed with elaters,—the *elaters* usually with 2 *spiral fibres.*

TRIBE 1. JUNGERMANNID'EAE.

* The *Vegetation* of the HEPATICAE is "sometimes *frondose,* i. e. the stem and leaves confluent into an expanded leaf-like mass; sometimes *foliaceous,* when the leaves are distinct from the stem, as in true Mosses, entire or cleft, 2-ranked, and often with an imperfect or rudimentary row (*amphigastria*) on the under side of the stem. Reproductive organs of 2 kinds, viz. *antheridia* and *pistillidia,* much as in Mosses (which see), variously situated. The matured pistillidium forms the *capsule,* which is either sessile or borne on a long cellular pedicel, and dehiscent by irregular openings, by teeth at its apex, or lengthwise by 2 to 4 valves. A *columella* is rarely present. The *perianth* is a tubular organ inclosing the *calyptra,* which directly includes the pistillidium. Surrounding the perianth are *involucral* leaves of particular forms. The *antheridia* in the foliaceous species are situated in the axils of perigonial leaves."—GRAY'S *Manual.*

566. PLAGIOCHI'LA, *Nees & Mont.*

[Gr. *Plagios*, turned to one side, and *Chilos*, herbage; descriptive of the plant.]

Fructification terminal or lateral. *Involucral* leaves 2, larger than the cauline. *Perianth* compressed at right angles to the plane of the stem; the *mouth* truncate, entire or ciliate-toothed. *Pistillidia* numerous. *Calyptra* membranaceous. *Antheridia* covered by small and ventricose-imbricated perigonial leaves. *Stem-leaves* succubous, with the dorsal margin decurrent and reflexed, often turned to one side.

† Amphigastria *none;* orifice *of the perianth ciliate-toothed.*

1. P. asplenioides, *N. & M.* [*Asplenium-like*]: Leaves somewhat imbricated, oblique, spreading, rounded-obovate, entire or denticulate; perianth terminal. Banks of rivulets.

†† Amphigastria *fugacious,* 2- *to* 3-*cleft.*

2. P. porelloides, *Lindenberg.* [*Porella-like*]: Stems divided; the branches ascending; leaves rather imbricated, convex-gibbous, rounded-obovate,—those at and near the summit of the stem repand-denticulate, the others entire; perianth oblong, the mouth denticulate. Among moss, at the base of trees.

567. SCAPA'NIA, *Lindenberg.*

[Gr. *Skapane*, a shovel; from the shape of the leaf-lobes]

Fructification terminal. *Involucral* leaves 2, larger than the cauline. *Perianth* compressed, parallel to the plane of the stem,—the *mouth* entire, or ciliate-toothed. *Pistillidia* few. *Calyptra* membranaceous. *Antheridia* in the angles of small saccate equally 2-lobed perigonial leaves. *Stem-leaves* succubous, complicate- 2-lobed,—the dorsal lobe smaller. *Amphigastria* none.

1. S. nemorosa, *Nees.* [*Grove*]: Stems ascending, crowded; leaves ciliate-toothed, each lobe convex, obtuse; the ventral obovate, oblique, twice as large as the other. Moist banks. Variable.

568. JUNGERMANN'IA, *L.* Scale-Moss.

[Dedicated to *Ludwig Jungermann;* a German Botanist.]

Fructification terminal. *Involucral* leaves free, like or unlike the stem-leaves. *Perianth* membranaceous, tubular, plicate-denticulate at apex,—the mouth 3- to 6-cleft. *Calyptra* included, rarely projecting. *Antheridia* in the base of inflated perigonial leaves.—*Stem-leaves* succubous. *Amphigastria* present, or absent.

† Leaves 2-*cleft*; amphigastria *none.*

1. J. connivens, *Dickson.* [*Connivent*]: Stems creeping, flexuose; leaves nearly orbicular, with a broad decurrent base, distant, a little wider than the stem, 2-cleft to $\frac{1}{4}$ or $\frac{1}{3}$ of their length, the sinus obtuse; segments acute, connivent; reticulations large; involucral leaves 3- to 5-cleft; perianth slender, the mouth lacerate-ciliate. On rotten wood.

2. J. curvifòlia, *Dicks.* [*Curve-leaved*]: Fruit-bearing branch short; stems creeping; leaves imbricated, ascending, nearly orbicular, inflated at the ventral base, lunately 2-cleft,—the segments long-linear, inflexed; involucral leaves erect, 2- 3-cleft, serrate; perianth narrow, plaited-triangular, the mouth denticulate. Rotten logs, &c.

†† Leaves *nearly orbicular, undivided;* amphigastria *differing from the leaves, or obsolete.*

3. J. Schradèri, *Mart.* [*Schrader's*]: Stems creeping, flexuose; leaves elliptic-orbicular, ascending; outer involucral leaves large, elongated, entire, or emarginate, spreading at apex; the inner smaller, more or less laciniate; amphigastria obsolete; perianth oval-obovate,—the mouth plicate-lobed, the lobes ciliate. Old logs, &c. Foliage often dark purple.

569. SPHAGNICOE'TIS, *Nees.* Peat Scale-Moss.

[Gr. *Sphagnos*, peat-moss, and *Koïtis*, a little bed; from the appearance & growth.]

Fructification terminal, upon a short proper branch arising from the ventral side of the stem. *Involucral* leaves small, few, incised.—*Perianth* ascending, terete, 3-angled at apex,—the mouth denticulate. *Calyptra* membranaceous. *Capsule* oblong. *Stem-leaves* succubous, orbicular. *Amphigastria* none, except upon the gemmiferous branches. *Stems* furnished with runner-like rootlets.

1. S. communis, *Nees.* [*Common*]: Stems creeping; leaves elliptic-orbicular, entire, ascending. On Moss, and decayed wood.

570. LOPHOCO'LEA, *Nees.*

[Gr. *Lophos*, a crest, and *Koleos*, a sheath; from the crested calyptra.]

Fructification terminal on the main stem or primary branches. *Involucral* leaves 2 to 4, large. *Perianth* tubular below, acutely triangular above, 3-lobed,—the lobes tooth-crested. *Calyptra* short, membranaceous, circumscissile at base, or rupturing irregularly at apex. *Capsule* pedicellate, oval. *Antheridia* in the saccate bases of small imbricated perigonial leaves. *Stem-leaves* succubous, nearly horizontal, decurrent on the dorsal side of the stem, flaccid, 1- to several-cleft at apex. *Amphigastria* 2- to 4-parted,—the divisions more or less incised.

1. L. bidentàta, *Nees.* [*Two-toothed*]: Stems elongated, sparingly branched; leaves ovate-triangular, spreading, loose, pale, 2-toothed; teeth oblique, acute, with a crescent-like sinus; involucral leaves acutely 2-cleft and somewhat toothed. Moist places, among Mosses, &c.

571. CHILOSCY'PHUS, *Corda.*

[Gr. *Chilos*, herbage, and *Skyphos*, a cup; from the herbaceous calyptra.]

Fructification terminal upon a short lateral branch. *Involucral* leaves 2 to 6, different from and smaller than the stem-leaves. *Perianth* usually short, deeply 2- or 3-cleft. *Calyptra* globose, or subclavate, slightly chartaceous, often longer than the perianth, rupturing

irregularly at apex. *Capsule* pedicellate. *Perigonial* leaves like the cauline, concealing antheridia in their saccate dorsal bases. *Stem-leaves* succubous, decurrent on the back of the stem, rather horizontal; *rootlets* from the base only of the deeply 2-cleft amphigastria.

1. C. polyánthos, *Corda.* [*Many-flowered*]: Stems procumbent; leaves ovate-quadrate; involucral leaves 2, slightly 2-toothed; perianth 3-lobed, the lobes short and nearly entire. Rocks, &c.

TRIBE 2. GEOCALYCE'AE.

572. GEO'CALYX, *Nees.*

[Gr. *Gea*, the earth, and *Calyx*; the fructification becoming subterranean.]

Involucral leaves none. *Perianth* fleshy, glabrous, attached by one side of its mouth to the stem, pendulous. *Calyptra* membranaceous, free. *Capsule* pedicellate, 4-valved,—the *valves* narrow, straight (not twisted), striate, finally spreading. *Antheridia* on spike-like lateral branches, in the axils of scale-like perigonial leaves. *Stem-leaves* succubous.

1. G. gravèolens, *Nees.* [*Strong-scented*]: Leaves light green, ovate-quadrate, 2-toothed; amphigastria oval-lanceolate, 2-cleft to the middle; perianth subterranean. On the ground.

TRIBE 3. TRICHOMANOI'DEAE.

573. CALYPOGEI'A, *Raddi.*

[Gr. *Kalyx*, flower- or fruit-cup, & *hypogaia*, under ground; descriptive of plant.]

Involucral leaves none. *Perianth* oblong, saccate, truncate, fleshy, hairy, attached by one side of its mouth to the stem, pendulous.—*Calyptra* membranaceous, partly connate with the perianth. *Capsule* pedicellate from the bottom of the perianth, oblong, twisted,—the *valves* narrow and contorted. *Antheridia* on short lateral capitate branches, one in each of the scale-like perigonial leaves. *Stem-leaves* incubous, entire or 2-toothed. *Amphigastria* 2-cleft.

1. C. Trichómanis, *Corda.* [*Fern*]: Leaves roundish-ovate, obtuse, spreading, imbricated; perianths imbedded in the soil.—Moist, springy places. *Foliage* delicate, pale glaucous-green.

574. MASTIGO'BRYUM, *Nees.* Great Scale-Moss.

[Gr. *Mastix*, a whip-lash, and *Bryon*, Moss; from its rootlet-like runners.]

Fructification terminal, on short proper branches, arising from the axils of the amphigastria. *Involucral* leaves small, narrow, acutely incised at apex. *Perianth* elongated, triangular, the mouth 3-toothed. *Calyptra* membranaceous. *Capsule* pedicellate. *Antheridia* on short branches from the axils of the amphigastria, 2 in each perigonial leaf. *Stem-leaves* incubous, imbricated, oblique, usually 3-toothed at apex. *Stems* 2 to 3 inches long, forked and sparingly branched, the branches obtuse; rootlet-like runners, furnished with minute leaves, proceeding from the axils of the amphigastria.

1. M. trilobàtum, *Nees.* [*Three-lobed*]: Leaves olive-green and brownish-yellow, ovate, antrorsely gibbous at the dorsal base, broad and acutely 3-toothed at apex; amphigastria 4- to 6-toothed, the teeth denticulate. On damp ground.

TRIBE 4. PTILID'IA.

575. TRICHOCO'LEA, *Nees.* Downy Scale-Moss.
[Gr. *Thrix*, hair, and *Koleos*, a sheath; from the hairy involucre.]
Fructification dichotomal. *Involucral* leaves numerous, coalescent into an oblong truncate coriaceous hairy tube. *Perianth* and *calyptra* none. *Capsule* pedicellate from the bottom of the tube.—*Antheridia* on the upper side of the stem in the axils of leaves. *Leaves* incubous, palmately divided, the divisions laciniate.

1. T. Tomentélla, *Nees.* [*Down*]: Stems forked, bi- tripinnately branched; divisions of the leaves capillary-many-cleft; amphigastria setaceously many-cleft. Moist places, in large patches. Foliage pale green, soft-hairy.

576. PTILID'IUM, *Nees.* Fringed Scale-Moss.
[Gr. *Ptilon*, a downy feather, and *Eidos*, form; from the fringed foliage.]
Fructification terminal on short branches. *Involucral* leaves 2 to 4, four-cleft. *Perianth* terete, obovate,—the mouth connivent, plicate, denticulate. *Pistillidia* numerous. *Calyptra* pear-shaped, coriaceous, style-bearing. *Capsule* pedicellate, ovoid, 4-valved to the base.—Dioicous. *Antheridia* covered by closely imbricated perigonial leaves. *Stem-leaves* bifarious, incubous, complicate 2-lobed, each lobe divided. *Amphigastria* 4- or 5-lobed.

1. P. ciliàre, *Nees.* [*Fringed*]: Stems crowded together, rather pinnate; leaves 4-cleft and amphigastria both lacerately ciliate,—the fringe long and setaceous. On rotten logs.

TRIBE 5. JUBULE'AE.

577. RHAD'ULA, *Nees.*
[Gr. *Rhadalos*, soft or pliant; descriptive of the plant.]
Fructification terminal on short branches, or dichotomal. *Involucral* leaves 2, deeply 2-lobed. *Perianth* compressed, or nearly terete,—mouth dilated. *Pistillidia* numerous. *Calyptra* pear-shaped, persistent, with a style, opening below the apex. *Capsule* pedicellate, oval, 4-parted,—the valves erect-spreading, within nodulosely striate. *Elaters* attenuated at both ends. *Spores* large, globose.—Monoicous. *Antheridia* in the ventricose base of minute perigonial leaves. *Stem-leaves* bifarious, incubous, 2-lobed,—the small inflexed ventral lobe producing rootlets. *Amphigastria* none.

1. R. complanàta, *Dum.* [*Even, or planed*]: Stems flat, irregularly and somewhat pinnately branched, flaccid; leaves imbricated; dorsal lobe roundish,—the ventral much smaller, triangular-ovate, appressed; perianth oblong, compressed. On trees.

578. MADOTHE'CA, *Dum.* Free Scale-Moss.
[Gr. *Mados*, bald, and *theke*, capsule; the elaters falling from the valves.]
Fructification lateral, nearly sessile. *Involucral* leaves 2 or 4, 2-lobed. *Perianth* ovate, biconvex, the mouth 2-lipped, incised, or entire.—*Pistillidia* numerous. *Calyptra* globose, persistent, rupturing below the apex. *Capsule* short-pedicelled, globose, 4-parted,—the valves

erect, incurved. *Elaters* free, attenuated at both ends. *Spores* large, rather angular. Dioicous. *Antheridia* in the saccate base of closely imbricated 2-lobed perigonial leaves. *Stem-leaves* bifarious, incubous, deeply and unequally 2-lobed. *Amphigastria* large, decurrent.

1. M. platyphyl'la, *Dum.* [*Broad-leaved*]: Stems irregularly bipinnate; dorsal lobe of the leaf roundish-ovate, the basal margin more or less undulate; ventral lobe smaller, oblique, cordate-oval, the margins reflexed; amphigastria round-obovate; mouth of the perianth nearly entire. On trees, and rocks. Variable.

2. M. Porélla, *Nees.* [*Little pore*]: Stems 2 to 3 inches long, bi- tri-pinnate,—the forked branches divergent; leaves distant; dorsal lobe oblong-ovate, obtuse,—the ventral much smaller, appressed to the stem, oblong, flat; amphigastria quadrate; mouth of the perianth crenulate. Stones, and roots of trees subject to inundation.

579. FRULLA'NIA, *Raddi.*

[Said to be a personal name.]

Fructification terminal on proper branches. *Involucral* leaves 2 or 4, 2-lobed, not auriculate. *Perianth* oval, or obovate, terete, or 3- or 4-angled, mucronate at apex by a tubular mouth. *Pistillidia* 2 or 4. *Calyptra* pear-shaped, persistent, with a style, rupturing below the apex. *Capsule* pedicellate, globular, 4-cleft halfway down,—the valves erect-spreading. *Elaters* truncate at both ends, with *one* spiral fibre, adherent to the valves, erect. *Spores* large, irregular, minutely muricate. Dioicous. *Antheridia* in the saccate base of closely imbricated 2-lobed perigonial leaves. *Stem-leaves* bifarious, incubous, 2-lobed, the lower lobe usually an inflated helmet-shaped appendage (auricle). *Amphigastria* entire, or 2-toothed, throwing out rootlets from their base.

1. F. Grayàna, *Mont.* [*Gray's*]: Stems creeping, simply pinnate; leaves glossy, deep purplish-brown, nearly orbicular, concave; auricle oblong-clavate; amphigastria oblong; perianth 3-sided, obtusely keeled beneath. On trees, and rocks.

2. F. Virgínica, *Lehm.* [*Virginian*]: Stems creeping, vaguely branched; leaves green, nearly ovate, entire, concave; auricle sometimes expanded into a lanceolate lamina; amphigastria round-ovate; perianth compressed, tuberculate, 4-keeled beneath, 2- 4-keeled on the back,—the keels crested. Rocks and trees.

3. F. Eboracénsis, *Lehm.* [*York*]: Stems creeping, fasciculately branched; leaves roundish-ovate,—the cauline loose, the rameal imbricated; amphigastria ovate; perianth smooth, slightly compressed and repand, obtusely keeled beneath, and gibbous near the apex. On trees.

4. F. aeolòtis, *Nees.* [*Various-auricled*]: Stems procumbent, vaguely or pinnately branched; leaves half vertical, spreading, obliquely cordate-ovate; auricle usually an ovate-lanceolate lamina; amphigastria ovate or obovate; ventral lobe of the involucral leaf incised. Trees. Allied to the preceding.

580. LEJEUN'IA, *Lib.*

[Dedicated to *A. L. S. Lejeune*,—a French Botanist.]

Fructification lateral, or terminal, on proper branches. *Involucral* leaves 2, deeply 2-lobed. *Perianth* oval or obovoid, terete or angular, winged or ciliate-crested on the angles, the mouth 3- or 4-lobed. *Pistillidium* single. *Calyptra* obovoid, persistent, with a style, rupturing below the apex. *Pedicel* short, jointed in rings, when dry zigzag. *Capsule* globose, membranaceous, pale, 4-cleft to the middle, the valves connivent. *Elaters* persistent, adherent to the tips of the valves, erect, the upper end truncate-dilated, with a *single* spiral fibre. *Spores* large, irregular. Dioicous. *Antheridia* on proper branches lodged in the ventricose base of imbricated 2-lobed perigonial leaves. Foliaceous: *stem-leaves* bifarious, incubous.

1. L. clypeàta, *Schwein.* [*Bucklered*]: Stems procumbent, somewhat pinnately branched; leaves very pale green, with the upper lobe round-obovate and deflexed, the lower oblong, quadrate; amphigastria orbicular, approximated; perianth lateral, sessile, obovoid, obtusely keeled on the back, 2-keeled beneath, the margin rather compressed. On old trees, &c.

TRIBE 6. FRONDO'SAE.

581. PELL'IA, *Radd.*

[A personal name.]

Fructification proceeding from the back of the frond, near the apex. *Involucre* cup-shaped, short, the margin lacerate. *Perianth* none.—*Calyptra* oval, membranaceous, longer or shorter than the involucre. *Capsule* globose, pedicellate, 4-valved. *Elaters* long, free, with 2 fibres. Monoicous. *Antheridia* globose, immersed in the upper surface of the broad indeterminate midrib of the frond.

1. P. epiphyl'la, *Nees.* [*Epiphyllous*]: Frond dark olive-green, rather membranaceous, sparingly divided; divisions oblong, somewhat cuneate, repand-lobed; calyptra exserted, smooth.—Moist shady places, on the ground, forming large patches.

582. ANEU'RA, *Dumortier.*

[Gr. *a*, privative, and *Neuron*, a nerve; the frond being nerveless.]

Fructification arising from the under side near the margin of the frond. *Involucre* cup-shaped, very short and lacerate, or none.—*Perianth* none. *Calyptra* ascending, nearly cylindrical, fleshy.—*Capsule* pedicellate, oval or oblong. *Elaters* adherent to the apex of the valves, containing a single broad spiral fibre. *Inflorescence* monoicous. *Antheridia* immersed in the upper surface of receptacles proceeding from the margin of the *frond*, which is fleshy and destitute of a midrib.

1. A. séssilis, *Sprengel.* [*Sessile*]: Fronds 1 to 2 inches long, and 3 to 5 lines wide, irregularly lobed; involucre none; calyptra papillose at apex; pedicel 9 to 12 lines high; sterile receptacles elongated and tapering deflexed processes. Rotten logs.

Obs. Specimens have been found (though, as yet, only in a sterile state,) which agree well with the description of *A. multifida*, *Dumort.*

583. METZGE'RIA, *Radd.*

[Dedicated to *G. B. Metzger*,—a German Botanist.]

Fertile fructification arising from the lower surface of the midrib.—*Involucre* 1-leaved, scale-like, finally ventricose and 2-lobed. *Perianth* none. *Calyptra* ascending, oblong-obovoid, rather fleshy.—*Capsule* pedicellate, ovoid, dehiscing by 4 equal valves. *Elaters* with *one* spiral fibre, adherent to the tip of the valves. Dioicous. *Antheridia* 1 to 3, inclosed by a 1-leaved involucre on the under side of the midrib.

1. M. furcàta, *Nees.* [*Forked*]: Fronds linear, thin and membranaceous, forking, or proliferous, sprinkled with white pellucid hairs. Woods; mostly on rocks.

SUBORDER II. MARCHANTIA'CEAE.

Frondose perennials, growing in moist places; *frond* lobed, often porous; *antheridia*, or *sterile receptacle*, sometimes immersed in the frond, sometimes disk-form and sessile,—occasionally peltate and pedicellate; *pistillidia*, or *fertile receptacle*, raised on a peduncle, capitate, or radiate, bearing pendent calyptrate capsules from the under side, which open variously, not 4-valved; *spores* mixed with *elaters*, which are usually with 2 *spiral fibres*.

584. FIMBRIA'RIA, *Nees.*

[Latin, *Fimbria*, a fringe; in allusion to the perianth.]

Fertile receptacle hemispherical, concave beneath, expanded at the margin into 4 large pendent campanulate truncate involucres.—*Perianth* oblong oval, projecting for half its length beyond the rim of the involucre,—the projecting portion splitting lengthwise into 8 to 12 fringe-like segments. *Calyptra* with a long style, fugacious. *Capsule* sessile, globose, dehiscing by an irregular circumscissile line near the middle. Monoicous. *Antheridia* immersed in the substance of the frond, not collected into disks. *Frond* thickened in the middle, with a keel-like midrib.

1. F. tenélla, *Nees.* [*Delicate*]: Frond elongated-cuneate, nearly simple, emarginate, green above, purple on the margins and underneath; peduncle 1 to 2¼ inches long. Shaded places, on the ground.

585. REBOUIL'LIA, *Raddi.*

[A personal name; inconveniently near *Reboulea*, of *Kunth*.]

Fertile receptacle conic-hemispherical or flattened, 1- to 5-lobed, peduncled. *Involucres* 1 to 5, opposite to and coherent with the lobes of the receptacle on the under side, 2-valved. *Perianth* none. *Calyptra* minute, lacerate, persistent at the base of the capsule. *Capsule* globose, nearly sessile, rupturing irregularly at the apex. *Spores* muricate. *Inflorescence* monoicous *Antheridia* immersed in sessile crescent-shaped disks. *Frond* rigid; the *midrib* broad, strong, and distinct.

1. R. hemisphàerica, *Raddi.* [*Hemispheric*]: Frond forking and growing by joints from the extremities, green above, purple beneath; the peduncle bearded at its base and apex; fertile receptacle papillose on the summit. Shady, moist places.

586. FEGATEL'LA, *Raddi.* Great Liverwort.

[Believed to be a personal name.]

Fertile receptacle conical-mitriform, membranaceous, peduncled.—*Involucres* 5 to 8, tubular, 1-flowered, suspended from the apex of the peduncle, and coherent with the interior surface of the receptacle, opening by a longitudinal slit. *Perianth* none. *Calyptra* persistent, bell-shaped, opening at the apex by 2 to 4 lobes.—*Capsule* globular, dehiscing by 5 to 8 revolute segments, deciduous with its short pedicel. *Inflorescence* dioicous. *Antheridia* immersed in sessile roundish disks near the apex of the forking frond. *Midrib* distinct, narrow.

1. F. cónica, *Corda.* [*Conic*]: Fronds 3 to 6 inches long, 5 to 9 lines wide. Springy places. The largest of our *Hepaticae;* seldom in fruit.

587. MARCHAN'TIA, *L.* Brook Liverwort.

[Dedicated to *Nicholas Marchant*,—a French Botanist.]

Fertile receptacle radiated. *Involucres* alternate with the rays, 2-valved, lacerate, inclosing 3 to 6 4- or 5-cleft *perianths*. *Calyptra* opening at the apex, persistent. *Capsule* globular, pendulous, exsertly pedicellate, dehiscing at apex by several revolute segments. Dioicous. *Sterile receptacle* pedicellate, peltate, lobed or radiate, papillose on the upper surface by the apices of the immersed *antheridia*. Lentil-shaped buds (*gemmae*) in cup-like receptacles on the back of the frond. *Frond* expanded, forking, with a broad diffused midrib.

1. M. polymórpha, *L.* [*Many-form*]: Fertile receptacle deeply divided in a star-like manner,—the rays 8 or 10, terete; peduncle an inch to an inch and half long. Moist, shaded places.

SUBORDER III. ANTHOCERO'TEAE.

Terrestrial annuals; mostly *frondose*, with the fruit protruded from the upper surface of the frond; *perianth* none; *capsule* pod-like, 1- or 2-valved, with a free central *columella; elaters* imperfect, or wanting.

588. ANTHO'CEROS, *Mich.*

[Gr. *Anthos*, a flower, & *keras*, horn; from the shape of the involucre and capsule.]

Involucre tubular. *Calyptra* conical, with a nearly sessile stigma. *Capsule* narrowly linear, silique-like, 2-valved, pedunculate.—*Elaters* flexuose, the *spiral fibre* imperfect, or wanting. *Spores* minutely muricate. Monoicous. *Antheridia* sessile in a cup-shaped involucre, on the back of the frond. Vegetation frondose, orbicular, radiate, with dark-green grains (*gemmae*) scattered within its substance.

1. A. laèvis, *L.* [*Smooth*]: Surface of the frond smooth; mouth broadly scarious. Wet, shaded places. The curious erect linear-subulate half-bifid fructification 1 to 2 inches high.

589. NOTOTHY'LAS, *Sulliv.*

[Gr. *notos*, back, and *thylas*, bag; in reference to the involucre.]

Involucre a protrusion of a portion of the upper stratum of the frond, opening irregularly at apex. *Calyptra* none? *Capsule* included in

the involucre, oblong, spheroidal, flattish, or ovoid-cylindrical, slightly pedicellate, dehiscing in a 2-valved manner from the apex halfway down by a suture, or rupturing irregularly. *Columella* linear. *Elaters* wanting. *Spores* produced in fours. Monoicous. *Antheridia* globular, immersed in the frond,—which is orbicular, laciniate, tender, undulate-crisped on the margin, with *gemmae* as in *Anthoceros*.

1. N. valvàta, *Sulliv.* [*Valvate*]: Involucre horizontal, elongated, tapering-deflexed; capsule elongated-cylindrical, somewhat curved, with a dark-colored suture; spores light yellowish-brown. Moist grounds.

SUBORDER IV. RICCIA'CEAE.

Frondose annuals, mostly *floating;* the *fructification* of both kinds immersed in the frond; *involucre, perianth,* and *elaters,* all wanting; *capsule* bursting irregularly.

590. RIC'CIA. *Mich.* Floating Liverwort.

[Dedicated to *Pietro Francesco Ricci,*—a Florentine Botanist.]

Fruit immersed in the lobed or cleft frond. *Calyptra* adherent to the sessile globose capsule, crowned with the persistent style.—*Spores* angular. Monoicous, or dioicous.

†TERRESTRIAL: Frond *without air-cavities.*

1. R. glaùca, *L.* [*Glaucous*]: Frond somewhat stellate-lobed; divisions linear-obovate, emarginate-lobed, channelled, dotted, glaucous, membranous along the margin. Moist grounds.

††FLOATING (*in still waters*): Frond *with large air-cavities.*

2. R. flùitans, *L.* [*Floating*]: Frond pale or yellowish-green, radiately expanding from a centre; divisions narrowly linear, repeatedly forking, nearly membranaceous,—the apex thickened, emarginate and cavernous. Ditches, &c.

CLASS V.

THAL'LOPHYTES.*

VEGETABLES composed of parenchyma alone, of congeries of cells, or of seperate cells,—often vaguely combined in a *thallus,* never exhibiting a marked distinction into root, stem, and foliage, or into axis and leaves; *fructification* of the simplest kinds,—the *spores* often termed *sporules* and *sporidia.*

ORDER CXXV. LICHÈNES.

PERENNIAL plants, often spreading over the surface of the earth, or of rocks, or trees, in the form of a lobed and foliaceous, or hard and crustaceous, or leprous

*The *Chester County* Plants of this obscure Class have been investigated with singular diligence and success, by my ingenious friend EZRA MICHENER, M. D. to whose kindness I am indebted for the following account of them; the *Lichens* being arranged in conformity with the excellent work of EDWARD TUCKERMAN, A. M.

substance, called a *thallus.** Some beautiful and valuable *Dyes* are afforded by plants belonging to this order.

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*The following definitions, and characteristic details, are from TUCKERMAN'S valuable *Synopsis:*—

"Perennial, aerial Algae, vegetating only under the influence of moisture, which is imbibed by the whole surface, propagated by spores (*sporidia*), and also by the cells (*gonidia*) of the green layer.

Thallus (universal receptacle, *Ach.*) composed of three layers, viz: the *cortical*, the *medullary*, and the *gonimous;* evolved from a *hypothallus* (the elementary state in which the layers are confused, and discernible afterwards as cylindrical cells, and also as fibres on the under side of foliaceous Lichenes, and forming the base, closely adnate to the matrix, in crustaceous ones), typically horizontal or vertical. The *horizontal* thallus is either *crustaceous* (often somewhat lobed at the circumference or squamulose), or *foliaceous* (becoming sometimes in degenerate states crustaceous). The *vertical* thallus is either compressed (*subfoliaceous*), or terete (*fruticulose*); of both of which the *filamentous* thallus and the *pendulous* thallus are degenerations. In Cladonia and Stereocaulon a vertical thallus (*podetium*) arises from the primary horizontal thallus, and is itself often besprinkled with a kind of secondary horizontal thallus in the form of leaf-like scales.

Lichenes are reproduced in two ways; 1. by *gonidia*, the (normally green) *cells* of the green (*gonimous*) layer, which appear on the surface as irregularly shaped powdery masses (*soredia*), and propagate either on the original thallus, forming foliaceous or squamulose expansions,—or external to the original thallus, forming new individuals of the parent thallus; and 2. by *sporidia*, consisting of subglobose or elliptical cells, which are either naked or contained in other elongated more or less vertical cells (*asci*), and immersed in the *thalamium* (or fructification proper), and propagate new individuals of the species. The thalamium is either rounded, gelatinous-waxy, and the asci converging (*nucleiform*),—or flattened at length into a rigid, persistent, or afterward collapsing lamina (*subdisciform*),—or originally disciform (*open*); and is itself contained in a receptacle (*exciple*), either of the same color with and like the thallus (*thalline exciple*), or of different color and nature (*proper exciple*). The whole fructification constitutes the *apothecium*, which is typically round, though also occurring normally oblong and linear (*lirellaeform*,) and is either excavated with a contracted margin (*urceolate*),—or slightly concave with an elevated margin (*scutellaeform*),—or very concave-scutellaeform (*cyathiform*),—or very concave-scutellaeform and pervious (*infundibuliform*,—a term applied also to the pervious cup-bearing podetia of Cladoniae),—or goblet-shaped and stipitate (*crateriform*),—or dilated, flat, and without prominent margin (*peltaeform*, of which the reniform is a variation).—or convex with repressed margin (*cephaloid*),—or between scutellaeform and peltaeform (*disciform*),—or between scutellaeform and cephaloid (*tuberculate*). When the thalline exciple is prolonged below into a footstalk, it is said to be *pedicellate;* a proper exciple in like manner prolonged is said to be *stipitate*. When the proper exciple is originally and typically closed, the apothecium receives the name of *perithecium*. In the ANGIOCARPI, several thalamia are sometimes contained in the same exciple (*composite apothecia*); and in the GYMNOCARPI, in like manner, several disks are sometimes confluent (*symphycarpeous apothecia*). The *colors* of the thallus in Lichens are disposed by FRIES in four series:—1. from pale green becoming *glaucous;* 2. from yellowish green becoming *ochroleucous;* 3. from dark green becoming *fuscous* or *olivaceous;* 4. from pale yellow-green becoming *lemon-colored*. Each series has its peculiar variations. The glaucous runs into pale green, cerulescent, and white; the fuscous into dark green, olivaceous, cinereous, greyish-fuscous, and dark chestnut; the ochroleucous into yellowish green and albescent; the lemon-colored into pale yellow, orange-red, and vermilion-red."

SUBORDER I. GYMNOCARP'I.

Apothecia open, disciform; *exciple* thalline, or proper; *disk* ascigerous, persistent.

TRIBE 1. PARMELIA'CEAE.

Apothecia rounded, from concave becoming explanate, scutellaeform, or rarely peltate; *disk* somewhat waxy, contained in a thalline *exciple*.

SUBTRIBE 1. USNEE'AE.

Disk open; *thallus* subvertical, or pendulous-sarmentose, centripetal, without apparent hypothallus.

591. USNE'A, *Dillen.*

[A name derived from Arabic authors.]

Apothecia subterminal, orbicular, peltate, radiate-ciliate, seated on the medullary stratum. *Thallus* suffruticulose, cartilagineous, pale, filiform-ramose; *medulla* thread-like, elastic, subdiscrete. *Plant* suberect, or pendulous.

1. U. barbáta, *Fr.* [*Bearded*]: Thallus terete, irregularly branched, becoming annulate-cracked, glaucous; apothecia discoid, nearly immarginate, pale. We find the following *Vars.*

Var. a. *florida, Fr.* much branched, scabrous, sub-erect, divergent, fibrillose; apothecia large, long-rayed.

Var. b. *strigosa, Ach.* small, everywhere thickly fibrillose-strigose.

Var. c. *rubiginea, Mx.* small, suberect-spreading, ferruginous.

Var. d. *hirta, Fr.* dwarfish, much branched, slender, hirsute-fibrillose, often pulverulent-scabrous.

Var. e. *plicata, Fr.* elongated, pendulous, dichotomously branched, smooth, pale.

Var. f. *dasypoga, Fr.* elongated, pendulous, sub-simple, divaricate-fibrous.

Hab. Vars. a. b. e. and f. mostly on trees; c. and d. on fences: common.

Obs. These varieties, except *a*, mostly sterile with us.

2. U. anguláta, *Ach.* [*Angled*]: Thallus elongated, pendulous, flexuose, sparingly branched, angular,—the angles acute, scabrous; fibres horizontal, simple, short, terete-attenuate.
Hab. Trunks of trees: rare. Sterile with us.

592. EVER'NIA, *Ach.*

[Gr. *Eu.* well, and *Ernos*, a branch; the species being much branched.]

Apothecia scutellaeform, marginal, seated upon the medullary layer. *Thallus* sub-erect, terete-fruticulose, or compressed-foliaceous, fistular, or containing a cottony medulla.

† Thallus *terete-filamentous.*

1. E. jubáta, *Fr.* [*Maned*]: Thallus smooth, divaricate-branched, dark-fuscous, sometimes paler, apices simple; apothecia innate-sessile, entire, of the same color with the thallus.

Var. b. *chalybeiformis, Ach.* sub-filamentous, decumbent, apices paler, often white-sorediiferous.

Hab. Old rails, &c. common. Sterile. We have only the *Var.*

†† Thallus *compressed-foliaceous*, channelled beneath.

2. E. furfurácea, *Mann.* [*Scurfy*]: Thallus laciniate-foliaceous, linear, dichotomous, channelled and becoming black beneath; apothecia pedicellate; disk rufescent.

Hab. Old fences, &c. rather rare. Mostly sterile.

Obs. Sometimes remarkably cinereous-furfuraceous.

593. RAMALI'NA, *Ach.*

[Latin, *Ramale*, a dead branch; from a fancied resemblance.]

Apothecia scutellaeform, thick, pedicellate-subpeltate, open, scattered above and beneath; disk open, placed upon the gonimous layer. *Thallus* erect-spreading, ramose-laciniate, of the same substance and color throughout.

1. R. calicàris, *Fr.* [*Cup-like*]: Thallus ramose-foliaceous, cartilagineous, rigescent, lacunose, glaucous; apothecia plane with an elevated margin, pale. The following *vars.* occur:—

Var. a. *fraxinea*, *Fr.* laciniae long, expanded; apothecia lateral.

Var. b. *fastigiata*, *Fr.* laciniae shorter, fastigiate; apothecia subterminal.

Var. c. *canaliculata*, *Fr.* laciniae linear, attenuated, channelled beneath; apothecia subterminal.

Var. a. *farinacea*, *Schaer.* laciniae linear-attenuate, rugose-lacunose, sorediiferous; apothecia scattered.

Hab. On trunks of trees; fences, &c.: common.

2. R. polymórpha, *Ach.* [*Many-form*]: Cespitose; thallus cartilagineous, rigid, longitudinally costate-rugose, glaucous, often sorediiferous and the soredia terminal-capituliform; apothecia subterminal, margin elevated, disk pale.

Hab. On rocks; Buck Run: rare. Smaller than the preceding.

594. CETRA'RIA, *Ach.*

[Latin, *Cetra*, an ancient buckler; from the form of the apothecia.]

Apothecia scutellate, subpeltate, seated obliquely on the apices of the thallus. *Thallus* cartilagineous-membranaceous, ascendant, smooth beneath; lobes subterete, or foliaceous and somewhat concave above.

☞ Thallus *coriaceous-membranaceous.*

1. C. glauca, *Ach.* [*Glaucous*]: Thallus membranaceous, foliaceous, sinuate-lobed, ascendant, glaucous, becoming black on the under side; apothecia dark reddish-chestnut.

Var. b. *sterilis*, *Fr.* laciniae short, broad, rather depressed, fuscous-black beneath.

Hab. On trunks of trees; fences, &c.: common. The *var.* only has yet been found.

2. C. ciliàris, *Ach.* [*Fringed*]: Thallus foliaceous, reticulate-lacunose, glaucous-green passing to fuscous; under side whitish-fuscescent; lobes crisped, ciliate, or black-denticulate; apothecia elevated, crenate, dark-fuscous.

Hab. On trees, and fences: common.

3. C. lacunòsa, *Ach.* [*Pitted*]: Thallus cartilagineous-coriaceous, foliaceous, round-lobed, rugose or reticulate-cellulose, glaucescent, under side whitish, or spotted with white; lobes crenate, crisped, black-denticulate; apothecia elevated, large, entire, dark reddish.

Var. b. *Atlantica, Tuckerm.* submembranaceous, lacunose-reticulate, apothecia becoming perforate.

Hab. On rails and trunks of trees: common. The *var.* only, found.

4. C. aurescens, *Tuckerm.* [*Golden*]: Thallus subcoriaceous, foliaceous, plane, sinuate-lobed, yellowish-green; beneath whitish with pale fuscescent fibres; margins of the lobes elevated, crisped, black-denticulate; apothecia large, elevated, chestnut, with a thin crenulate margin.

Hab. On fences, &c.: rare.

Obs. In the specimen before me, the apothecia are small (imperfect?), the thallus lacunose beneath, and the fibres mostly white.

SUB-TRIBE 2. PARMELIEÆ.

Disk at first closed, finally becoming discoid-open; *thallus* horizontal, centrifugal, with a hypothallus.

595. NEPHROMA, *Ach.*

[Gr. *Nephros*, a kidney, and *omos*, like; from the shape of the apothecia.]

Apothecia reniform, adnate to the under side of the thallus, plane, with an elevated thalline margin. *Thallus* membranaceous, soft, subvillous beneath.

1. N. resupinatum, *Ach.* [*Resupinate*]: Thallus cartilagineous-membranaceous, smooth, glaucous becoming fuscescent, pale and downy beneath, with scattered whitish soredia; apothecia rufous-fuscous.

Hab. Trunks of trees (often on Mountain Ash); rocks, &c.

2. N. Helveticum? *Ach.* [*Swiss*]: Thallus cartilagineous-membranaceous, rigid, glaucous-fuscescent; under side tomentose, becoming black; margins of the thallus and apothecia fimbriate-toothed; apothecia blackish.

Hab. On mossy trunks of trees, and rocks.

Obs. I have only seen a small sterile form,—which renders the species somewhat uncertain.

596. PELTIGERA, *Hoffm.*

[Latin, *Pelta*, a shield, and *gero*, to bear; descriptive of the plant.]

Apothecia orbicular, peltaeform, plane, subterminally adnate to the upper side of elongated thalline lobes, with a thin thalline margin. *Thallus* coriaceous-membranaceous, venous beneath.

1. P. aphthosa, *Hoffm.* [*Aphthous*]: Thallus coriaceous, smooth, sparsely verrucose, bright green varying to glaucescent; under side reticulate with blackish veins, and fibrillose; apothecia ascendant, large, round, with the margin lacerate-crenate.

Hab. Mossy rocks, and shaded banks; common.

2. P. canina, *Hoffm.* [*Canine*]: Thallus membranaceous, flaccid, scrobiculate, subtomentose, fuscous-green, sometimes cinerascent, and hoary; under side whitish, reticulated with pale fuscous veins; apothecia ascendant, rounded, revolute, vertical.

Hab. Among moss, on the earth, rocks, and trunks of trees: common.

3. P. polydáctyla, *Hoffm.* [*Many-fingered*]: Thallus papyraceous, very smooth, shining, rufescent, or plumbeous-virescent; under side nearly naked, reticulated with spongy fuscous veins; fertile lobules suberect; apothecia numerous, revolute.

Hab. On mossy rocks; trunks of trees, &c.: common.

597. STIC'TA, *Ach.*

[Gr. *Stiktos*, dotted; from the depressed spots under the thallus.]

Apothecia scutellaeform, centrally adnate either to the disk, or margin of the thallus, oblique, nucleiform, becoming elevated and explanate. *Thallus* coriaceous-cartilagineous, villous beneath, with small urceolate cavities (*cyphellae*), or soredia, or discolored naked spots.

1. S. auràta, *Ach.* [*Gilded*]: Thallus subcoriaceous, reddish brick-colored; under side lanuginous, with the margin reddish-yellow; cyphellae yellow, often sorediiform; lobes rounded, wavy, sinuate-cut, crisped, yellow-pulverulent; apothecia marginal, plane, fuscous-red, margin inflexed.

Hab. On mossy trunks of trees: not common. Infertile.

2. S. sylvática, *Ach.* [*Wood*]: Thallus coriaceous-membranaceous, lacunulose, laciniate-lobed, greenish-fuscous; under side tomentose, pale fuscous, with small whitish urceolate cyphellae; lobes rounded-truncate, crenulate; apothecia marginal, peltate, rufous-fuscous.

Hab. On rocks, among mosses: common. Infertile.

3. S. Pulmonària, *Ach.* [*Lungwort*]: Thallus coriaceous, lax, lacunose-reticulate, dark green, or olivaceous; under side tomentose, with large white naked spots; lobes elongated, sinuate-laciniate, retuse-truncate; apothecia sub-marginal, rufous.

Hab. On trunks of trees, and rocks: very common. Infertile.

4. S. glomerulifera, *Delis.* [*Glomerule-bearing*]: Thallus coriaceous-cartilagineous, thick, orbicular, appressed, smooth, pale glaucous-green; under side villous,—the excavated cyphellae often wanting; lobes elongated, sinuate; apothecia large, scattered, dark chestnut, with a rugose persistent margin.

Hab. On trunks of trees, and rocks: common. Fertile.

598. PARME'LIA, *Ach.*

[Gr. *Parme*, a small shield, and *eileo*, to surround; the apothecia being bordered.]

Apothecia scutellaeform, orbicular, adnate horizontally to the disk of the thallus, with an equal thalline margin; *disk* at first connivent-closed, somewhat waxy. *Thallus* expanded horizontally from a centre, two-sided, of various form, upon a hypothallus.

SECTION 1.

Thallus foliaceous; *hypothallus* fibrillose, adnate to the thallus, discrete from the matrix.

SUBSECTION 1. IMBRICÀRIA.

Apothecia elevated, subpedicellate; *disk* very thin, naked, seated on the gonimous ayer; *thallus* imbricate-foliaceous, often black-dotted.

SERIES 1. GLAUCESCÉNTES.

1. P. crinita, *Ach.* [*Haired*]: Thallus submembranaceous, glaucous-fuscescent, and with the apothecia beset with isidioid (or coral-like) granules and branchlets; under side black, smoothish, with here and there black fibres; lobes plane, erose-crenate, ciliate; apothecia large, marginal, cyathiform, imperforate; margin thin, inflexed, finally explanate.

Hab. On trunks of trees, and rails: common.

2. P. perforàta, *Ach.* [*Perforated*]: Thallus membranaceous, smooth, greenish-glaucous; under side black, with dark fibres; lobes rounded, ascendant, subcrenate, ciliate; apothecia large, funnel-form, rufous, perforate, very entire.

Hab. On trees, and fences: very common.

3. P. scórtea, *Ach.* [*Leathery*]: Thallus subcoriaceous, orbicular, smooth, glaucous-white; under side black, hispid-fibrillose; lobes rather long, appressed, sinuate-crenate, incised; apothecia rufous-fuscous, sub-entire.

Hab. On trunks of trees, and rocks: frequent.

Obs. This too nearly approaches the following,—with which FRIES unites it.

4. P. tiliàcea, *Ach.* [*Linden*]: Thallus membranaceous, orbicular, smoothish, glaucous-cinerascent; under side blackish-fuscous, with black fibres; lobes sinuate-lacinate, rounded, crenate; apothecia subfuscous, crenate, or very entire.

Hab. Trunks of trees, &c.: very common.

5. P. Borrèri, *Turn.* [*Borrer's*]: Thallus cartilagineous-membranaceous, orbicular, smoothish, glaucous-cinerascent (with round, marginate soredia); under side fuscescent, fuscous-fibrillose; lobes rounded at the apices, naked; apothecia chestnut, the margin inflexed, entire.

Var. b. *rudecta, Tuckerm. MS.* soredia immarginate; the whole thallus beset with isidioid granules and branchlets.

Hab. On trunks, &c. We have the *var.* only.

6. P. saxátilis, *Ach.* [*Rock*]: Thallus subcartilagineous, reticulate-lacunose, glaucous-cinerascent; under side black and fibrillose; lobes sinuate, sub-retuse; apothecia dark-chestnut, at length crenulate.

Hab. Rocks; trees; rails, &c.: common.

7. P. aleurites, *Ach.* [*Mealy*]: Thallus membranaceous, orbicular, continuous, rugose-plicate, becoming furfuraceous, glaucescent; under side pale, with fuscous fibres; lobes discrete at the circumference, rounded, cut-crenate; apothecia dark-fuscous, finally crenulate.

Hab. Trees; rails, and rocks: common. Often sterile.

8. P. physódes, *Ach.* [*Bladder-like*]: Thallus somewhat inflated, glaucous-white; under side naked, black-fuscous; lobes loosely imbricate, linear, convex, sinuate-multifid; apothecia reddish-brown, with an inflexed entire margin, finally explanate.

Hab. Rocks; trunks, and dead wood: frequent. Infertile with us.

9. P. cólpodes, *Ach.* [*Bosom-like*]: Thallus somewhat inflated, suborbicular, greenish-glaucescent; under side black and spongy; lobes somewhat plane, ramose-multifid, irregularly dentate; apothecia chestnut-color, elevated, margin inflexed, entire.

Hab. Trunks of trees: very common.

SERIES 2. Olivàceo-fus'cae.

10. P. olivàcea? *Ach.* [*Olive-colored*]: Thallus membranaceous, smooth, rugulose (elevated-punctate, or granulate-farinose), olivaceous-fuscous; under side paler, subfibrillose; lobes appressed, radiate, rounded, crenate; apothecia dark-olive, with an inflexed, and finally crenate, margin.

Hab. Trees: somewhat rare. Small.

SERIES 3. Ochroleu'cae.

11. P. caperáta, *Ach.* [*Wrinkled*]: Thallus submembranaceous, orbicular, rugose, or granulose-pulverulent, ochroleucous; under side blackish, sparingly fibrillose; lobes sinuate-laciniate, rounded and subentire at apex; apothecia fuscous-red, with a tumid incurved rugose-crenate margin.

Hab. Trunks; rails; stones, &c.: very common. Seldom fertile.

12. P. conspérsa, *Ach.* [*Sprinkled*]: Thallus membranaceous, smooth, polished (or oftener sprinkled with black dots), greenish-straw-colored; under side fuscous and black-fibrillose; lobes flexuose, sinuate, somewhat plane; apothecia dark-chestnut, sub-entire, mostly numerous.

Var. b. *stenophylla, Ach.* lobes elongated, linear, pinnatifid, imbricate-complicate.

Hab. Rocks, and stones: very common. Fertile.

13. P. centrifuga? *Ach.* [*Centrifugal*]: Thallus sub-membranaceous, orbicular, greenish-straw-color, or ochroleucous; under side white and fibrillose (the crust-like centre often falling away, and leaving a concentrically disposed circumference): lobes linear, convex, concrete, rugose; apothecia rufous-fuscous, sub-entire.

Hab. Rocks: not common.

SERIES 4. Citri'nae.

14. P. parietina, *Fr.* [*Wall*]: Thallus membranaceous, foliaceous, or squamulose, imbricate, sublobate, yellow; under side paler and obsoletely fibrillose; apothecia with elevated very entire margins. Polymorphous. We find the following *varieties:*

Var. a. *foliácea, Fr.* thallus foliaceous, greenish passing to yellow; lobes appressed, explanate.

Var. b. *rûtilans. Fr.* thallus foliaceous subcrustaceous, imbricate-complicate, irregularly laciniate.

Var. c. *laciniòsa, Fr.* thallus lacerate-dissected, squamulose; lobes ascending, naked.

Var. d. *polycárpa, Fr.* thallus smaller, conglomerate; lobes complicate; apothecia very numerous.

Var. e. *citrinélla, Fr.* thallus wholly dissolved into a yellowish-green dust.

Hab. Rocks; old walls; trunks, dead wood, &c.: common.

15. P. chrysophthálma, *Ach.* [*Golden-eyed*]: Thallus subfoliaceous, cartilagineous-membranaceous, lacerate-ramose, reddish-yellow becoming whitish; under side whitish; lobes pinnatifid, plano-convex with the margins fibrillose; apothecia dark-orange, fibrillose-ciliate, or naked.

Var. b. *exilis*, *Fr.* lobes very narrow; apothecia with the margins naked.
Hab. Trees, and shrubs: frequent.

SUB-SECTION 2. PHYS'CIA.

Apothecia at first closed, at length dehiscent; *disk* thickish, waxy, placed upon the medullary layer; *thallus* ascendant, or stellate-appressed.

16. P. leucomèla, *Ach.* [*White & black*]: Thallus cartilagineous, whitish; lobes narrow-linear, dichotomous-divaricate, beneath very white, powdery, channelled; lobes sparingly ciliate with very long simple black fibres.

Hab. On mossy rocks, and trunks.

Obs. This beautiful little species is exceedingly rare,—and has not been found in fruit, with us.

17. P. detónsa, *Fr.* [*Shorn*]: Thallus cartilagineous, substellate, glaucous-fuscescent and fuscous; under side whitish, with black fibres; lobes narrow, linear, subconvex, digitate-multifid, crowded, imbricate, often semi-terete; apothecia subsessile, the margin finally crenate and leafy; disk plane, becoming dark-fuscous.

Hab. Rocks, and trees: common.

18. P. pulverulénta, *Fr.* [*Powdery*]: Thallus cartilagineous, substellate, pruinose-cinereous; under side black, hispid-tomentose; lobes linear, multifid; apothecia sessile; disk plane, black-fuscous, subpruinose,—the margin tumid, entire, or squamulose-foliose.

Hab. Rocks, and mossy trunks: frequent.

19. P. hypoleùca, *Muhl.* [*White-beneath*]: Thallus cartilagineous, substellate, glabrous, naked, glaucous-virescent or whitish; under side very white, with dark fibres; lobes sublinear, multifid, plano-convex,—the margins naked; apothecia elevated; disk black, naked, margin inflexed, crenulate, or foliose.

Hab. Trunks of trees: common. Fertile.

20. P. speciósa, *Ach.* [*Elegant*]: Thallus cartilagineous-membranaceous, substellate, glabrous, greenish-glaucous, or whitish; under side very white, with pale fibres; lobes linear, incised-ramose, crenate, ciliate-fibrillose,—the margins often green-pulverulent; apothecia elevated; disk rufous-fuscous, nearly naked; margin incurved, crenate.

Var. b. *galactophylla*, *Tuckerm. MS.* [P. ciliaris, b. *galactophylla*, *Tuckerm.*—*Synopsis*]: very delicate, the lobes less crowded, very white and powdery beneath.
Hab. Trees, and among mosses: frequent. Infertile.

21. P. stellàris, *Wallr.* [*Star-like*]: Thallus subcartilagineous, naked, glaucescent; under side whitish, with dark fibres; lobes sublinear, multifid; apothecia sessile; disk fuscous-black, subpruinose; margin thickish, sub-entire.

Var. a. *stellari-expansa, Fr.* thallus stellate-expanded, fibres shorter.

Var. b. *tribracia, Fr.* lobes squamulose, ascendant, sparingly fibrillose,—the apices pulverulent.

Hab. Roots, rocks, &c., among mosses: frequent.

22. P. phaèa, *Tuckerm. MS.* [*Fuscous*]: Thallus subcartilagineous, naked, glaucous-white; beneath whitish and sparingly ciliate with short black fibres; laciniae linear, many-cleft; apothecia appressed; disk convex, naked, a little shining, rufous-fuscous; margin not elevated, at length granulated.

Hab. On quartz rock: very rare.

Obs. The species is established on a single plant. Should more perfect specimens be obtained, they may render some modification of the characters necessary.

23. P. obscùra, *Fr.* [*Obscure*]: Thallus submembranaceous, greenish, becoming livid-fuscous when dry; under side black and fibrillose; lobes sublinear, incised-multifid, often sorediiferous, or the margins pulverulent; apothecia sessile, very entire, naked, black-fuscous.

Var. b. *ulothrix, Fr.* lobes linear, sub-ciliate; apothecia fibrillose beneath.

Hab. Trunks of trees; dead wood, &c.: frequent.

24. P. fibròsa, *Fr.* [*Fibrous*]: Thallus suborbiculate, the lacerate laciniae concrete and subcrustaceous at the centre, those of the circumference flat, from green becoming more or less yellow, beneath cinereous-fibrous; apothecia crowded, very entire, orange, fibrose-radiate beneath.

Var. b. *stellata, Tuckerm. MS.* laciniae discrete, stellate.

Hab. On shrubbery, and the branches of small trees.

Obs. We have only the *var.* b. here.

SECTION 2.

Thallus subfoliaceous, at length subgranular,—arising from a fibrillose hypothallus, which is adnate to the matrix.

SUBSECTION 3. PYX'INE.

Apothecia erumpent, closed, palish, becoming patellaeform, and, with the altered thalline margin, black; finally cephaloid, excluding the margin.

25. P. sorediáta, *Tuckerm.* [*Sorediate*]: Thallus subcrustaceous-foliaceous, laciniate-multifid, green becoming glaucescent and cinerascent; under side black, with crowded greenish-nigrescent fibres; lobes linear, channelled, incised, obtuse, imbricate and concrete at the centre, often sorediiferous; apothecia at first pale, and concave, becoming black, convex, finally proliferous-papillate and irregular.

Hab. Trunks, and rocks. Often sterile.

Obs. A variable species; but not presenting any well-marked varieties.

SUBSECTION 4. AMPHILO'MA.

Apothecia erumpent, subcoronate, with an accessory thalline margin; *disk* waxy, thickish, naked; thallus foliaceous, submonophyllous, rounded, becoming crustaceous at the centre; *hypothallus* spongy-pannose.

26. P. Crònia, *Tuckerm.* [*Saturnine*]: Thallus orbicular, membranaceous, smooth, radiant, dark bluish becoming pale lead-color, with elevated darker margins, and sprinkled with blackish points, and isidioid branchlets; hypothallus determinate, dark-caerulescent.

Hab. Mossy rocks: rare. Small and infertile.

SUBSECTION 5. Psoro'ma.

Apothecia either adnate, arising from the thallus, with a crenate thalline margin; or immersed, arising from the hypothallus, with an entire proper margin; *disk* waxy; *thallus* of discrete foliaceous squamules, often forming a subgranulose crust.

27. P. triptophyl'la, *Fr.* [*Worn-leaved*]: Thalline scales membranaceous, livid-fuscescent, stellate-expanded and lacerate-dissected, at length granulose-coralline; hypothallus bluish-black; apothecia somewhat immersed; disk plane, rufous-fuscous, with an erect persistent margin.

Hab. On rocks; roots of trees, &c. Sterile with us.

28. P. leucosticta. *Tuckerm. MS.* [*White-dotted*]: Scales of the thallus membranaceous, at first expanded and imbricate, linear-multifid, glaucous-fuscescent, or at length dark fuscous; hypothallus black; apothecia rather immersed; disk convex, from rufous becoming blackish, with a persistent granulate margin.

Hab. On rocks, and bases of trunks, among mosses, &c.

Obs. This species has been heretofore confounded with the preceding, and some other allied forms.

SECTION 3.

Thallus crustaceous, lobate at the circumference, or wholly squamulose and effigurate.

SUBSECTION 6. Placo'dium.

Apothecia plano-scutellaeform, elevated; *disk* without proper margin, naked; *thallus* as above (*thalline margin* often colored like the disk.)

29. P. saxícola, *Ach.* [*Rock*]: Thallus cartilagineous, appressed, areolate-squamulose, pale-greenish; the circumference of somewhat plane radiose-lobate concrete laciniae; apothecia appressed; disk yellowish-fulvous; margin thin, at length crenate.

Hab. On rocks and stones.

30. P. chrysomelaèna, *Ach.* [*Golden-black*]: Thallus crustaceous, areolate, yellow; areolae flat, submembranaceous, somewhat lobate, here and there discrete; apothecia appressed; disk plane, sanguineous-black; thalline margin elevated, subrugose, at length flexuose.

Hab. On rocks, near Pierce's Paper Mill, Kennett.

SECTION 4.

Thallus crustaceous, uniform. Circumference similar, or the hypothallus sometimes fibrillose-radiant.

SUBSECTION 7. Patella'ria.

Apothecia sessile, scutellaeform, margin persistent; *disk* somewhat plane, without proper margin, not caesious-pruinose; *thallus* adnate to an indeterminate, mostly black, hypothallus.

31. P. pallèscens, *Fr.* [*Pale*]: Crust subtartareous, rugose-granulate, glaucescent; hypothallus pale; apothecia tumid; disk pale, innate-pruinose, the margin erect, entire, persistent.
Hab. Trunks, rails, and stones.

32. P. tartàrea, *Ach.* [*Tartar like*]: Crust tartareous, granulate-conglomerate, glaucescent; hypothallus pale; apothecia adnate; disk plane, rugulose, pale-yellowish-flesh-colored; the margin inflexed, entire.

Var. b. *frigida, Ach.* crust finally granulate, whitish; hypothallus undistinguishable; apothecia small, reddish.
Hab. On rocks. The *var.* incrusting Mosses, twigs, &c. but always sterile, with us.

Obs. This species, in common with many others, is employed to produce valuable *dyes*. The "*Cudbear*," of the shops (said to be so called, after a Mr. CUTHBERT, who first brought it into use), is a European name of this plant,—which is employed to produce a *purple* for dyeing woollen yarn. The crustaceous species abound in *red*, the foliaceous ones in *brown*, coloring matter.

33. P. subfùsca, *Fr.* [*Brownish*]: Crust cartilagineous, smooth, at first continuous, becoming chinky and granulate, glaucescent; hypothallus maculate; apothecia adnate; disk plano-convex, subfuscous, whitish within, the margin erect, colored like the thallus.

Var. a. *discolor, Fr.* disk thickish, naked, either red, rufous, fuscous, or black,—the margin entire, or becoming rugose.

Var. b. *diffusa, Fr.* disk thin, at first pruinose, pale, becoming naked,—the margin elevated, crenulate.
Hab. On trunks, rocks, &c.: common, and extremely variable.

34. P. albélla, *Ach.* [*Whitish*]: Crust cartilagineous, milk-white; apothecia orbiculate, tumid, pale flesh-color, whitish-pruinose; margin very entire, subevanescent.
Hab. On trunks of trees.

35. P. caesio-rubélla, *Ach.* [*Grey-reddish*]: Crust thin, softish, white; apothecia scattered, rather large; disk plane, becoming somewhat tumid, pale reddish and fuscescent, at first caesious-pruinose, equalling the tumid entire margin.
Hab. On smooth trunks (Maple, &c.).

36. P. cinèrea, *Fr.* [*Ash-colored*]: Crust subtartareous, areolate-rimose, glaucous-cinereous; hypothallus black; apothecia innate; disk naked, nigrescent, pale within, with a black obtuse sub-elevated thalline margin.
Hab. On rocks and stones: frequent.

37. P. bádia, *Fr.* [*Liver-brown*]: Crust cartilagineous, rimose-areolate, subsquamulose, dark olive; hypothallus black; disk naked, polished, fuscous-black, with an entire persistent thalline margin.

Var. b. *endocarpàea, Tuckerm. MS.* areolae dispersed, squamaceous, with sub-immersed punctiform (imperfect) apothecia.
Hab. On rocks and stones: not frequent. The *Var.* b. occurs here.

38. P. vária, *Fr.* [*Various*]: Crust cartilagineous, areolate-verrucose, yellowish-green, becoming ochroleucous: hypothallus smooth, macular; apothecia sessile; disk polished, yellowish-flesh-colored, or discolored, with a thin erect entire margin.

Hab. On fences, stones, &c.: very common.

39. P. vitellina, *Ach.* [*Yolk-of-egg*]: Crust tartareous, granulose-coacervate, dark reddish-yellow; hypothallus macular, white; apothecia sessile: disk yellow becoming fuscous, margin simple, thin, erect, entire, at length of the same color.

Hab. On dead wood, and rocks.

40. P. cinnabarina, *Ach.* [*Cinnabar-colored*]: Crust subcartilagineous, smooth, rimose-areolate, orange-red, covering a black hypothallus; apothecia somewhat immersed; disk immarginate, dark orange-red, thalline margin entire, persistent.

Hab. On rocks (diallage, &c.); Serpentine barrens; along with the preceding.

41. P. cerina, *Ach.* [*Waxy*]: Crust continuous, becoming granulate, cinereous, upon a bluish-black hypothallus; apothecia sessile; disk immarginate, somewhat wax-colored, with a thin equal opake entire thalline margin.

Hab. On trunks, rocks, &c.: frequent.

SUBSECTION 8. URCEOLÀRIA.

Apothecia innate in the crust, or immersed in protuberant warts: *lamina* of the disk urceolate, or protuberant, verrucaeform, blackish, normally caesious-pruinose, margined; hypothallus whitish.

42. P. calcàrea? *Ach.* [*Calcareous*]: Crust subcartilagineous, areolate-verrucose, glaucescent (often mealy and white): disk immersed in the areolae, from concave becoming plane, blackish, caesious-pruinose, with a thin, at length discrete, proper margin; thalline margin somewhat prominent, sub-entire, or rugose-crenate.

Hab. On limestone rocks.

43. P. scrupòsa, *Sommerf.* [*Rugged*]: Crust tartareous, rugose-granulate, glaucous-cinerascent; hypothallus white; apothecia immersed; disk urceolate, caesious-black, with a connivent cinereous-blackish proper margin, which is at first covered by the crenate thalline margin.

Hab. On rocks, stones, dead wood, and on the earth.

TRIBE 2. LECIDEÀCEAE.

Apothecia rounded, a persistent *disk* contained in an open proper *exciple*, which it finally covers, and becomes convex, cephaloid, and immarginate.

589. CLADO'NIA, *Hoffm.*

[Gr. *Klados*, a branch; the ramifications being often copious.]

Apothecia orbiculate, sub-marginate, becoming inflated, cephaloid, and immarginate, empty; *disk* open, at length protuberant and reflexed, concealing the proper exciple. *Horizontal thallus* squamulose-foliaceous, or crustaceous, from which arises a *vertical* caulescent cartilagineous fistular thallus (*podetium*).

SERIES 1. FUSCESCÉNTES.

Podetia greenish-fuscous and cinerascent; *apothecia* fuscous.

*Scyphiferae: Podetia *passing into a terminal scyphus, closed with a diaphragm.*

1. C. cæspitítia, *Floerk.* [*Turfy*]: Thallus cespitose, squamulose, laciniate, pale green; podetia very short, glabrous, dilated above, or sometimes wanting; apothecia fuscous.

Hab. On mossy rocks, and roots: frequent.

2. C. pyxidàta, *Fr.* [*Box-like*]: Thallus squamulose; podetia cartilagineous-corticate, verrucose or furfuraceous, green-cinerascent, the scyphiferous ones turbinate; scyphi cyathiform, dilated; apothecia fuscous.

Hab. On the earth. Often sterile.

3. C. Mitrula, *Tuckerm. MS.* [*Little Mitre*]: Thallus of rather thick erectish light-green crenate-laciniate scales; podetia short, simple, cartilagineous-corticate, verrucose; scyphi obsolete; apothecia light-fuscous, symphycarpeous.

Hab. On dry sterile banks; old logs, &c.

4. C. grácilis, *Fr.* [*Slender*]: Thallus squamulose; podetia cartilagineous-corticate, polished; scyphi somewhat plane; apothecia fuscescent.

Var. a. *verticillàta, Fr.* podetia all scyphiferous; scyphi dilated, plane, mostly proliferous from the centre.

Var. b. *cervicornis, Auct.* podetia larger and longer, mostly proliferous from the margin.

Hab. On the earth. "Most perfect in high mountains."—*Tuckerm.*

5. C. fimbriàta, *Fr.* [*Fringed*]: Thallus squamulose; podetia cylindrical, the membranaceous epidermis deliquescing into a fine glaucous-candicant dust; scyphi cupulaeform, with an erect margin.

Var. b. *radiàta, Fr.* podetia elongated, subulate; scyphi proliferous-subulate, or radiate-fimbriate.

Hab. On the earth.

6. C. cornúta, *Fr.* [*Horned*]: Thallus squamulose; podetia cylindrical, subventricose, the epidermis cartilagineous below, membranaceous and becoming powdery-deliquescent above; scyphi narrow, with an incurved subentire margin; apothecia fuscous.

Hab. On mossy logs, &c.

**Perviae: Scyphi *not closed; apices and axils dilated-funnelform, or simply perforate.*

7. C. squamòsa, *Hoffm.* [*Scaly*]: Thallus squamulose, dissected, often pulverulent; podetia branched, lacunose, becoming decorticate and exasperate-squamaceous; axils pervious, denticulate; apothecia cymose, fuscous.

Var. a. *ventricòsa, Fr.* podetia ventricose: axils and apices dilated funnel-form.

Var. b. *attenuàta, Fr.* podetia more slender; axils pervious; apices subulate.

Hab. On the earth, and among mosses.

8. C. furcàta, *Floerk.* [*Forked*]: Thallus squamulose, somewhat dissected; podetia dichotomous-fruticulose, cartilagineous-corticate, polished, greenish-fuscous; axils and fertile apices pervious; apothecia pedicellate, pale, becoming fuscous.

Var. a. *crispàta, Floerk.* turgid; axils and apices funnelform.

Var. b. *cristàta, Fr.* somewhat turgid; obliquely dilated and fimbriate-cristate at the axils; apices cristate-ramulose.

Var. c. *racemòsa, Floerk.* podetia elongated, turgescent, ramose, and, as well as the axils gaping; branches recurved or erect, the fertile ones explanate.

Var. d. *subulàta, Floerk.* podetia more slender, with subpertuse axils; apices of the fertile ones cloven; branches erectish, recurved, or divergent.

Hab. On the earth: common.

9. C. rangiferina, *Hoffm.* [*Rein-deer*]: Thallus crustaceous, evanescent; podetia fruticulose, trichotomously and very much branched, subtomentose, cinerascent; axils subperforate; sterile apices nodding, fertile ones erect, cymose.

Var. b. *sylvática, Floerk.* slender, smoother, pale straw-color.

Var. c. *alpéstris, Floerk.* softish; branches densely thyrsoid-entangled.

Hab. On the earth.

Obs. We probably have all these allied forms. This *Lichen* is noted, as constituting the principal food of the *Rein-deer*, in Lapland. "It is this," says Sir W. J. HOOKER, "which for the greater part of the year, and especially in winter, is the support of the vast herds of Rein-deer,—wherein consists all the wealth of the Laplanders. No vegetable, LINNAEUS tells us, grows throughout Lapland in such abundance as this,—especially in woods of scattered pines, where for very many miles together, the surface of the sterile soil is covered with it, as with snow. On the destruction of forests by fire, when no other vegetable will find nutriment, this Lichen springs up and flourishes, and, after a few years, acquires its full size. Here the Rein-deer are pastured; and whatever may be the depth of snow, during the long winters of that climate, these creatures have the power of penetrating it, and obtaining their necessary food."

SERIES 2. COCCÍFERAE.

Podetia greenish, becoming fulvescent at base; *apothecia* scarlet.

* Podetia *cartilagineous-corticate, never finely pulverulent.*

10. C. cornucopioides, *Fr.* [*Cornucopia-like*]: Thallus squamulose; podetia glabrous, becoming verrucose, or granulate-subpulverulent, yellowish, finally cinereous-green, the scyphiferous ones elongated-turbinate, attenuate below; scyphi cyathiform, dilated.

Hab. On the earth: common. Often sterile.

11. C. Floerkeàna, *Fr.* [*Floerke's*]: Thallus squamulose; podetia cylindrical, slender, glabrous, becoming granulate-verrucose, or squamose-decorticate, greenish and pallescent, nigrescent at base; scyphi passing into somewhat digitate fastigiate branches.

Hab. On the earth, logs, fences, &c.: very common.

** Podetia *with the epidermis membranaceous, and dissolving into a fine dust.*

12. C. macilénta, *Hoffm.* [*Thin, or lean*]: Thallus squamulose; podetia cylindrical, slender, membranaceous-corticate above, becoming hoary-pulverulent; scyphi narrow, tubaeform with an erect margin, or obsolete.

Var. a. *filiformis*, *Fr.* podetia very slender; scyphi narrow, entire, or obliterated by a symphycarpeous apothecium.
Hab. On decaying logs, rocks, &c.

Obs. I have not observed the other *var.* Sometimes the podetia become exasperate with green thalline scales. An ochrocarpous state, of some of the Lichens of this Series, often occurs,—with pale *yellowish apothecia*.

600. BAEOMYCES, *Fr.*

[Gr. *Baios*, small, and *Mykes*, a fungus; the plant resembling a minute fungus.]
Apothecia globose from the first, immarginate, velate, finally empty and araneous within, the base closely surrounding a stipe. *Thallus* crustaceous, uniform, protruding fertile stipes which are destitute of a cortical stratum.

1. B. roseus, *Pers.* [*Rose-colored*]: Crust verrucose, glaucous; stipes short, cylindrical; apothecia subglobose, flesh-colored.
Hab. Sterile clay soils; road sides, &c.: common.

601. BIATORA, *Fr.*

[ ]
Apothecia at first margined by a waxy thalline exciple converted into a proper one, becoming hemispherical or globose, sub-immarginate, solid, and cephaloid; *disk* placed on a substratum often paler, never coal-black, at length dilated, turgid, concealing the paler margin. *Thallus* horizontal, arising from a hypothallus, crustaceous, effigurate, or uniform. *Podetia* wanting, but the apothecia sometimes stipitate.

SECTION 1.

Thallus squamose, or lobed at the circumference.

Apothecia *sessile*.

1. B. Michenèri, *Tuckerm. MS.* [*Michener's*]: Thallus orbicular, submonophyllous, livid lead-colored, tips of the lobes rounded and crenate; hypothallus tomentose, dark-green; apothecia naked, sub-immarginate, rufous, becoming convex and black.
Hab. On trunks: exceedingly rare.

2. B. rufo-nigra, *Tuckerm.* [*Reddish-black*]: Thallus squamose, imbricate, from pale rufous becoming blackish; scales irregularly suborbiculate, ascending, crenate-lobed; apothecia adnate, plane, obtusely margined, atro-rufous, at length convex, black.
Hab. On rocks.

SECTION 2.

Thallus effuse, uniform.

3. B. sanguineo-àtra, *Fr.* [*Sanguineous-black*]: Crust thin, membranaceous, effuse, whitish-cinereous, becoming granulose: apothecia sanguineous, with an obscure paler margin, at length black.
Hab. On rocks, and trunks, growing over mosses.

4. B. Schweinitzii, *Fr. MS.* [*Schweinitz's*]: Crust of crowded scale-like—or, at length, coraline-branched—greenish-glaucous granules, on a white hypothallus: apothecia sessile, the opaque disk at length convex, from pale livid-flesh-color becoming blackish, the margin rather thick, incurved, pale.

Hab. On old trunks. (*Fraxinus*, &c.)

5. B. spadicea, *Ach.* [*Chestnut-brown*]: Crust cartilagineous, membranaceous, granulate, glaucescent; apothecia thick, the margin very finely rugulose; disk at length convex, and, excluding the margin, light-chestnut, becoming blackish, within of the same color.

Hab. On trunks of trees.

6. B. rissula, *Ach.* not of *Tuckerm. Syn.* [*Carnation*]: Crust subcartilagineous, from rimose-areolate at length granulate-verrucose, glaucescent (often greenish); apothecia sessile, glabrous, somewhat tumid, dark-red, the disk finally surpassing the entire thin paler margin.

Hab. On smooth trunks; dead wood, &c.

7. B. suffusa, *Fr.* [*Suffused*]: Thallus effuse, rugulose-granulose, incrusting, glaucous; apothecia dilated, flat, the margin fuscous (rufescent when moist), white-pruinose.

Hab. On rough trunks,—especially *Nyssa multiflora*.

8. B. exigua, *Chaub.* [*Little*]: Crust of minute confluent granules, smooth, cartilagineous, cinereous-greenish, decussated by lines of the black hypothallus; apothecia submarginate, pale yellowish, becoming fuscous.

Hab. On smooth bark.

9. B. chloropholis, *Tuckerm. MS.* [*Green-scale*]: Crust of small rounded bright-green granules: apothecia very small, somewhat immersed, the naked opaque flattish disk finally surpassing the very thin obtuse margin, from white becoming at length dark fuscous, and black.

Hab. On stones; old damp walls, mortar, &c.

10. B. aurantiaca? *Fr.* [*Orange-colored*]: Crust cartilagincous, uneven, granulate, lutescent, innate in a black hypothallus; apothecia somewhat elevated, with a crenulate evanescent spurious margin; disk dark orange, and fuscescent, with a thin proper margin.

Hab, On trunks, dead wood, and rocks.

11. B. ferruginea, *Fr.* [*Rust-colored*]: Crust subcartilagineous, at first continuous, at length verrucose, whitish, or, when the black hypothallus predominates, becoming ash-colored; apothecia flattish; disk opaque, from orange becoming blood-red, but always more or less ferruginous, bordered by a paler, somewhat polished, margin.

Hab. On trunks, and dead branches.

602. LECIDE'A, *Ach.*

[Gr. *Lechis*, a small shield, and *Eidos*, form; in reference to the apothecia.]

Apothecia margined at first by a very black carbonaceous proper exciple, becoming scutellaeform, or hemispherical, solid; *disk* at

first punctiform-impressed, always open, often horny, and placed upon a carbonaceous stratum. *Thallus* horizontal, arising from a hypothallus, somewhat crustaceous, effigurate, or uniform.

SECTION 1. *Thallus* effuse, uniform.

SUBSECTION 1. AREOLÀTAE.

Crust innate, originally areolate or becoming so; *hypothallus* black.

* SAXICOLAE.

1. L. albo-caeruléscens, *Fr.* [*White-bluish*]: Crust at first continuous, bluish becoming whitish; apothecia produced from the crust; margin of the annular exciple thin; disk waxy, black, caerulescent-pruinose, white within.

Var. b. *immersa, Fr.* crust very thin and whitish, or wanting; apothecia small, often immersed.

Hab. On rocks, and stones: *Var.* b. on limestone.

2. L. lapicìda, *Ach.* [*Stone-cutting*]: Crust at length areolate-verrucose, from glaucous becoming cinereous-white; apothecia superficial, produced from the cortical layer, sessile, not pruinose, horny and cinerascent-black within, with an even naked disk, and a thin, at length flexuose margin (or, the margin disappearing, finally confluent and irregular).

Hab. On rocks and stones.

3. L. atro-álba, *Ach.* [*Black and white*]: Crust somewhat areolate (the areolae commonly discrete, verrucaeform), opaque, fuscous and greyish-white; apothecia produced from the hypothallus, (small,) the obtuse margin scarcely discrete from the naked, at length somewhat umbonate, disk.

Hab. On rocks, and stones.

** CORTICICOLAE.

4. L. parasèma, *Fr.* [*Counterfeit*]: Crust somewhat leprous, glaucescent, becoming verrucose-areolate, limited by the black hypothallus; apothecia sessile, opaque; exciple cupular, with a thin margin; disk horny, naked, very black.

Hab. On trunks, and dead wood: very common.

5. L. enteroleùca, *Fr.* [*Internally white*]; Crust at first continuous, glaucescent, deliquescing, limited by the black hypothallus; apothecia adnate; exciple annular, with a thin margin; disk somewhat wavy, often hyaline, or caerulescent, whitish within.

Hab. On smooth trunks.

TRIBE 3. GRAPHIDA'CEAE.

Apothecia of various form; an altered thalline carbonaceous proper exciple, or an originally proper exciple margining a gyrose and proliferous-papillate, or canaliculate disk.

603. UMBILICA'RIA, *Hoffm.*

[So named from the *umbilicated* Thallus.]

Apothecia superficial, the closed thalline exciple becoming a carbonaceous proper exciple, more or less open, and of various form; *disk* horny, ascigerous, finally chinky, or gyrose-plicate, with an incurved margin. *Thallus* horizontal, cartilagineous, foliaceous, submonophyllous, affixed by a central point.

SECTION 1. PATELLÀTAE.

Apothecia orbiculate-patellaeform; *disk* at length chinky, plicate, or proliferous-papillate.

1. U. Dillènii, *Tuckerm.* [*Dillenius's*]: Thallus coriaceous, rather rigid, smooth, glaucous-fuscescent becoming dark-fuscous, under side black, and closely hirsute with short black crowded fibres; apothecia convex, at first orbicular and concentrically plicate, finally lirellate, with a thin channelled margin.

Hab. On rocks, in mountainous districts.

Obs. I have not yet met with this species within our limits; but have seen a specimen obtained near the Schuylkill. It, and several other species, are abundant a few miles further north. This genus furnishes the celebrated "*Tripe de roche*" (Tripe of the Rocks), of the Canadian and Western Hunters,—to which they are often obliged to resort, when other means of subsistence fail. When properly prepared for the table, it is said to be a tolerable *substitute* for "Tripe,"—which it also somewhat resembles.

604. OPE'GRAPHA, *Humb.*

[Gr. *Ope*, hollow, and *graphe*, writing; from the lines of the apothecia.]

Apothecia somewhat lirellaeform, margined by a free, somewhat carbonaceous, proper exciple; *disk* channelled, at first closed by the inflected-connivent margin, becoming open, indurated and horny. *Thallus* crustaceous.

¿1. *Apothecia* superficial, destitute of a thalline margin.

1. O. àtra, *Pers.* [*Black*]: Crust innate in the matrix; apothecia emergent-superficial, slender, shining, acute; margin of the subentire exciple thin; disk linear, channelled, naked, horny within.

Var. b. *abbreviàta, Fr.* apothecia abbreviated, irregular, often radiately disposed.

Var. c. *maculàris, Fr.* apothecia dilated into somewhat radiate immarginate maculae, and confluent.

Hab. On trees.

¿2. *Apothecia* erumpent, coronate for the most part with a thalline margin.

2. O. scripta, *Ach.* [*Written*]: Crust innate, becoming exposed, uneven, pulverulent; apothecia immersed, erumpent, with a raised thalline margin,—the proper margin tenuescent, smooth; disk linear, at first caesious-pruinose.

Var. a. *limitàta, Schaer.* apothecia emergent, scattered, various.

Var. b. *récta, Schaer.* apothecia immersed, straight, parallel, somewhat dilated.

Var. c. *serpentìna, Schaer.* apothecia immersed, long, flexuous,—the thalline margin tumid, evanescent.

Hab. On trees: *Var.* c. frequent on Cherry-trees—where the elongation of the apothecia seems to be occasioned by the transverse expansion of the almost horny outer bark.

3. O. polymórpha, *Ach.* [*Many-form*]: Crust somewhat pulverulent, whitish-cinerascent, or very white; apothecia rounded, or oblong, irregular, without apparent proper margin, from plane becoming tumid and elevated-punctate, angulate, or stellate-ramulose, caesious-pruinose, with more or less thalline margin.

Hab. On trunks of Ash (*Fraxinus sambucifolia*).

TRIBE 4. CALICIA'CEAE.

Apothecia orbiculate, or globose, always open, margined by a proper exciple, the *disk* collapsing into naked *sporidia;* or immarginate, and the *sporidia* capituliform-compact.

605. TRACHYL'IA, *Fr.*

[Gr. *Trachys*, rough; the apothecia being scabrous with naked spores.]

Apothecia sessile, discrete from the thallus, orbiculate; *disk* somewhat compact, ascigerous, margined by the innate carbonaceous proper exciple, or the exciple obsolete. *Asci* oblong. *Thallus* crustaceous.

1. T. Stigonélla, *Fr.* [*Small-dotted*]: Parasitic; exciple cupular, innate, disk plack, black-pulverulent, equalling the thin erect black margin.

Hab. On the crust of *Pertusaria pertusa:* rare.

606. CALI'CIUM, *Pers.*

[Gr. *Kalykion*, a little cup; in reference to the Apothecia.]

Apothecia crateriform, the carbonaceous proper exciple margining a compact or powdery *disk*, composed of coacervate naked *sporidia.*—*Thallus* crustaceous.

SECTION 1. *Apothecia* stipitate.

GLAUCESCENTIA: *Exciple* more or less whitish-cinereous-pruinose.

1. C. súbtile, *Pers.* [*Delicate*]: Crust filmy, leprous, white-glaucescent; stipes filiform, flaccid, black; apothecia lentiform-globose, naked, black, the margin at length reflected.

Hab. On old decaying wood; fences, &c.

SUBORDER II. ANGIOCARP'I.

Apothecia closed, nucleiferous, pertuse and with an *ostiole*, or irregularly dehiscent,—the *nucleus* included, subglobose, ascigerous.

TRIBE 1. ENDOCARPA'CEAE.

Apothecia immersed in the thallus, globose, the thalline exciple attenuated into a neck, and terminated by a discrete heterogenous papillaeform *ostiole*; *nucleus* deliquescent; *thallus* horizontal, foliaceous, or crustaceous.

607. ENDOCARP'ON, *Hedw.*

[Gr. *Endon*, within, and *Karpos*, fruit; descriptive of the fructification.]

Apothecia included in the thallus, globose; a membranaceous thin pale thalline *exciple* inclosing a gelatinous colored deliquescent *nucleus; ostioles* somewhat prominent. *Thallus* horizontal, cartilagineous-foliaceous, subpeltate.

1. E. Muhlenbérgii, *Ach.* [*Muhlenberg's*]: Thallus cartilagineous-coriaceous, thick, from greenish-glaucous becoming fuscescent, very finely rugose and somewhat chinky; under side fuscous-black; ostioles convex.

Hab. On dry Serpentine rocks; Smedley's Barrens.

2. E. fluviátile, *DC.* [*River*]: Thallus cartilagineous-membranaceous, flaccid, lobed, green, becoming fuscescent when dry, lobes rounded, auriculate-lobulate; under side naked, reticulate-rugulose, pale fuscous becoming black; ostioles rather prominent, black.

Hab. On wet and frequently inundated rocks.

3. E. pusillum, *Hedw.* [*Little*]: Thallus cartilagineous, squamulose-foliaceous, smooth, brownish-olivaceous, pale on the under side, arising from a black fibrillose hypothallus; ostioles black, somewhat prominent, pertuse.

Hab. On naked clays; Newlin Barrens: very rare.

4. E. arbòreum, *Schweinitz, MS.* [*Tree*]: Thallus squamulose, foliaceous, subcoriaceous, from glaucous becoming fuscous; scales closely imbricate, often concave, black and downy beneath; ostioles black, scarcely prominent.

Hab. On trunks, &c.

Obs. An extremely rare species. I have only once found it, on the detached bark of an old black-oak stump.

608. PERTUSA'RIA, *DC.*

[Latin, *pertusus*, punched, or bored through; descriptive of the plant.]

Apothecia verrucaeform, formed from the thallus, including naked waxy-gelatinous colored *nuclei*. *Thallus* crustaceous, often passing into *soredia* and *isidia*.

1. P. pertùsa, *Ach.* [*Perforate*]: Crust cartilagineous, glaucous-white; apothecia depressed-hemispherical, irregular; ostioles depressed, discrete, the perfect ones black-papillate.

Var. a. *sorediifera, Fr.* crust sterile, sorediiferous.

Var. b. *areolàta, Fr.* crust thicker, rimose-areolate, often sterile and sorediiferous.

Var. c. *leucostoma, Fr.* ostioles white, the black papillae being deficient.

Hab. On trunks; sometimes on stones: frequent.

2. P. fagínea, *Tuckerm.* [*Beech*]: Crust tartareous-cartilagineous, cinereous-white, the circumference zonate, often thin, polished, bluish; apothecia hemispherical, bursting into mealy soredia.

Var. b. *orbiculata, Tuckerm.* apothecia explanate; nuclei expanded into a submembranaceous denudate flesh-colored disk.

Hab. On trunks, rails, and rocks: common.

3. P. globulàris? *Ach.* [*Globular*]: Crust of very numerous subglobose, and ramulose, glaucescent granules; apothecia (infrequent) globose, smooth, with a solitary impressed punctiform black ostiole.

Hab. On Mosses, &c.: rare.

TRIBE 2. VERRUCARIA'CEAE.

Apothecia rounded, a closed proper exciple (*perithecium*) becoming pertuse with an *ostiole*, or at length open; *nucleus* gelatinous, subhyaline, deliquescent; *thallus* crustaceous.

609. VERRUCA'RIA, *Pers.*

[Latin, *Verruca*, a wart; from the wart-like processes on the thallus.]

Perithecia hemispherical-globose, solitary, horny, black, closed, with a simple or papillaeform *ostiole*,—sometimes becoming subscutellaeform, or rarely inclosed in a thalline verruca.

1. V. elaeóchroa? *Tuckerm.* [*Olive-colored*]: Crust applanate, rimose-areolate, olivaceous; perithecia with a wide base, globose, emerging and conical at apex, becoming depressed and umbilicate.

Hab. On limestone rocks: frequent.

Obs. There seems to be some obscurity about this plant; but I cannot tell where else to place it. Perhaps it may prove to be *V. nigrescens, Pers.*

2. V. Cestrénsis, *Tuckerm. MS.* [*Chester*]: Crust conspicuous, chinky, dark blackish-green; perithecia dimidiate, the base inflexed, much covered by the thallus, but prominent, globose-hemispherical; nucleus globose, whitish.

Hab. On trunks of *Fagus ferruginea.*

Obs. This fine new species appears to be quite rare, here.

3. V. nitida, *Schrad.* [*Shining*]: Crust smooth, greenish-olivaceous, or fuscous; perithecia entire, covered, at length somewhat prominent, persistent, the ostioles subpapillate; nucleus fluxile.

Hab. On trunks,—especially Beech (*Fagus ferruginea*).

4. V. álba, *Schrad.* [*White*]: Crust innate in the matrix, becoming at length denudate, white; perithecia subglobose, entire, denudate, persistent, immersed at the base, ostiole papillate, or pertuse.

Hab. On trunks.

5. V. gemmàta, *Ach.* [*Budded*]: Crust innate, effuse, smoothish, white-hoary; perithecia hemispherical, dimidiate (not immersed at base), persistent; nucleus whitish.

Hab. On trunks.

6. V. punctifórmis, *Pers.* [*Dot-like*]: Crust innate in the matrix, or obsolete; perithecia innate-superficial, semiglobose, subdimidiate, the base inflexed; nucleus globose.

Hab. On trunks with smooth bark.

7. V. láctea, *Ach. MS.* [*Milky*]: Crust innate, effuse, white; perithecia innate-sperficial, dimidiate, sub-conoidal, inflexed at base.

Hab. On trunks of trees.

Obs. This is a Southern Lichen, and appears to be very rare in our district.

TRIBE 3. TRYPETHELIA'CEAE.

Apothecia verrucaeform, formed of the thallus, ostiolate-pertuse, containing in one or more *perithecia* a deliquescent *nucleus*.

610. TRYPETHE'LIUM, *Spreng.*

[Gr. *Trypa*, foramen, and *Thele*, papilla; descriptive of the plant.]

Exciple double,—the outer one of the substance of the thallus and wart-like, including the *perithecia* or interior exciples. *Nucleus* gelatinous, deliquescent. *Thallus* crustaceous, subcartilagineous.

1. T. porò̀sum, *Ach.* [*Porous*]: Crust palish-white; warts of the apothecia somewhat prominent, broad, irregular, confluent, of the same color; within whitish.

Hab. On smooth trunks; Beech, &c.

Obs. Our plant has generally passed for a form of *Verrucaria nitida.* SCHWEINITZ called it *V. composita.*

2. T. virens, *Tuckerm. MS.* [*Green*]: Crust effuse, waxy-cartilagineous, smooth, green, becoming glaucescent when dry; warts rather prominent, rounded-irregular, confluent, of the same color with the crust; ostioles minute, not prominent, black; perithecia globose (10—20), superficial; sarcothecium from fulvous at length white.

Hab. On smooth trunks; *Fagus, Acer,* &c.

Obs. The term, *Sarcothecium,* has been employed by FÉE, to denote the medullary substance of the warts, in which the perithecia nestle. It varies in color and intensity with the species, and affords an obvious character.

We probably have other *Trypethelia;* but they have not yet been determined. It is chiefly a Southern genus.

TRIBE 4. LIMBORIA'CEAE.

Apothecia rounded,—the carbonaceous proper *exciple* closed, at length variously dehiscent; *nucleus* subceraceous, rigescent; *thallus* crustaceous.

611. GYROS'TOMUM, *Fr.* [Conotrema. *Tuckerm. Syn.*]

[Gr. *Gyros*, a circle, and *stoma*, mouth; descriptive of the plant.]

Perithecia mostly solitary, horny, black, at first pertuse, becoming open, with a coarctate inflexed margin, including a depressed *nucleus* which is elevated at the centre into a somewhat marginate disk.—*Thallus* crustaceous.

1. G. urceolátum, *Fr.* [*Urceolate*]: Crust thin, smooth, rugose-rimose, glaucous-white, bordered by a black line; perithecia scattered, at first covered, finally superficial, conoidal, white-pruinose.

Hab. On trunks, and branches: common.

SUBORDER III. COLLEMA'CEAE.

Filamentous or *foliaceous gelatinous-conglutinate plants,* without discrete layers; *sporidia* included in *asci,* and immersed in a *thalamium,* which is contained either in a *thalline exciple,* or a *proper exciple.*

TRIBE 1. COLLEME'AE.

Thallus gelatinous-conglutinate, caulescent or foliaceous.

612. MYRIAN'GIUM, *Berk. & Mont.*

[Gr. *Myrios*, innumerable, and *Angeion*, a vessel, or cell; descriptive of the plant.]

Apothecia tuberculiform, at first closed, then open, plane, immarginate. *Hymenium* thick, many-celled, each cell containing one spherical *ascus*. *Sporidia* oblong, multiseptate. *Thallus* pulvinate, swelling when wet, unequal, tuberculate.

1. M. Curtisii, *Mont.* [*Curtis's*]: Irregular, confluent, dull, blackish.

Hab. On smaller branches of Hickory, and Sour Gum.

Obs. Common with us,—but considered to be a Southern species. I have received it from the gentleman whose name it bears, from South Carolina. TUCKERMAN remarks, that it is "new to the North."

613. COLLE'MA, *Hoffm.*

[Gr. *Kolle*, gluten; from the gelatinous nature of the plant.]

Apothecia subglobose, becoming discoid-open and scuttellaeform, with a *thalline exciple*. *Thallus* corneous-gelatinous, somewhat pulpy, of a moniliform-filamentous texture, variously lobed.

† Thallus *imbricate-plicate, becoming thick and turgid when wet.*

1. C. pulpòsum, *Ach.* [*Pulpy*]: Thallus thick, suborbicular, compact, blackish-green; lobes numerous, rather erect and entire, or repand-crenate,—those of the circumference larger and somewhat appressed; apothecia crowded, slightly concave, rufous, with an elevated irregular margin.

Hab. On mossy rocks; limestone, &c.

2. C. fasciculàre, *Ach.* [*Fascicled*]: Thallus suborbicular, olive-green; lobes dilated upward, waved,—those of the circumference rounded, cut-crenate; apothecia marginal, elevated-subpedicellate, fasciculate; disk convex, rufous.

Hab. On trunks, and rocks.

†† Thallus *thin, foliaceous, gelatinous-membranaceous, lobed principally at the circumference.*

3. C. melaènum, *Ach.* [*Black*]: Thallus foliaceous substellate, blackish-green, the lobes elongated, radiant, multifid, with elevated waved and crisped crenate margins; apothecia submarginal, somewhat plane, at length rufescent, with a subgranulate margin.

Hab. On mossy rocks, and trunks.

4. C. flàccidum, *Ach.* [*Flaccid*]: Thallus foliaceous, membranaceous, smooth, flaccid, blackish-green; lobes somewhat ascending, rounded, rather entire, undulate-plicate; apothecia small, scattered, somewhat plane, rufous.

Hab. On rocks, and trunks.

Obs. A conspicuously foliaceous species, which often presents a radiate or centrifugal appearance.

5. C. pulchéllum, *Ach.* [*Handsome*]: Thallus membranaceous, orbicular, round-lobed at the circumference, plicate-papulose and dark-green above, under side paler and deeply lacunose; apothecia crowded, elevated; disk urceolate, pale,—the margin thin, coarctate, very entire, finally rugulose.

Hab. On trunks, &c.

6. C. saturnìnum, *Ach.* [*Lead-colored*]: Thallus rosulate, blackish-green,—the under side glaucous and subtomentose; lobes broad, oblong, rounded, wavy, very entire; apothecia scattered, somewhat plane, rufous, the margin thin, entire.

Hab. On trunks, and rocks: frequent.

614. LEPTO'GIUM, *Fr.*

[Gr. *Leptos*, slender, thin, or delicate; characteristic of the genus.]

Apothecia rounded, becoming discoid—open and scutellaeform, subpedicellate, with a *proper exciple*. *Thallus* gelatinous-membranaceous, subdiaphanous, texture cellulose.

1. L. tremelloìdes, *Fr.* [*Tremella-like*]: Thallus foliaceous, very thin, smooth on both sides, or powdery above, lead-colored; lobes oblong, rounded, very entire; apothecia scattered, elevated, plane, rufous-fuscous, with a paler margin.

Hab. On rocks, and trunks: common.

2. L. lácerum, *Fr.* [*Torn*]: Thallus foliaceous, membranaceous, very thin, glaucous-fuscescent; lobes small, subimbricate, lacerate-laciniate, denticulate-ciliate; apothecia small, scattered, subsessile, somewhat concave, rufous, with a paler margin.

Hab. On mossy rocks, and bases of trees: common.

3. L. Pulvillus, *Tuckerm. MS.* [*Little cushion*]: Thallus pulvinate, fruticulose, much branched, blackish-green; branches terete, flexuose, entangled, more or less denticulate with short fibrillose branchlets; apothecia not seen.

Hab. On rocks; Serpentine ridge, near Unionville.

Obs. This species has not yet been found in fruit; and our plant may possibly prove to be specifically distinct from the one to which the name was originally given.

TRIBE 2. EPHEBIDE'AE.

Thallus filamentous, not gelatinous.

615. THERMU'TIS, *Fr.*

[ ]

Apothecia an orbiculate marginate sessile proper exciple, formed by the coupling of several fibres of the thallus. *Thallus* composed of entangled opaque blackish fibres.

1. T. pannòsa, *Fr.* [*Ragged*]: Thallus blackish-green, of terete very delicate entangled fastigicate short branchlets; apothecia minute, concave, obtusely margined, but becoming convex, and, excluding the margin, of the same color with the thallus.

Hab. On long-exposed disintegrating Limestone rocks.

Obs. The foregoing Catalogue of *Chester County Lichens*, and *Collemas*, contains about *twenty species* never before published in this country,—one half of which are entirely new. For the determination and description of the most of these, the writer has availed himself of the kind assistance of his friend E. TUCKERMAN, of Cambridge, Mass. whose long and assiduous attention to this much-neglected portion of Cryptogamic Botany has intitled him to be called THE AMERICAN LICHENIST.—E. M.

CORRIGENDA & ADDENDA.

Maculae, quas aut incuria fudit,
Aut humana parum cavit natura.

The reader will please make, or refer to, the following corrections, with a pencil, in the pages and places indicated.

PAGE 8. In connection with the MAGNOLIAS, it should have been stated, that in our American species (and remarkably in *M. glauca, L.*) the *flower-buds* are closely and completely invested by a membranous hairy caducous *spathe-like bract.*

" 24. *line* 3 *from the top:* for "oblonga," read vulgaris.

" 27. *line* 10 *from the bottom:* add *L.* after "DRÒSERA."

" 34. *line* 19 *from the bottom:* for "MULLUGO," read MOLLUGO.

" 44. 7 *lines from the top:* add to *Rhus glabra,*

Obs. A few years since, Messrs. R. KILVINGTON and DAVIS GARRET, jr. detected a small and very remarkable shrub, in Willistown, Chester County, which seems evidently to be a *Rhus*,—but with *bipinnate leaves* about a foot long, the *pinnae* 3 or 4 inches long, and the *pinnules* 1 to 2 inches in length, linear-lanceolate, more or less falcate, entire or rarely incised-toothed, glaucous beneath, the terminal one deeply incised or pinnatifid. Messrs. KILVINGTON and GARRETT (both of them intelligent and experienced Florists) are of opinion that the shrub is a *variety of Rhus glabra.* If so, it is a curious monstrosity, or sport of Nature. Although carefully cultivated by those gentlemen, since its discovery, it has not yet produced either *fruit* or *flowers;* but Mr. K. informs me, that it propagates freely by the *root.*

" 52. *Before Polygala sanguinea:* insert (as *No.* 1.),

1. P. incarnàta, *L.* Glaucous; stem slender, simple or sparingly branched above; leaves linear-subulate, few and small; spike oblong; wings much shorter than the conspicuously crested corolla; claws of the petals united in a long and slender cleft tube; caruncle longer than the funiculus.

FLESH-COLORED POLYGALA.

Stem 9 to 12 or 15 inches high, subterete, or often angulate-sulcate, smooth. *Leaves* scattered, ⅓ to ½ an inch long, erect. *Spike* terminal, ½ an inch to an inch and half in length, rather loose-flowered; *flowers* purplish-flesh-color, sometimes pale.

Hab. Sandy grounds; E. Nottingham: rare. *Fl.* Aug. *Fr.*

Obs. Collected by Mr. EVAN PUGH, Sept. 1851; but made known too late to be inserted in its proper place, in this edition.

PAGE 54. *line 5 from the top:* for "or slender," read on slender.

" 55. *before Vicia Cracca, insert*

†† PERENNIAL: peduncles *elongated;* calyx-teeth *very unequal.*

" 72. *line 22 from the bottom:* after "flowers" add white.

" 90. *line 22 from the bottom:* for "CIRCSEA," read CIRCAEA.

" 92. *after the description of Lagenaria vulgaris,* add

Hab. Gardens, &c. Nat. of tropical regions. *Fl.* July. *Fr.* Octo.

" 95. *line 10 from the top:* for "*sepals* imbricated &c." read *sepals* persistent, more or less connected at base; *petals* imbricated &c.

" 98. *line 19 from the bottom:* for "28 species," read 27 species.

" 256. To "*Obs.*" on CELTIS, add

My friend, JOSHUA HOOPES, is very confident that the form of *Celtis*, known as *crassifolia*, is a *distinct species* from *C. occidentalis;* and, after a more careful observation and comparison, I now incline to his opinion.

" 271. *line 23 from the bottom:* erase "L. &," next after "F. sylvatica." Specimens of the European *F. sylvatica*, received from my amiable and lamented friend Dr. BROMFIELD, of the Isle of Wight, England, clearly show it to be *distinct* from our *F. ferruginea.*

" 286. *line 3 from the bottom:* after "C. SATIVA," add L.

" 299. *After 3rd line from the top:* add

Hab. Wet, low grounds: common. *Fl.* March. *Fr.* Sept.

" 326. *line 7 from the top:* after "1 to 2," add inches.

" 345. *line 21 from the top:* for "Perigynium," read Perigynia.

" 357. *line 9 from the bottom:* after "A. perennans," for "*A. Gray,*" read *Tuckerman.* The latter gentleman had previously (viz. 1843,) so named it, in SILLIMAN'S *Journal, vol.* 45. *p.* 44.

" 414. *line 11 from the top:* for *Muion.* read *Mnion.*

" 403. *line 10 from the bottom:* for "*annules,*" read *annulus.*

" 450. *line 12 from the top:* for "plack," read plane.

" 490. *last line, second column:* transfer "Ilvensis" to WOODSIA.

" 491. *last line, first column:* transfer "palustris" to ZANNICHELLIA.

" xxxvi. (PRELIMINARY DISCOURSES) *line 13 from the bottom:* for "sons ne l'avonn," read nous ne l'avons.

" xxxvii. *last line:* for "1853," read 1852.

" liv. *line 10 from the bottom, second column:* for "4-covered," read 4-cornered.

This FLORA comprises 615 *Genera*, and 1393 *Species*, of Plants of Chester County.

Of these *Species*, about 1104 are **indigenous**, 157 are *naturalized*, and 132 CULTIVATED; as set forth in the following statement.

Phaenógamous.	*Genera.*	*Species.* Nat.	Natur'd.	Cult'd.	Total.	
Dialypetalous Exogens	172	227	42	60	329	
Gamopetalous "	170	264	63	28	355	
Apetalous "	50	79	21	14	114	
Gymnospermous "	8	6	1	12	19	
Endogenous Plants	109	211	30	18	259	
	509	787	157	132	1076	*Phaenogams.*
Cryptógamous.						
Ferns and Fern-like	18	39	"	"	"	
Mosses	38	120	"	"	"	
Hepaticae	25	33	"	"	"	
Lichens	25	125	"	"	"	
					317	*Cryptogams.*
Genera	615	1104	157	132	1393	Species.

THE FOLLOWING IS A CLASSIFIED LIST OF THE NATURALIZED AND CULTIVATED PLANTS OF CHESTER COUNTY.

☞ The names of those introduced plants which are generally regarded as intrusive *Weeds*, or *nuisances*, are printed in *italics;* and those which are EMINENTLY PERNICIOUS, or troublesome, in SMALL CAPITALS.

Naturalized Plants. *Cultivated Plants.*

ORDER I. RANUNCULA'CEAE.

Genus. *Genus.*

5. Ranunculus sceleratus.
" *bulbosus.*
" *acris.*
8. *Delphinium Consolida.*

ORDER II. MAGNOLIA'CEAE.

12. Magnolia acuminata.

ORDER VIII. PAPAVERA'CEAE.

20. *Papaver dubium.*
21. Argemone Mexicana.
22. Chelidonium majus.

ORDER IX. FUMARIA'CEAE.

27. Fumaria officinalis.

ORDER X. CRUCIF'ERAE.

28. Nasturtium officinale.
32. Barbarea vulgaris.
33. *Sisymbrium officinale.*
" Thalianum.
35. Sinapis nigra.
38. *Camelina sativa.*
39. Lepidium campestre.
40. *Capsella Bursa-pastoris.*
34. Brassica oleracea.
" campestris.
" Rapa.
35. Sinapis alba.
37. Cochlearia Armoracia.
39. Lepidium sativum.
41. Raphanus sativus.

ORDER XV. HYPERICA'CEAE.

48. *Hypericum perforatum.*

ORDER XVI. CARYOPHYLLA'CEAE.

51. Saponaria officinalis.
53. LYCHNIS GITHAGO.
54. Arenaria serpyllifolia.
55. Stellaria media.
56. Cerastium vulgatum.
" viscosum.

ORDER XVII. PORTULACA'CEAE.

59. *Portulaca oleracea.*

ORDER XVIII. MALVA'CEAE.

62. *Abutilon Avicennae.*
63. Sida spinosa.
64. *Malva rotundifolia.*
66. Hibiscus Trionum.
65. Althaea officinalis.
66. Hibiscus esculentus.

ORDER XIX. TILIA'CEAE.

67. Tilia Europaea.

ORDER XX. LINA'CEAE.

68. Linum usitatissimum.

ORDER XXIV. TROPAEOLA'CEAE.

72. Tropaeolum majus.

ORDER XXVI. XANTHOXYLA'CEAE.

74. Ailanthus glandulosa.

ORDER XXVIII. ACERA'CEAE.

76. Acer Pseudo-Platanus.
" platanoides.

ORDER XXIX. SAPINDA'CEAE.

78. Aesculus Hippocastanum.

ORDER XXXII. VITA'CEAE.

83. Vitis vinifera.

ORDER XXXIV. LEGUMINO'SAE.

88. Vicia sativa.
" hirsuta.
98. Robinia Pseud-Acacia
100. Trifolium arvense.
" repens.
" agrarium.
" procumbens.
102. Medicágo lupulina.
86. Cicer arietinum.
87. Faba vulgaris.
89. Ervum Lens.
90. Pisum sativum.
91. Phaseolus vulgaris.
" lunatus.
100. Trifolium pratense.
101. Melilotus leucantha.
102. Medicago sativa.
108. Gymnocladus Canadensis.
109. Gleditschia triacanthos.

ORDER XXXV. ROSA'CEAE.

119. Potentilla Norvegica.
122. Rosa rubiginosa.
123. Crataegus oxyacantha.
110. Persica vulgaris.
" laevis.
111. Armeniaca vulgaris.
" dasycarpa.
112. Prunus domestica.
" Chicasa.
113. Cerasus avium.
" vulgaris.
120. Fragaria vesca.
121. Rubus strigosus.
" Idaeus.
123. Crataegus cordata.
124. Pyrus communis.
" Malus.
125. Cydonia vulgaris.

ORDER XXXIX. GROSSULA'CEAE.

135. Ribes Uva-crispa.
" rubrum.
" nigrum.

ORDER XL. CUCURBITA'CEAE.

136. Lagenaria vulgaris.
137. Cucumis Melo.
" sativus.
" Anguria.
138. Citrullus vulgaris.
140. Cucurbita Pepo.
" Melopepo.
" verrucosa.

ORDER XLIV. UMBELLIF'ERAE.

151. Daucus Carota.
158. Bupleurum rotundifolium.
168. Conium maculatum.
151. [Daucus Carota, *Var.*]
153. Pastinaca sativa.
162. Apium graveolens.
163. Petroselinum sativum.
164. Carum Carui.
165. Foeniculum vulgare.
169. Coriandrum sativum.

ORDER XLVIII. RUBIA'CEAE.

178. Galium Aparine.

ORDER XLIX. VALERIANA'CEAE.

183. Fedia olitoria.

ORDER L. DIPSA'CEAE.

184. *Dipsacus sylvestris.* 184. Dipsacus Fullonum.

ORDER LI. COMPOS'ITAE.

197. Inula Helenium.
200. *Xanthium strumarium.*
" SPINOSUM.
203. Helianthus annuus.
207. *Maruta Cotula.*
208. Anthemis arvensis.
209. Achillea Millefolium.
210. LEUCANTHEMUM VULGARE.
211. Tanacetum vulgare.
212. Artemisia vulgaris.
215. Filago Germanica.
218. Senecio vulgaris.
220. *Centaurea Cyanus.*
222. *Cirsium lanceolatum.*
" *horridulum.*
" ARVENSE.
223. *Lappa major.*
224. *Cichorium Intybus.*
230. *Taraxacum Densleonis.*
233. Sonchus oleraceus.
" asper.
203. Helianthus tuberosus.
208. Anthemis nobilis.
212. Artemisia Dracunculus.
" Abrotanum.
" Absinthium.
221. Cynara Scolymus.
224. Cichorium Endivia.
227. Tragopogon porrifolium.
231. Lactuca sativa.

ORDER LVII. PLANTAGINA'CEAE.

253. *Plantago major.*
" *lanceolata.*

ORDER LVIII. PRIMULA'CEAE.

256. Anagallis arvensis.

ORDER LXI. BIGNONIA'CEAE.

262. Catalpa bignonioides. 263. Martynia proboscidea.

ORDER LXIII. SCROPHULARIA'CEAE.

265. VERBASCUM THAPSUS.
" *Blattaria.*
266. LINARIA VULGARIS.
273. Veronica officinalis.
" serpyllifolia.
" peregrina.
" arvensis.
" hederaefolia.

ORDER LXV. LABIA'TAE.

284. Mentha viridis.
" arvensis.
282. Ocimum Basilicum.
283. Lavandula vera.

288. Origanum vulgare.
289. Thymus Serpyllum.
291. Calamintha Clinopodium.
300. *Nepeta Cataria.*
" Glechoma.
301. Brunella vulgaris.
304. Marrubium vulgare.
306. *Leonurus Cardiaca.*
" Marrubiastrum.
307. *Lamium amplexicaule.*
" purpureum.
284. Mentha piperita.
288. Origanum Majorana.
289. Thymus vulgaris.
290. Satureja hortensis.
292. Melissa officinalis.
294. Hyssopus officinalis.
296. Salvia officinalis.

ORDER LVI. BORAGINA'CEAE.

310. ECHIUM VULGARE.
313. *Lithospermum arvense.*
316. Cynoglossum officinale.
311. Symphytum officinale.

ORDER LXIX. CONVOLVULA'CEAE.

321. CONVOLVULUS ARVENSIS.
" purpureus.
322. *Cuscuta epilinum.*
321. Convolvulus Batatas.

ORDER LXX. SOLANA'CEAE.

323. Lycium Barbarum.
325. *Datura Stramonium.*
326. Nicandra physaloides.
330. *Solanum nigrum.*
" Dulcamara.
" CAROLINENSE.
324. Nicotiana Tabacum.
328. Capsicum annuum.
329. Lycopersicum esculentum.
330. Solanum tuberosum.
" Melongena.

ORDER LXXI. GENTIANA'CEAE.

332. Erythraea ramosissima.

ORDER LXXIV. OLEA'CEAE.

340. Ligustrum vulgare.

ORDER LXXVII. CHENOPODIA'CEAE.

346. *Chenopodium album.*
" hybridum.
347. Ambrina Botrys.
" anthelmintica.
" ambrosioides.
350. *Amaranthus albus.*
" *hybridus.*
" SPINOSUS.
348. Beta vulgaris.
349. Spinacia vulgaris.

ORDER LXXIX. POLYGONA'CEAE.

351. Polygonum orientale.
" *Persicaria.*
" *Hydropiper.*
" *aviculare.*
" Convolvulus.
353. *Rumex crispus.*
" *obtusifolius.*
" *Acetosella.*
352. Fagopyrum esculentum.
354. Rheum Rhaponticum.

ORDER XC. EUPHORBIA'CEAE.

367. Euphorbia Lathyris.

ORDER XCI. JUGLANDA'CEAE.

370. Juglans regia.

ORDER XCII. CUPULIF'ERAE.

375. Corylus Avellana.

ORDER XCV. SALICA'CEAE.

381. Salix alba.
" fragilis.
381. Salix Babylonica
382. Populus Graeca.
" dilatata.
" alba.

ORDER XCVII. URTICA'CEAE.

285. Morus alba.
389. *Urtica dioica.*
384. Maclura aurantiaca.
386. Broussonetia papyrifera.
387. Cannabis sativa.
388. Humulus Lupulus.

ORDER XCVIII. CONIF'ERAE.

398. Juniperus communis.
394. Abies balsamea.
" picea.
" excelsa.
" alba.
" nigra.
395. Larix Cedrus.
" Europaea.
396. Thuja occidentalis.
" orientalis.
397. Taxodium distichum.
390. Taxus baccata.
400. Salisburia adiantifolia.

ORDER XCIX. ARA'CEAE.

405. Acorus Calamus.

ORDER CXI. LILIA'CEAE.

440. Hemerocallis fulva.
441. ORNITHOGALUM UMBELLATUM.
442. *Allium vineale.*
437. Asparagus officinalis.
442. Allium sativum.
" Cepa.
" Porrum.
" Schoenoprasum.

ORDER CXV. COMMELYNA'CEAE.

455. Commelyna angustifolia?

ORDER CXVII. CYPERA'CEAE.

458. CYPERUS REPENS,

ORDER CXVIII. GRAMIN'EAE.

471. Agrostis vulgaris.
479. Eleusine Indica.
469. Phleum pratense.
482. Dactylis glomerata.

485. Poa annua.
" trivialis.
" pratensis.
" compressa.
486. Eragrostis megastachya.
" pilosa.
487. Festuca elatior.
" pratensis.
488. *Bromus secalinus.*
" mollis?
489. TRITICUM REPENS.
491. Lolium perenne.
499. Holcus lanatus.
500. Anthoxanthum odoratum.
503. *Panicum sanguinale.*
" glabrum.
" filiforme.
" *Crus-galli.*
504. *Setaria verticillata.*
" glauca.
" viridis.
505. CENCHRUS TRIBULOIDES.
489. Triticum vulgare.
490. Secale cereale.
493. Hordeum vulgare.
" distichum.
497. Avena sativa.
498. Arrhenatherum avenaceum.
504. Setaria Italica, *var.*
506. Zea Mays.
509. Sorghum saccharatum.
" vulgare.
" cernuum.

Of these CULTIVATED PLANTS, there are used chiefly as

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From this list of *introduced and naturalized* Plants, it appears that about 55 are found to be objectionable and rather annoying *weeds;* while some 12 or 14 of them are *eminently pernicious*, or *troublesome.*

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OF THE

ORDERS, GENERA AND SPECIES.

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