BOTANY
OF THE
UNITED STATES NORTH OF VIRGINIA;
COMPRISING
DESCRIPTIONS OF THE FLOWERING AND FERN-LIKE
PLANTS HITHERTO FOUND IN THOSE STATES,
ARRANGED ACCORDING TO THE NATURAL SYSTEM.

WITH
A SYNOPSIS OF THE GENERA ACCORDING TO THE LINNÆAN SYSTEM,
A SKETCH OF THE RUDIMENTS OF BOTANY, AND A
GLOSSARY OF TERMS.

BY LEWIS C. BECK, M.D.
PROFESSOR OF CHEMISTRY AND NATURAL HISTORY IN RUTGERS COLLEGE,
NEW JERSEY, ETC., ETC.

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This volume is intended as a Class-book for the beginner, and a convenient Manual for the more advanced botanist. It contains scientific and popular descriptions of the Flowering and Fern-like plants found in the United States north of Virginia, with their English names, and brief notices of their uses. The arrangement is according to the Natural System, which is now so generally adopted in works of this kind. But in order to secure all the advantages of the Linnaean system, a Synopsis of the Genera in accordance with it is prefixed, containing references to the Natural Orders, and to the page where the species are described. And fully to carry out the design of the work, there have also been introduced, a Sketch of the Rudiments of Botany, a Glossary of Botanical Terms, and a Table explanatory of the Linnaean Classes and Orders.

While the original plan of the work has been adhered to, I have endeavored, in this edition, to bring it up to the present advanced state of botanical science. There is scarcely a page which has not been amended, and many parts have been entirely re-written. Brevity has in all cases been consulted, as far as was deemed consistent with that clearness of description so important in the study of plants.

In the names and characters of the Natural Orders, I have chiefly followed Dr. Lindley's late work, entitled "The Vegetable Kingdom;" although the general arrangement adopted in the first edition has not been materially changed. I should also particularly acknowledge my indebtedness to De Candolle's "Prodromus" (10 vols.), Torrey and Gray's "Flora of North America," Torrey's "Flora of the State of New York," and
Darlington’s “Flora Cestrica.” In determining the geographical range of the species, I have derived great assistance from the various local catalogues of plants which have been published within the last ten years. I have also consulted with much advantage several valuable papers which have from time to time appeared in Silliman’s Journal, and in other scientific periodicals. Particular references to the sources of information will in all cases be found in their appropriate places.

The favorable reception which this work has met with, and the kind expressions of botanists in various parts of the country, encourage me to hope that this revision will be no less acceptable.

Rutgers College, N. J.

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ABBREVIATIONS AND AUTHORITIES.

Adans.  Adanson.
Ait.    Aiton.
All.    Allioni.
Bart.   Barton.
Beauv.  P. de Beauvois.
Benth.  Bentham.
Big.    Bigelow.
Cass.   Cassini.
D. C.   De Candolle.
Desf.   Desfontaines.
Desv.   Desvaux.
Darlingt. Darlington.
Eat.    Eaton.
Ell.    Elliott.
Ehrh.   Ehrhart.
Geart.  Gärtert.
Good.   Goodenough.
Gron.   Gronovius.
Hook.   Hooker.
Lam.    J. B. de la Marck.
Lamb.   Lambert.
Lehm.   Lehmann.
L'Herit. L'Heritier.
Lind.   Lindley.
Linn.   Linnaeus.

Mich. f. Michaux the younger.
Moq.-Tand. Moquin-Tandon.
Muhl.   Muhlenberg.
Nees.   Nees ab Esenbeck.
Nutt.   Nuttall.
Pers.   Person.
Poir.   Poirret.
Raf.    Rafinesque.
R. & S. Ræmer and Schultes.
Salisb. Salisbury.
Sch.    Schkuhr.
Schreb. Schreber.
Schw.   Schweinitz.
Scop.   Scopoli.
Spreng. Sprengel.
Torr.   Torrey.
Torr. & Gr. Torrey and Gray.
Tourn.  Tournefort.
Trin.   Trinius.
Walt.   Walter.
Wang.   Wangenheim.
Wild.   Willdenow.
Vent.   Ventenat.

(1) Annual. (2) Biennial. (3) Perennial. (4) Shrubby or arboresous.


W. to Miss.—As far West as the State of Missouri.
W. to the Miss.—As far West as the Mississippi River.
W. to Ill.—As far West as the State of Illinois.
W. to Mich.—As far West as the State of Michigan.
N. S.—Northern States.
SKETCH OF THE RUDIMENTS OF BOTANY.

ELEMENTARY ORGS.

1. The tissue of which plants consist, appears under four forms, viz: cellular tissue, woody fibre, vascular tissue, and ducts. These are called elementary organs.

2. Cellular tissue or parenchyma is composed of transparent vesicles, variously cohering with each other. It is the only form universally found in plants; the other forms being often partially or entirely wanting.

3. Woody fibre is a tissue consisting of elongated tubes, similar to the vesicles of cellular tissue, and is therefore often called, elongated cellular tissue.

4. Vascular tissue, of which the spiral vessels are usually taken as the type, consists of tubes of variable length, with delicate walls, to the inside of which a spirally coiled fibre adheres, capable of being unrolled. It enters into the composition of all plants of higher organization, (all above the mosses.)

5. Ducts are elongated, transparent tubes, composed of tissue that is not capable of being unrolled.

6. All these forms are covered by a membrane called the epidermis or cuticle.

7. From peculiar combinations of the elementary organs are formed the compound organs.

ROOT.

8. The root is formed by the descending and dividing fibres of the stem; and by it plants are with few exceptions fixed to the earth, and supplied with a portion of their nourishment.

9. It is distinguished from the stem by the absence of leaves, of pith even in those plants in which it is abundant in the stem, and of spiral vessels.

10. It usually consists of three parts; the neck, (collum) or line of separation from the stem; the body or middle portion; and the fibres or little roots, through which the nourishment is principally derived.

11. The following are the principal kinds of roots:

   a. Conical, or principal tap root, as it is sometimes called; tapering downwards and emitting fibres from various parts of its surface; as in the Carrot.

   b. Fusiform, when the conical root is attenuated towards the neck, as well as below; as in the Radish.

   c. Napiform, when it is swollen out extremely in the upper part and suddenly attenuated below; as in the Turnip.
d. Abrupt, when the fusiform root is as it were cut off suddenly.

e. Fibrous, a collection or bundle of fibres connected by a common head and often merely by the base of the stem; as in the Grasses.

f. Fasciculated, when the fibres swell out slightly in the middle.

g. Tuberous or tuberiferous, when some of the branches or fibres assume the form of rounded knobs. These should not be confounded with true tubers, which are properly short subterranean stems, usually containing eyes or buds from which new plants arise.

h. Palmate, when the knobs of the tuberiferous root are branched.

12. The direction of the root is usually towards the centre of the earth; but it is sometimes contorted or bent upwards and downwards in a zigzag manner; or creeping when it proceeds laterally at right angles from this. These have often been confounded with subterranean branches; the last of which only are troublesome to the agriculturalist.

STEM.

13. This is the part which springs upwards during the germination of a seed; it is the intermediate body between the root and the leaves.

14. When the stem of a plant arising from a seed is evident, the plant is termed canescent; and when not apparent, or scarcely so, the plants have received the name of acanthes, or stemless.

15. When the stem instead of ascending, stretches either wholly or in part, under ground, emitting here and there roots from below and branches or leaves which rise upwards, it is called a rhizoma; or if it do not emit fibres, a cormus or corm. The bulb is a very short stem, consisting of a number of scales, which in growing shoots forth a flowering stem from the centre, and sends out roots from the base.

16. Stolons or runners are long stems of a peculiar nature issuing horizontally from a plant, and emitting only from the extremity roots and leafy buds; as in the Strawberry.

17. The stem varies in structure, in three principal modes.

18. In vascular plants it is either formed by successive additions to the outside of the wood, when it is called Exogenous; or by successive additions to its centre, when it is called Endogenous. In cellular plants it is formed by the union of the base of the leaves, or by a simple elongation or dilatation where no leaves or buds exist.

19. The stem of Exogenous plants may be distinguished into the pith, the medullary sheath, the wood, the bark, the medullary rays, and the cambium.

20. The pith is a mass of spongy cellular tissue occupying the centre of the stem.

21. The medullary sheath surrounds the pith, and consists of spiral vessels and ducts. It communicates on one side with the pith and on the other with the medullary rays, leaf-buds and veins of the leaves.

22. The wood lies upon the medullary sheath and consists of concentric layers, one of which is formed every year. These layers are composed of cellular tissue, woody fibre and ducts, and are traversed by the medullary rays composed of cellular tissue, and connecting the centre with the circumference.—The fully formed or central layers are called the heart-wood, and the exterior the alburnum.
23. The bark surrounds the wood, and when fully formed consists in its inner portion of a layer of woody and vascular tissue in the form of rough woody fibre, constituting the liber. The outer portion which covers the liber is then also distinguishable into the green layer, and the corky envelope. The whole is covered by the epidermis.

24. The cambium is a viscid secretion which is formed in the spring, between the liber and alburnum.

25. The stem of Endogenous plants presents no distinction of pith, medullary rays, wood and bark, but is formed of bundles of ducts and spiral vessels interspersed through a cellular tissue; and this is surrounded by a stratum of cellular tissue and woody fibre different from bark, inasmuch as it cannot be separated from the stem itself. Such plants have their diameter increased by the addition of central vascular tissue and ducts.

26. Projections from the medullary sheaths sometimes reach the circumference of the stem and branches, forming what are called nodes, to which are attached leaves and leaf-buds, and the spaces between these are called internodes.

27. Whatever is produced by the evolution of a leaf-bud is a branch: a spine therefore is a kind of branch; it differs from the prickle which is an indurated process of the epidermis.

28. The stem peculiar to the grasses and other allied tribes is termed a culm. This is simple or rarely branched, generally hollow within or fistulous, and separated at intervals by knots or partitions from which issue the leaves.

29. The stem may be simple or branched, and with the branches may be cylindrical, or conical; round, (terete,) or angled; smooth, furrowed, or rough, or hairy, &c.

30. With regard to duration the stem is
   a. Annual, (1) when it is completely developed and decays during the same season.
   b. Biennial, (2) when it produces fruit the second season and then decays.
   c. Perennial, (4) when it produces flowers and fruit during many successive seasons.

31. The term herb or herbaceous employed in opposition to perennial, denotes that the stem generally dies down to the ground every year.

LEAF-BUDS.

32. Buds are of two kinds, leaf-buds and flower-buds.

33. Leaf-buds consist of rudimentary leaves surrounding a vital point, the tissue of which is capable of elongation; upwards in the form of stem, and downwards in the form of wood or root.

34. Flower-buds consist of rudimentary leaves surrounding a point, which does not elongate after it is once developed, and assumes when fully developed, the form of reproductive apparatus.

35. Leaf-buds are of two kinds; the regular only found in the axils of the leaves; and the adventitious which may be produced wherever there is an anastomosis of woody fibre.

36. Leaf-buds have sometimes been confounded with roots by the old botanists. A bulb is a leaf-bud.
37. Leaves are those expansions which issue laterally from the stem and branches of plants. They take their origin from the bark, and are always to be observed, whether perfect or rudimentary, immediately below the leaf-buds.

38. Those leaves situated near the root are often larger, and of a different shape from those higher up the stem; the former are termed radical, the latter cauline.

39. A leaf consists of a petiole, a lamina or limb, and a pair of stipules; but sometimes only one of these three parts can be observed.

40. The petiole is the channel through which the vessels of the leaf are connected with those of the stem; it is formed of one or more bundles of spiral vessels and woody fibre, enclosed in a cellular integument.

41. The lamina of a leaf is an expansion of the parenchyma of the petiole, and is transversed by veins which are ramifications or extensions of the bundles of vascular tissue of the petiole, or when there is no petiole, of the stem.

42. These veins either branch in various directions among the parenchyma, anastamozing and forming a kind of net-work, or they run parallel to each other, being connected by single transverse unbranched veins; the former structure being characteristic of Exogenous, and the latter, of Endogenous plants. To this the Coniferae and Cycadeae form perhaps the only exceptions; these having the stems of the Exogenous, but the same arrangement of the veins as in the Endogenous ones.

43. The principal vein of the leaf is a continuation of the petiole, running in a direct line from the base to the apex of the lamina, and is called the midrib.

44. The lamina is variously divided and formed; it is usually thin and membranous, with a distinct upper and under surface, but sometimes becomes succulent, when the surfaces cannot be distinguished.

45. A leaf is either simple or compound; simple when its lamina is undivided, or when, if separated into several divisions, these segments are not articulated with the petiole; compound when the lamina is articulated with the petiole.

46. The modes in which leaves are divided are distinguished by particular names, as pinnate, pinnatifid, bipinnate, bipinnatifid, &c. &c. These terms apply to the mode of division, and are equally applicable to simple and compound leaves.

47. Stipules are those small foliaceous organs sometimes situated on each side at the base of the petiole. They never occur in the Endogena, nor in any Exogenous plants that have sheathing petioles, and are rarely found in genera with opposite leaves. They are sometimes transformed into leaves; they sometimes have leaf-buds in their axils; and sometimes also they are changed into spines.

48. Leaves are originally continuous with the stem, but afterwards, from a cause which is still unknown, an articulation more or less complete takes place and the fall of the leaf ensues.

49. The mode in which leaves are arranged within their bud is called vernation or gemmation. This varies much in different groups of plants.
FLOWER-BUDS.

50. The flower-bud consists of imbricated rudimentary or metamorphosed leaves, the external or inferior of which are usually alternate, and the internal or superior always verticillate or opposite; the latter are called floral envelopes and reproductive organs.

51. The leaves, from the axis of which the flower-buds arise are called bracts or floral leaves; and those leaves which appear on the pedicel between the bracts and calyx, are called bracteoles. These, although essentially distinct, are often confounded with the former.

52. When a single bract is rolled together, highly developed, and colored, and is placed at the base of the form of inflorescence called a spadix, it is named a spathe.

53. When several bracts are verticillate or densely imbricated around the base of the forms of inflorescence called the umbel or head, they are termed an involucre; and those at the base of each partial umbel, are called involucels.

54. Small imbricated bracts are often called scales; as in the Composite.

55. Bracts, when placed immediately below the stamens and pistils, as in apetalous flowers, are only distinguished from the calyx by being alternate with each other, and not verticillate; hence the glumes and paleae of grasses are bracts, and not calyces.

56. The elongation of the axis of the flower-bud from the point of its connection with the stem, as far as the floral envelopes, is called the peduncle.

57. When several peduncles spring from the axis near to each other, the axis is termed a rachis, and the peduncles themselves are called pedicels.

58. Those axes which spring from the earth and bear no true leaves, are denominated scapes.

59. The modes in which the flower-buds are arranged are called forms of inflorescence; and the order in which they unfold, is called the order of expansion.

INFLORESCENCE.

60. When a flower-bud gives rise to only one flower, terminal on its peduncle, and the axis of the plant does not elongate beyond the bud, the flower is commonly said to be terminal and solitary.

61. When the axis, however, continues to elongate and the bract retains the form and size of a leaf, the flower is termed axillary and solitary.

62. If the buds instead of giving rise to one terminal flower have the axis elongated, bearing several flowers, and each flower on a peduncle, a raceme is formed.

63. When each flower is sessile or placed in the axil of the bracts, without a peduncle, a spike is produced. Hence the only difference between a spike and raceme is, that in the former the flowers are sessile and the latter stalked. The term spike, however, is applied in those cases where the peduncle is scarcely perceptible.

64. A spadix is a sort of spike, in which the flowers are closely packed together upon a succulent axis, which is enveloped in a spathe.
65. An ament or catkin, is a spike, the bracts or scales of which are nearly of equal size and closely imbricated, and which is articulated with the stem.

66. When a bud produces flower-buds, with a little elongation of its own axis, either a head or an umbel is produced. The former bears the same relation to the latter as the spike to the raceme; that is, they differ in the flower-buds of the head being sessile, and of the umbel having pedicels.

67. A raceme, the lowest flowers of which have long pedicels and the uppermost short ones, forming a sort of level top, is a corymb.

68. A panicle is a raceme, the flower-buds of which have, in elongating, developed other flower-buds.

69. A panicle, the middle branches of which are longer than those of the base or apex, is termed a thyrse.

70. A panicle, the elongation of all the ramifications of which is arrested, so that it assumes the appearance of an umbel, is called a cyme. The cyme may have the lateral branches very short and the flowers clustered together, forming a fascicle; or it may be so contracted and the ramifications of it so little apparent as to be confounded with the true head, when it is called a glomerule.

71. In all the modes of simple inflorescence, that is, those which proceed from the buds of a single branch, the flowers expand first at the base and last at the summit. This kind of expansion is called centripetal.

72. When the inflorescence is compound, or the result of the expansion of several buds or branches, the uppermost or central flowers are first developed, and lastly the outer or lower ones. This kind of expansion is called the centrifugal.

**FLORAL ENVELOPES.**

73. These immediately surround the stamens and pistils, and are formed of one or more whorls of variously modified leaves. When they consist of but one whorl, they are usually called calyx; when of two whorls, the outer is called calyx, the inner corolla.

74. If the floral envelopes are of such a nature that it is not obvious whether they consist of both calyx and corolla, or calyx only, they receive the name of perianth or perigonium.

75. Some plants have no floral envelopes; the flowers are then said to be naked or achiamydeal.

76. The calyx consists of two or more divisions, usually green, called sepals, which are either distinct, when a calyx is said to be polysepalous, or which unite by their margins in a greater or less degree, when it is called monosepalous or monophyllous, (gamosepalous.)

77. The corolla consists of two or more divisions, more or less colored, called petals; when the petals are distinct, a corolla is said to be polypetalous; when they are united by the margins, it is called monopetalous, (gamopetalous.)

78. When all the petals are equal, the corolla is said to be regular, but when they are unequal in size or cohere unequally, it is then called irregular.

79. The regular monopetalous corolla varies greatly in its form, being campanulate or bell-shaped, infundibuliform or funnel-shaped, rotate or wheel-shaped, &c.
80. The calyx or corolla is said to be *labiate* or *bilabiate*, when the sepals or petals are united in one or two parcels.

81. The *papilionaceous* corolla consists of five petals; the upper one, usually larger than the others, is called the *vexillum* or *standard*; the two lateral ones, the *ala* or *wings*; and the two lower ones, usually more or less united together by their lower margins, the *carina* or *keel*.

82. When the petal tapers conspicuously towards the base, it is said to be *unguiculate* or *clawed*; its lower part is called the *claw*, its upper, the *limb*.

83. The dilated apex of the pedicel, from which the floral envelopes and stamens arise, is called the *torus* or *receptacle*.

84. Whatever intervenes between the bracts and the stamens belong to the floral envelopes, and is either calyx or corolla; of which nature are many of the organs commonly called *nectaries*.

85. The manner in which the floral envelopes are arranged before they expand is called their *cestivation* or *prefloration*.

**DISK.**

86. Whatever intervenes between the stamens and pistils receives the general name of *disk*.

87. The disk usually consists of an annular elevation encompassing the base of the ovary; but it sometimes appears in the form of a glandular lining of the tube of the calyx, as in the Rose; or of tooth-like hypogynous processes, as in the Cruciferae; or of a fleshy mass, as in Lamium.

88. The disk sometimes appears to be a mere cellular expansion of the torus, (83) as in Nelumbium.

89. It is one of the parts commonly called *nectary*.

**STAMENS.**

90. The whorl of organs immediately within the petals is composed of bodies called *stamens*, and they are essential to the production of seed.

91. When stamens and pistils occur in the same flower it is termed *perfect* or *hermaphrodite*; but when the stamens are in one flower and the pistils in another, the flowers are *imperfect* or *diclinous*.

92. The number of stamens is variable, five or ten being the usual number among the Exogenous, and three to six among the Endogenous plants.

93. When the stamens do not contract any union with the sides of the calyx, they are *hypogynous*; as in Ranunculus.

94. When they contract adhesion with the side of the calyx, they become *perigynous*; as in Rosa.

95. If they are united both with the surface of the calyx and of the ovary, they are *epigynous*; as in the Umbelliferae.

96. The stamen consists of a filament and an anther.

97. The *filament* is the body which arises from the torus, and is sometimes cylindrical, or awl-shaped, or prismatical, and is even at times expanded, as if into a scale or petal; but it is not essential to the stamen.

98. The filaments are usually *free* or isolated from each other; but they are sometimes united into one tube, when they are called *monadelphous*; or into two parcels, *diadelphous*; or into several, *polyadelphous*. 
99. When they are united into a solid body along with the style, they form what is called a column, and are said to be gynandrous.

100. The anther is a kind of bag borne by the filament, and corresponds to the lamina of a leaf. It is sessile when there is no filament, or it is placed at the top of the filament in various ways.

101. The bags or cells of the anther are termed lobes, and the solid substance which connects them, corresponding to the midrib of a leaf, the connective. These cells are usually two in number; sometimes they are four, rarely one.

102. The lobes or cells of the anthers open in different ways by what is called the line of dehiscence; sometimes only a portion of this line opens, the anther is then said to dehisce by pores; as in Azalea.

103. The anthers frequently grow together by their margins, as in the Composite; when they are called syngenesious.

104. The anther contains and frequently emits a matter called the pollen, the use of which is to give life to the ovule or young seed.

105. When the grains of pollen burst, they again discharge a multitude of very minute particles, called molecules or granules.

106. When the grains of pollen easily detach from each other, they are said to be pulverulent, and then they may be either perfectly smooth or they may be viscous.

107. Sometimes the grains contained in one cell or bag, instead of separating readily, cohere into what are termed pollen-masses, (pollinia;) as in the Orchidaceae.

PISTIL.

108. The pistil is the organ which occupies the centre of a flower, within the stamens, and is the fruit-bearing apparatus of plants.

109. It is distinguished into three parts, viz.: the ovary, the style, and the stigma.

110. The ovary is a hollow case enclosing the ovules or young seeds. It contains one or more cavities called cells.

111. The stigma is the upper extremity of the pistil.

112. The style is that part which connects the ovary and stigma; but it is often wanting, when the stigma is said to be sessile.

113. The pistil is either the modification of a single leaf, or of one or more whorls of modified leaves; the latter being termed carpels.

114. When the margins of the folded leaf out of which the carpel is formed meet and unite, a copious development of cellular tissue takes place, forming what is called the placenta.

115. If no union takes place among the carpels, the ovary is termed apocarpous, as in Ranunculus; but if there is an adherence, so that a compound ovary is formed, it is called syncarpous.

116. When carpels unite, those parts of their sides which are contiguous grow together, and form partitions between the cavities of the carpels, called dissepiments.

117. When these dissepiments are so contracted as not to separate the cavity into a number of distinct cells, but merely project into a cavity, the
placentæ which occupy the edges of these dissepiments become what is termed parietal.

118. If the dissepiments are abortive or obliterated, the placenta remaining unaltered in the axis, a free central placenta is formed.

119. A one-celled ovary may also be formed out of several carpels in consequence of the obliteration of the dissepiments; as in the Nut.

120. If the ovary adheres to the sides of the calyx it is called inferior, and the calyx is said to be superior.

121. If it contracts no adhesion with the sides of the calyx, it is called superior, and the calyx inferior.

OVULES.

122. The ovule is a body borne by the placenta, and is the rudiment of the future seed; its position is of great importance in determining natural affinities.

123. When the ovule is fixed by its base to the bottom of one of the cells of the ovary, of which it takes the direction, it is said to be erect; or if it hangs from the summit of the cell, it is inverted.

124. When it is attached to the middle portion of the placenta, it may have an upright direction, and is then called ascending, or point downwards, and is then suspended. Generally, however, the erect and ascending ovule are confounded under one name, and the inverted and suspended are known by the term pendulous.

125. The ovule is either sessile, or on a stalk called the funiculus or podosperm; and in either case the point by which the union is formed is termed the base of the ovule, and the other extremity the apex.

126. The ovule consists of a nucleus and two external coats; the outer coat is called the testa or primine sac; and the inner, the internal membrane, or secundine sac, or the legmen.

127. The base of the nucleus is always incorporated with the base of the internal membrane, and their common base is attached at some points to the testa. The junction of the three forms the chałaza.

128. The mouths of the primine and secundine sacs usually contract into a small aperture called the foramen of the ovule, or the exostome. It is through this foramen that the molecules of the pollen are introduced into the nucleus; and its position indicates the future position of the radicle of the embryo, the radicle being always next the foramen.

129. When the apex of the nucleus is contiguous to the base of the ovule, a connection takes place between the base of the ovule and the base of the nucleus, by a bundle of vessels called a raphe.

FRUIT.

130. Fecundation having taken place, the floral envelopes usually fade away, the stamens disappear and the pistil increases in size and becomes the fruit.

131. Hence the fruit should have the same structure as the pistil, but this is not always the case, for as the pistil advances to maturity many alterations take place, in consequence of abortion, non-development, obliteration or even union of parts.
132. The base of the fruit is the part where it is joined to the peduncle; the apex is where the remains of the style are found.

133. The portion of the pistil called the ovary is in the ripe fruit termed the pericarp.

134. The pericarp consists of three parts, the outer coating called the epicarp or exocarp, the inner lining called the endocarp or putamen, and the intermediate substance, which is generally fleshy or pulpy, named the sarcocarp or mesocarp. Sometimes these three parts are readily distinguished, as in the Peach; but they frequently form one uniform substance, as in the Nut.

135. The axis of the fruit is often called columnella; the space where two carpels unite is named the commissure.

136. If the pericarp neither splits nor opens when ripe, it is said to be indehiscent; but if it does split or open, it is said to dehisc, or to be dehiscent; and the pieces into which it divides are termed valves.

137. When a fruit is in its simplest state, or formed by the transformation of one carpellary leaf, there may be two sutures or lines by which it may open, the one where the margins of the leaf or the placenta meet, called the ventral suture, the other at the part corresponding to the midrib of the leaf, or the dorsal suture.

138. If, in a compound fruit, the line of opening corresponds with the junction of the carpels, the dehiscence is septicidal. Formerly in this kind of dehiscence the valves were said to be alternate with the disseiments.

139. If the opening is by the dorsal suture of each carpel, the dehiscence is loculicidal; or as it was formerly said, the disseiments are opposite to the valves.

140. When a separation of the pericarp takes place across the cells horizontally, the dehiscence is transverse or circumcised.

141. If the dehiscence is effected by partial openings of the pericarp, it is said to take place by pores.

142. All fruits are either simple or multiple; the former proceeding from a single flower, as the Apple, Nut, Strawberry, &c.: the latter formed out of several flowers, as the Pine-apple, Fig, &c.

143. Simple fruits are either indehiscent or dehiscent; of the former the most important are the caryopsis, the utricle, the achenium and the drupe.

144. The caryopsis, is where the pericarp is very thin and membranous, and adheres firmly to the integument of the seed; as in Wheat, Maize, and most Grasses.

145. The utricle is similar to the caryopsis, the pericarp being membranous, but it has no adherence with the seed.

146. The achenium, is a small and dry indehiscent one-seeded pericarp formed of a single carpel; as in Ranunculus and Anemone. The name is also applied to one-seeded fruits formed of more than one carpel, and invested by the calyx-tube; as in the Composite.

147. A drupe is a fleshy nut enclosed in a putamen; as in the Cherry and Peach.

148. The nut contains a putamen, but the sarcocarp is coriaceous, instead of being fleshy. A samara is a nut or achenium having a winged apex or margin; as in the Elm and Maple.
149. The dry dehiscent fruits are the follicle and the legume.

150. The follicle is a carpel dehiscing by the ventral suture, and having no dorsal suture.

151. The legume is a carpel having both ventral and dorsal sutures, by either of which or by both or neither it may dehisce; rarely the sides fall off, bearing nothing but sutures, which then form a kind of frame called a replum. When articulations take place across the legume and it falls into several pieces, it is said to be lomentaceous.

152. Of fruit formed of several carpels the principal are the capsule, the silique, gland, berry, orange, pome, and pepo.

153. The capsule is a many-celled, dry dehiscent pericarp.

154. The silique, (or pod,) consists of two (or four) carpels fastened together, the placentæ of which are parietal and separate from the valves, remaining in the form of a replum and connected by a membranous expansion; when the silique is very short, or broader than it is long, it is called a silicle or pouch.

155. The gland is a dry bony, indehiscent, one-celled and one-seeded fruit, proceeding from an ovary of several cells and seeds, and enclosed by an involucre called a cupule or cup; as in Quercus.

156. The berry is a succulent fruit, the seeds of which lose their adhesion when ripe, and lie loose in pulp; as the Grape or Gooseberry.

157. The orange is a berry having a pericarp, separable into an epicarp, an endocarp and a sarcocarp, and the cells filled with pulpy bags, which are cellular extensions of the sides of the cavity.

158. The pome is a union of two or more inferior carpels, the pericarp being fleshy and formed of the floral envelope and ovary firmly united.

159. The pepo is composed of about three carpels, the sides of which do not turn far inwards, nor the margins unite. It is a one-celled, fleshy, indehiscent fruit, with parietal placentæ, and usually with a firm rind; as the Melon.

160. The most remarkable modifications of multiple fruits are the cone, pine-apple, and fig.

161. The cone or strobile is an indurated ament. When it is much reduced in size, and its scales cohere, it is called a galbalus; as in Thuja.

162. The pine-apple is a spike of inferior flowers, which all grow together in a fleshy mass.

163. The fig is a fleshy, hollow, dilated apex of a peduncle, within which a number of flowers are arranged, each of which contains an achenium.

SEED.

164. The seed is the ovule arrived at maturity.

165. It consist of integuments, albumen, and embryo; a naked seed is only found in those rare cases in which the ovule is naked.

166. The seed proceeds from the placenta, to which it is attached by the funiculus; sometimes this becomes expanded about the seed into a fleshy body, called the aril or arilus.

167. The scar which indicates the union of the seed with the placenta, is called the hilum or umbilicus.
168. The integuments are called collectively testa, and consist of membranes resulting from the sacs of the ovule. These membranes are called by various names.

169. Between the integuments and the embryo of some plants lies a substance called the albumen or perisperm; the nature of this is of great importance.

170. The albumen is sometimes farinaceous or mealy, as in the Grasses; coriaceous and almost cartilaginous, as in many Umbeliferae; ruminated or wrinkled, as in the Anonaceae; horny, as in the Coffee-bean; oily, as in the Poppy; or thin and membranous, as in many Labiateæ.

171. The embryo is the organized body that lies within the seed, which is destined to become a plant similar in all respects to the parent. It is usually solitary in the seed, but occasionally there are two or several.

172. The embryo consists of the cotyledons, the radicle, the plumule and the neck.

173. The cotyledons represent the undeveloped leaves.

174. The plumule is what is destined to become the stem, and is therefore a rudimentary leaf-bud.

175. The radicle is the rudiment of the root, and by germination becomes the root.

176. The neck or colium is the line of separation between the radicle and the portion above it.

177. The number of cotyledons varies from one to several.

178. Plants that have but one cotyledon, or if with two, one of them is alternate with the other, are termed Monocotyledonous. These are also Endogenous plants.

179. Plants that have two cotyledons placed opposite each other, or a greater number placed in a whorl, are called Dicotyledonous. These are also Exogenous plants.

180. Plants that have no cotyledons, are said to be Acotyledonous. But this term is only applied to cellular plants, which having no stamens and pistils, can have no seed.

181. When the radicle is so bent that it touches the back of one of the cotyledons, it is said to be dorsal, or the cotyledons are said to be incumbent.

182. When the radicle is applied to the edge or cleft of the cotyledons, it is said to be lateral, or the cotyledons are said to be accumbent.

183. When the seed is called into action, germination takes place and growth commences.
Glossary

Of the

Principal Botanical Terms.

[The figures refer to the preceding Sketch.]

Abortion, an imperfect development of any given organ.
Abortive, not arriving at perfection, producing no fruit.
Abrupt, not gradual, sudden.
Abruptly pinnate, pinnate with even pairs only, wanting the odd or terminal leaflet.
Acaulescent, apparently without a stem.
Accessory, additional, or supernumerary.
Acerose, stiff, linear, and sharp, as in the leaves of the Pines.
Acotyledonous.
Accumbent cotyledons.
Aculeate, prickly.
Acuminate, taper, pointed, more than acute.
Acute, ending in a sharp point.
Achenium, plural achenia.
Acicular, needle-form.
Adherent, attached to, or united with another organ.
Adnate, growing to, affixed laterally.
Aestivation.
Agglomerated, bunched, crowded together.
Aggregate, standing together, many on the same receptacle, but not compound.
Ala, wings, or membranaceous expansions.
Alate, winged; having a membranaceous border.
Albumen.
Alternate, placed alternately on opposite sides of the stem.
Alveolate, having pits or cells like a honeycomb.
Ament, or catkin.
Amplexicaul, clasping or embracing the stem.
Anastomosing, applied to branching vessels, which unite again like network.
Ancipital, two-edged.
Androgynous, having barren and fertile flowers on the same spike, or the same plant, but no perfect ones.
Angiospermous, having the seeds contained in a distinct pericarp or seed-vessel.
Annual, 30. a.
Annulate, having a ring or belt.
Anomalous, not according to rule or system; an exception to the ordinary form or appearance.
Anther, 100.
Antheriferous, bearing anthers.
Apetalous, without petals.
 Apex, end, tip, or sharp extremity.
Aphyllous, without leaves.
Appendiculate, having some appendage.
Appressed, pressed against, or close to.
Approximate, near together.
Apterous, without wings; a term applied to some parts of flowers.
Aquatic, growing naturally in water, or in wet places.
Arborescent, approaching to the size of a tree.
Arcuate, curved or bent like a bow.
GLOSSARY OF BOTANICAL TERMS.

Areola, a small cavity—as in the base of some achenia.
Aril or arillus, a loose coating of the seed.
Arillate, having an aril.
Aristate, awned, ending in a bristle.
Armed, furnished with thorns or prickles.
Articulated, jointed, connected by joints or places of separation.
Ascending, rising from the ground obliquely.
Attenuated, gradually diminished or tapering.
Auriculate, having an ear-like base.
Awn, a stiff bristle, frequently rough or bearded; as in the flowers of certain grasses.
Awned, having awns.
Aveuncles, without awns, or bristle-like appendages.
Axil, the angle between a leaf and stem on the upper side.
Axillary, growing in or from the axil.
Axis, a central stem or peduncle; a real or imaginary central line extending from the base to the summit.

Baccate, berried, having a fleshy coat or covering.
Banner, or vexillum, 81.
Barb, a straight process armed with one or more teeth pointing backwards.
Barren, producing no fruit, containing stamens only.
Beak, a terminal process, like a bird’s bill; a hard short point.
Beaked, having, or terminating, in a beak.
Bearded, with parallel hairs; applied also to the Grasses.
Berry, 156.
Bicuspidate, with two points.
Bidentate, with two teeth.
Biennial, 30, b.
Bifarious, in two series or opposite rows; pointing in two directions.
Bifid, two cleft, cut nearly in two parts.
Bifurcate, forked; ending in two nearly equal branches.
Biglandular, having two glands.
Bilabiate, having two lips.

Bilamellate, having two lamellae, or thin plates.
Bilobed, having two lobes.
Bilocular, having two cells.
Bipinnate, growing two together.
Bipinnate, twice pinnate, when both the leaf and its subdivisions are pinnate.
Bipinnatifid, twice pinnatifid, both the leaf and its segments being pinnatifid.
Birostrate, with two beaks.
Bisemose, with two bristles.
Bisulcate, with two grooves or furrows.
Bitternate, twice ternate, the petiole supporting three ternate leaves.
Bivalved, two valved.
Bloom, a fine powdery coating on certain fruits; as the Plum.
Border, the brim, or spreading part of a corolla.
Bractiate, branches opposite, and each pair at right angles with the preceding.
Bract, 51.
Bracteoles, small bracts.
Branchlets, subdivisions of the branches.
Bristles, rigid subdivisions, straight or hooked.
Bud, 82.
Bulb, 15.
Bulbiferous, bearing bulbs.
Caduceous, falling early, sooner than deciduous.
Cespitose, or cespitose, growing in tufts.
Calcicarp, resembling, or furnished with, a spur or horn.
Cali, small callosities or rough protruberances.
Calyciform, shaped like a calyx.
Calyculate, furnished with an additional outer calyx.
Calyptriform, shaped like a calyptra or extinguisher.
Calyx, 73.
Campylate, bell-shaped.
Canaulis, channelled or furrowed.
Canescent, whitish, hoary; covered with a whitish or gray pubescence.
Capillary, or capillaceous, very slender, resembling a hair.
Capitate, shaped like a head, or bearing a head.
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
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<tr>
<td>Capsule, 153.</td>
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<tr>
<td>Carina 81.</td>
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<tr>
<td>Carinate, keeled, furnished with a sharp or prominent back like the keel of a vessel.</td>
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<tr>
<td>Carpel, 113.</td>
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<tr>
<td>Carpophore, the axis of the fruit in the Umbellifers.</td>
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<td>Caryopsis, 144.</td>
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<td>Catkin, see Ament.</td>
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<tr>
<td>Caudate, having a tail; as in some seeds.</td>
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<tr>
<td>Caudex, the main body of a tree or root.</td>
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<tr>
<td>Caulescent, having a true stem</td>
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<td>Cauline, growing on the stem.</td>
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<td>Cell, a cavity or compartment of a seed vessel or anther.</td>
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<tr>
<td>Cellular, made up of little cells or cavities.</td>
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<tr>
<td>Centrifugal inflorescence, 72.</td>
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<tr>
<td>Centripetal inflorescence, 71.</td>
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<tr>
<td>Chaffy, made of short membraneous portions like chaff.</td>
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<td>Channelled, grooved or furrowed.</td>
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<td>Chartaceous, of a texture resembling paper.</td>
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<td>Clite, hairs along the margin of a surface, like those of the eyelashes.</td>
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<tr>
<td>Ciliate, fringed with parallel hairs, like eyelashes.</td>
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<tr>
<td>Cinerous, of the color of wood-ashes.</td>
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<td>Circinate, with the apex rolled back upon itself, like the young fronds of a fern.</td>
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<td>Circumcisided, cut round transversely, or opening like a snuff-box.</td>
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<td>Cirrhais, a tendril.</td>
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<tr>
<td>Cirrhose, bearing tendrils.</td>
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<td>Clasping, surrounding the stem partly or quite with the base of the leaf.</td>
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<tr>
<td>Clarate, club-shaped, larger at top than bottom.</td>
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<tr>
<td>Claw, the taper base of a petal, 82.</td>
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<tr>
<td>Cleft, split or divided less than half way.</td>
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<tr>
<td>Clypeate, shaped like a Roman buckler.</td>
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<td>Coadunate, united at base.</td>
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<td>Coarctate, contracted or crowded.</td>
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<td>Cochleate, resembling the shell of a snail.</td>
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<tr>
<td>Coherent, united with an organ of the same kind.</td>
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<td>Collateral, placed side by side.</td>
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<td>Colored, different from green, which is the common color of plants.</td>
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<td>Columella, 135.</td>
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<td>Column, 99.</td>
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<tr>
<td>Connisire, the line of junction of two bodies; as the face of the carpels in the Umbellifers.</td>
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<td>Conose, covered with cottony hair.</td>
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<td>Compound, made up of similar simple parts.</td>
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<td>Compressed, flattened.</td>
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<td>Conduplicate, doubled lengthwise.</td>
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<td>Cone, 161.</td>
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<td>Conglomerate, crowded together.</td>
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<td>Confluent, running into one another.</td>
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<td>Conjugate, in pairs; coupled.</td>
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<tr>
<td>Connate, joined together at base.</td>
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<tr>
<td>Connective, the organ which connects the two cells of an anther.</td>
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<tr>
<td>Connavent, converging, the tips inclining towards each other.</td>
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<tr>
<td>Conoid, like a cone.</td>
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<td>Continuous, without interruption or articulation.</td>
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<td>Contorted, twisted, bent from a common position.</td>
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<tr>
<td>Convolute, rolled together.</td>
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<td>Coralloid, resembling coral in appearance.</td>
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<td>Cordate, heart-shaped.</td>
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<td>Coriaceous, leathery, tough and thick.</td>
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<tr>
<td>Cormuus or corrn, the fleshy subterraneous base of a stem, resembling a bulb, but solid.</td>
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<td>Corneous, horny, having a consistence like horn.</td>
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<tr>
<td>Corniculate, horn-shaped.</td>
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<tr>
<td>Corolla, 77.</td>
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<td>Cortical, belonging to the bark.</td>
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<td>Corymb, 67.</td>
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<tr>
<td>Costate, ribbed.</td>
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<tr>
<td>Cotyledons, 172.</td>
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<td>Creeping, 12.</td>
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<tr>
<td>Crenate, scoloped, having sharp notches on the edge separated by round or obtuse dentures.</td>
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<tr>
<td>Crenulate, finely or minutely crenate.</td>
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<tr>
<td>Crested, having an appendage resembling a cock's comb.</td>
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<tr>
<td>Crowned, having a circle of projections round the upper part of the tube of a flower, on its inside.</td>
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<tr>
<td>Cruciform or cruciate, consisting of four petals placed like a cross.</td>
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<td>Crustaceous, having a hard brittle shell.</td>
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<tr>
<td>Cuculate, hooded or cowled, rolled or folded in; as the spathe of Arum triphyllum.</td>
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</tbody>
</table>
Cucurbitaceous, like gourds or melons.
Culm, the stem of Grasses and Cyperaceous plants.
Cumulate or cuneiform, wedge-shaped, tapering with straight edges to the base.
Cupule, 155.
Cusp, a stiffish tapering sharp point.
Cuspidate, having a sharp straight point.
Cuticle, 6, 23.
Cyathiform, cup-shaped.
Cylindric or cylindrical, round and not tapering, cylinder-shaped.
Cyme, 70.
Cymose, bearing or flowering in cymes.
Cymules, the reduced cymes, or cymose clusters of the Labiatae; sometimes called Verticillasters.
Deciduous, falling off, in opposition to persistent and evergreen, later than caducous.
Declined or declinate, turned downwards.
Decomposed, twice compound, composed of compound parts.
Decumbent, leaning upon the ground, the base only erect.
Decurrent, when the edges of a leaf run down the stem or stalk.
Decursive, see Decurent.
Decussate, or decussating, in pairs alternately crossing each other.
Deflected, bent off or downwards.
Dekiscent, gaping or opening naturally by seams at maturity.
Deltoid, nearly triangular, shaped like the Greek letter Δ.
Dentate, toothed, edged with sharp projections separated by notches, larger than serrate.
Denticulate, minutely toothed.
Dentures, teeth, the sharp parts which separate notches.
Depauperated, few-flowered.
Depressed, flattened or pressed in at the top.
Depressed-globose, globular, with the base and apex flattened.
Diaphanous, transparent.
Dichotomous, forked, dividing into two equal branches.
Dichotomous, having the stamens and pistils in distinct flowers on the same or different plants.

Dicoccous, containing two grains or seeds.
Dicotyledonous, 179.
Didymous, twin; growing in pairs, and more or less united.
Didynamous, having 2 long and 2 shorter stamens in the same flower.
Diffuse, scattered, widely spread.
Digitate, when a petiole gives off five or more leaflets from a single point at its extremity.
Dimidiate, halved, as if one side or one-half had been cut off.
Dichious, having the barren and fertile flowers on different plants.
Diskoid, having a disc covered with flowers, but no ray-flowers.
Disk, 86; also the central part of a head of compound flowers.
Dissepiment, the partition or internal wall of a pericarp.
Distichous, two-rowed, producing leaves or flowers in two opposite rows.
Distinct, separate; not connected with each other, nor with any contiguous organ.
Divericate, diverging so far as to turn backwards.
Divergent, spreading, separating widely.
Divided, separated or cleft to the base, or to the midrib, if a leaf.
Dorsal, growing on, or belonging to, the back.
Downy, clothed with soft fine hairs.
Drooping, inclining downwards, more than nodding.
Drupaceous, bearing or resembling drupes.
Drupè, 147.

Ebracteate, without bracts.
Ecandrous, without a tail.
Echinate, beset with prickles, hedgehog like.
Effuse, a term applied to a loose one-sided panicle, as in Junco effusus.
Elliptic or elliptical, oval, longer than wide with the two ends narrowing equally.
Elongated, exceeding a common or average length.
Emarginate, having a notch in the end.
Embryo, 176.
Emersed, raised out of water.
**Endocarp**, the hard shell which forms the covering of the seeds.

**Enfusiform**, sword-shaped, two-edged.

**Entire**, even and whole at the edge; without incision, notch, or tooth.

**Envelope**, an integument or covering.

**Epicarp**, the outer coating of the pericarp or fruit.

**Epidermis**, see Cuticle.

**Epigynous**, attached to the ovary, so that the upper portion is apparently inserted on its summit.

**Epipetalous**, upon the petals.

**Equal**, similar parts of nearly the same size and form; as sepals, petals, &c.

**Eroded** or **erose**, appearing as if gnawed at the edge.

**Esculent**, eatable.

**Evergreen**, remaining fresh through the winter, not deciduous.

**Exsert** or **exserted**, projecting or protruding out; as stamens from the tube of a corolla, &c.

**Falcatum** or **falcate**, sickle-shaped, linear and crooked.

**Fascicled or fasciculate**, collected in bundles.

**Fastigiate**, flat or level topped.

**Favose**, deeply pitted, resembling a honeycomb.

**Feather-veined** leaf, where the lateral veins diverge regularly from each side of the midrib; as in a quill.

**Ferruginous**, reddish-brown, like the rust of iron.

**Fertile**, containing perfect pistils and yielding fruit.

**Fibrous**, being composed of fibres.

**Filiform**, thread-like, or very slender.

**Filbritate**, finely divided at the edge like fringe.

**Fimbriate**, clothed with **fimbriolate** membranaceous linear or subulate filaments; as the receptacle of certain compound flowers.

**Fistulose** or **fistular**, hollow or tubular.

**Flagelliform**, spreading like a fan.

**Flaccid**, weak, so as to bend by its own weight.

**Flagelliform**, like a whip-lash.

**Flexuous** or **flexuose**, serpentine or zigzag.

**Floral leaf**, see Bract.

**Foliaceous**, resembling a leaf.

**Follicle**, 150.

**Fronul**, the leaf of Cryptogamous plants.

**Frutescent**, becoming shrubby.

**Fruticose**, shrub-like, or shrubby.

**Fulvous**, tawny or tan-colored.

**Fugacious**, that which lasts but for a short time.

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

**Funnel-shaped**, tubular at bottom, and gradually expanding at top.

**Fusiform**, grayish brown, or deep brown tinged with green.

**Fusiform**, 11.

**Galea**, a helmet, the upper part of a ringent corolla.

**Geminate**, doubled.

**Germaceous**, belonging to a bud, made of the scales of a bud, 49.

**Geniculate**, bent like a knee.

**Germ** or **germen**, the old name for the ovary.

**Germination**, the sprouting of a seed.

**Gibbose**, swelled out, commonly on one side.

**Glabrous**, very smooth, without any roughness or pubescence.

**Glandular pubescence**, hairs tipped with little heads or glands.

**Glans**, sea-green, pale bluish green.

**Glbose or globular**, spherical, round on all sides.

**Glomerate**, gathered in a round heap or head.

**Glomerules**, small dense roundish clusters.

**Glumaceous**, resembling chaff or glumes.

**Glumes**, the scales, valves or chaff which make the calyx of grasses.

**Glutinous**, adhesive, viscid, covered with an adhesive fluid.

**Graminaceous**, resembling the grasses.

**Graniferous**, bearing a grain or grains.

**Granular**, formed of grains or covered with grains.

**Gymnospermous**, having the seeds naked.

**Gynandrous**, having the stamens growing on, or adhering to, the pistil.
**Glossary of Botanical Terms.**

**Habit,** the general external appearance of a plant, by which it is known at sight.

**Habitat** or **habitat**s, the natural or native place of growth.

**Hamate,** hooked, a bristle curved at the end.

**Hastate,** shaped like a halbert; it differs from **arrow-shaped** in having the bars or lateral portions more distinct and divergent.

**Head,** a dense roundish cluster of sessile flowers.

**Hedgetast, see Galea.**

**Herbaceous or herb,** not woody.

**Heterocephalous** flowers, staminate and pistillate in distinct heads; as in *Ambrosia.*

**Heterogamous** heads, containing flowers of different structure and sexual character.

**Heterophyllous,** having leaves of different forms.

**Hilum,** 167.

**Hirsute,** rough with soft hairs.

**Hispid,** rough with stiff hairs.

**Hairy,** covered with white down.

**Homogamous** heads, containing flowers of a similar structure and the same sexual character.

**Hooded, see Cucullate.**

**Horn,** see **Spur.**

**Hybrid,** a mongrel, or partaking of the nature of two species.

**Hypocratiform,** salver-shaped, with a tube abruptly expanded into a flat border.

**Hypogynous,** 93.

**Imbricate** or **imbricated,** lying over each other like scales, or the shingles of a roof.

**Imperfect** flower, one in which either stamens or pistils are wanting.

**Incised,** cut, separated by incisions.

**Inclosed,** wholly received or contained in a cavity, the opposite of **exserted.**

**Incomplete** flower, one which is destitute of calyx or corolla.

**Increscated,** thickened upward, larger toward the end.

**Incumbent,** lying upward or across, 151.

**Incurved,** bent or curved inwards.

**Indefinite,** numerous, and of no constant number.

**Indehiscent,** not opening.

**Indigenous,** native, growing naturally in a country.

**Indusium,** the involucre or veil which covers the fruit of ferns.

**Inferior,** lowermost.

**Inflected,** bending inwards.

**Inflorescence,** 59.

**Infundibuliform,** funnel-shaped.

**Inserted into,** growing out of.

**Internode,** the space between joints; as in Grasses.

**Interrupted,** having intervals, or the continuity broken.

**Interruptedly pinnate,** when smaller leaflets are interposed among the principal ones.

**Introse anthers,** having the cells turned inwards or towards the pistils.

**Involucel,** a partial involucre, 53.

**Involucre** or **involucrum,** 53.

**Involute,** rolled inwards.

**Irregular,** the component parts differing in size and shape.

**Keel,** 81.

**Keeled,** shaped like a keel.

**Kidney-shaped,** heart-shaped without the point, and broader than long.

**Labiate,** 80.

**Lacerate,** divided into irregular segments, as if torn.

**Laciniate,** cut or divided into segments.

**Lactescent,** milky; yielding a whitish or milky juice, when cut.

**Lacunose,** covered with little pits or depressions.

**Lamellated,** in thin plates.

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

**Lanceolate,** spear-shaped, narrow, with both ends acute.

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

**Lanuginous,** woolly.

**Lateral,** at the side.

**Lax,** loose, not compact.

**Leaflet,** a partial leaf, a constituent of a compound leaf.

**Legume,** 151.
GLOSSARY OF BOTANICAL TERMS.

Leguminous, bearing legumes.

Lenticular, having the form of a lens; orbicular and compressed, but convex on both faces.

Lignaceous, woody.

Ligulate, ribbon-shaped; a kind of corolla found in compound flowers, consisting of a tube at bottom, continued into a long flat portion at top.

Ligule, the mostly membranaceous appendage at the summit of the sheath, in the Grasses.

Lilaceous, resembling the lily.

Limb, 82.

Line, the twelfth part of an inch.

Linear, long and very narrow with parallel sides.

Lance-lanceolate, partaking of both forms, but more of the latter.

Lip, the front segment of an Orchidaceous or other flower.

Lobe, a large division or distinct portion of a leaf or petal.

Lobate or lobed, cut or divided into lobes.

Loment, 151.

Lunate or lunulate, shaped like a half-moon.

Lyrate, pinnatifid, with a large roundish segment at the end.

Marcescent, withering.

Melliferous, honey-bearing.

Membranous or membranaceous, very thin and delicate.

Moricarp, a name given to the indehiscent carpel of the Umbellifera.

Midrib, 43.

Monadelphous, 98.

Moniliform, arranged like the beads of a necklace.

Monoclinous, having the stamens and pistils in the same flower.

Monocotyledonous, 178.

Monocious, having staminate and pistillate flowers distinct, but on the same plant.

Monopetalous, having but one petal, or the petals united into one.

Monophyllous, one-leaved.

Monosepalous, consisting of one sepal.

Mucronate, having a mucro or point projecting from an obtuse end.

Mutilated, many-cleft.

Multipartite, many-parted.

Multiple, a number containing an other number several times without a remainder; as 9 is a multiple of 3.

Mucrate, covered with sharp spines or prickles.

Mutilous, awnless or pointless.

Naked, destitute of the usual covering or appendage; as the corolla without a calyx, seeds without a pericarp, &c.

Napiform, turnip-shaped.

Neclariferous, bearing honey.

Nectary, 84, 89.

Nerves, parallel veins or rib-like fibres extending from about the base to the apex.

Neutral or neutral flower, having neither stamen nor pistil.

Nodding, inclining to one side, partly drooping.

Node or nodes, 26.

Nodose, having many nodi or joints.

Nucamentaceous, producing nuts.

Nucleus, a central body, the kernel of a nut.

Nucules, little nuts, or nut-like fruit.

Nut, a hard indehiscent fruit, mostly with a single seed.

Ob, a particle, which, when prefixed to any other term, denotes the inversion of the usual position.

Obconic, conic with the apex downward.

Obcordate, heart-shaped, with the point inwards, or downwards.

Ob lanceolate, with the widest part above the middle, and tapering gradually to the base.

Oblong, longer than oval with the sides parallel.

Obovate, ovate, but inverted.

Obovoid, inversely ovoid.

Obsolete, indistinct, appearing as if worn out.

Obtuse, blunt, rounded, not acute.

Ochrea, a membranous sheath, embracing the stem like a boot-leg; as in Polygonum.

Ochroleucous, whitish-yellow, cream-color.

Opercular, opening by a lid fixed at one side.

Opposite, standing directly against each other on opposite sides of the stem.
Orbicular, circular.
Oval, longer than broad, the sides curving from end to end, and the ends of equal breadth and curvature.
Ovary, 110.
Ovate, flat, with the outline of the longitudinal section of an egg, the lower end being the largest.
Ovoid, having the outline of an entire egg.
Ovule, 122.

Paniculate, a large obtuse projection which closes the throat of a petaloid flower.
Pulvinate, a term applied to the parts of the corolla in Grasses.
Palmatoid, chaffy.
Palmate, hand-shaped, deeply divided into spreading and somewhat equal segments.
Panduriform, contracted in the middle like a violin.
Panicle, 68.
Panicled or paniculate, arranged in the form of a panicle.
Papilionaceous, 81.
Pilose, producing small glandular excrescences like nipples.
Pappus, the crown of the fruit of Composite and similar plants.
Parasitic, growing on another plant and drawing nourishment from it; as the Misseltoe.
Parietal, 117.
Parted, deeply divided almost to the base, more than cleft.
Partial, a term applied to small or constituent parts in distinction from general.
Partition, the dividing wall or sepiment in seed vessels.
Pectinate, like the teeth of a comb, intermediate between frimbriate and pinnatifid.
Peltate leaf, like a bird's-foot; divided nearly to the petiole in narrow segments, with the lateral ones diverging.
Pedicel, 57.
Pedicillate or pedicelled, having, or being supported on, a pedicel.
Penduncle, 56.
Penduncled or pedunculate, having a peduncle.
Pellucid, transparent, pervious to light.
Pellucid-punctate, having punctures admitting the passage of light.
Peltate, having the stalk attached to some part of the surface or disk, and not to the margin.
Pencilled or penicillate, ending like a painter's pencil or brush.
Pendulous, hanging down.
Pentagonal, having five corners or angles.
Pepo, 159.
Perennial, 30, c.
Perfect flower, 91.
Perfoliate, surrounding the stem on all sides and perforated by it; it differs from connate, in not consisting of two leaves: as in Euphorbium perfoliatum.
Perianth, perianthium or perigonium, 74.
Péricarp, 133.
Perigynium, the sac formed by the union of two bractlets, which encloses the ovary; as in certain Cyperaceae.
Perigynous, 94.
Perennial, see Persistent.
Persistent, not falling off; those parts of a flower are persistent which remain till the fruit is ripe.
Personate, masked, having the mouth of the corolla closed by a prominent palate.
Petal, 77.
Petaloid, like a petal.
Petiole, 40.
Petiolate or petiolate, with a petiole, not sessile.
Phanogamous, applied to all plants which have visible flowers containing stamina and pistils.
Pilose, hairy, with a stiff pubescence.
Pinnate, the leaflets or divisions of a pinnate leaf.
Pinnate, a leaf is pinnate when the leaflets are arranged in two rows on the side of a common petiole.
Pinnatifid, cut in a pinnate manner; it differs from pinnate in consisting of a simple or continuous leaf, not compound.
Pinnules, the leaflets or subdivisions of a bi-tri- or multi-pinnate leaf.
Pisiform, formed like peas.
Pistil, 108.
Glossary of Botanical Terms.

**Pistillate**, having pistils but no stamens.

**Placenta**, 114.

**Plane**, flat.

**Plicate**, plaited, folded like a ruffle or fan.

**Plumose**, feathery, feather-like.

**Plumula**, 174.

**Pod**, 154.

**Pollen-masses or pollinia**, 107.

**Polygamo-diacious**, having perfect and imperfect flowers on distinct plants.

**Polygamous**, having some flowers which are perfect, and others which have stamens only or pistils only.

**Polygnous**, having many styles.

**Polymorphous**, changeable, assuming a variety of forms.

**Polypetalous**, 77.

**Polypetalous**, having many leaves, applied to the calyx.

**Polypetalous**, 76.

**Polyspermous**, having many seeds.

**Pome**, 158.

**Porrrected, extended forward.**

**Pouch**, 154.

**Papillate or papillous**, blunt at the end, as if bitten off.

**Praecox** or **prickle**, 37.

**Prismatous**, having several parallel flat sides.

**Process**, a protuberance or projecting part.

**Procumbent**, lying on the ground.

**Produced**, extended or lengthened out.

**Proliferous**, an umbel or flower is said to be proliferous when it has smaller ones growing out of it.

**Pseudopinnate**, falsely or imperfectly pinnate, not resolving at any time into separate leaflets; as the Pea, Vetch, &c.

**Puberulent**, covered with a minute pubescence.

**Pubescence**, a general term for the hairy covering of plants.

**Pubescent**, clothed with short weak hairs.

**Pulp**, the soft, juicy, cellular substance found in berries and similar fruits.

**Pulverulent**, dusty, composed of powder, or appearing as if covered with it.

**Punctate**, appearing as if pricked full of small holes, or dots.

**Puncticulate**, having very minute punctures.

**Pungent**, sharp-pointed, or prickly at the apex; acrid.

**Pustule**, a hard shell.

**Pyramidal**, tapering upwards.

**Pyriform**, shaped like the fruit of a pear.

**Quadrangular**, 4-angled.

**Quadrifolious**, in four rows or directions, pointing or facing four ways.

**Quadrifolus**, 4-cleft.

**Quaternate, four together.**

**Quinane, five together.**

**Raceme**, 62.

**Racemosus**, flowering in racemes.

**Racemis** or **racemose**, the main stem of a compound peduncle, along which the pedicels are arranged, as in the Grasses; also the midrib of the divided frond in Ferns.

**Radiant or radiate**, often applied to a cluster of head of flowers when those of the circumference or ray are long and spreading, and unlike those of the disk.

**Radical**, growing immediately from the root.

**Radicating**, sending out roots at the nodes or joints of the stem.

**Radicle**, 173.

**Rameal, belonging to the branches.**

**Ramentous**, the scales or persistent remains of leaves or other parts of the plant.

**Ramentaceous**, covered with ramentum.

**Ramosus**, branching.

**Raphe**, the linear ridge on one side of the anatropous or inverted ovule, formed by the adhesion of a part of the funicle.

**Ray**, the diverging florets or petals which form the outside of radiate flowers, cymes, and umbels.

**Receptacle**, 83.

**Reclined or reclinate**, bending over, with the end inclining toward the ground.

**Recurred**, curved backwards.

**Reduplicate**, with the edges folded or turned outwards.

**Refl exed, bent backwards, more than recurved.**
Regular, having the parts equal and uniform; as the divisions of the calyx or corolla.
Reniform, kidney-shaped, heart-shaped without the point.
Repaund, slightly wavy or serpentine at the edge.
Rosulate, turned upside down; as the corolla of Trichostema.
Reticulate, net-like, having veins distributed like net-work.
Retrose or retroversely, pointing backwards or downwards.
Rhizome, 15.
Rhomboid, having 4 sides with unequal angles.
Ribbed, marked with parallel ridges or veins.
Ribs, parallel ridges or nerves extending from near the base to the apex.
Ringent, gaping, with an upper and under lip; as in some of the Labiatae.
Rooting, sending out lateral roots.
Rostrate, furnished with a beak.
Rosulate, arranged in the form of a rosette.
Rotate, wheel-shaped; applied to a monopetalous corolla, the limb of which is flat and tube very short.
Rough, covered with points, dots or hairs, which are rough to the touch.
Rudiment, a term applied to an organ that is imperfectly developed.
Rufescent, becoming reddish-orange or rusty.
Rufous, reddish-brown or rust-colored.
Rugose, wrinkled; as the leaves of Sage.
Rugulose, finely wrinkled.
Runcinate, having large teeth pointing backward; as the leaves of the Dandelion.
Runners, 16.
Saccate, bagged, having a bag or pouch; as in many petals.
Sagittate, arrow-shaped, like the head of an arrow.
Salver-shaped, tubular, with the limb flatly or horizontally expanded.
Samara, 148.
Sarcoecarp, the fleshy portion of a pericarp.
Sarmentose, running on the ground and striking roots from the joints.
Scabrous, rough with little asperities.
Scaly, any small processes resembling minute leaves; also the leaves of the involucre of Composites.
Scandent, climbing, usually by tendrils.
Scape, 58.
Scarious, having a thin membranous margin; as in the calyx scales of Liatris scariosa.
Scattered, irregularly and thinly arranged.
Scions, lateral shoots or offsets from the root.
Scrobiculate, excavated into little pits or hollows.
Scutellate, shaped like a target or shield.
Second, arranged on one side only, the same as unilateral.
Segment, a part or principal division of a leaf, calyx or corolla.
Semi, half.
Semi-biennial, half divided into two valleys.
Sepaloid, like sepals, not petal-like.
Sepals, 76.
Septicidal dehiscence, 138.
Septiferous, bearing a septum.
Septifragal dehiscence, when the dissepiments remain united to the axis, while the valves separate from them; as in the Pea.
Septum, the partition which divides the interior of the fruit.
Sericeous, silky.
Serrate, notched like the teeth of a saw, the points tending upward.
Serrulate, minutely serrate.
Sessile, placed immediately on the stem without the intervention of a stalk.
Seta, a bristle.
Setaceous, bristle-like.
Setiform, formed like a bristle.
Setose, covered with bristles.
Sheath, a tubular or folded leafy portion enclosing the stem; as in the Grasses.
Sheathed, embraced by a sheath.
Sheathing, embracing the stem with a sheath.
Shining, glossy, smooth and polished.
Silicide, 154.
Silique, 154.
Siliqueous, having siliques.
Simple, not divided branched or compound.
Sinuate, having sinuses at the edge.
Sinuate-dentate or sinuate-toothed, sinuate-serrate, having teeth or serratures, with the clefts rounded at the bottom.
Sinus, a large rounded indentation or cavity.
Sphaliferous, producing young plants from the roots.
Sori, plural of Sorus, small clusters of minute capsules or spore-cases on the back of the fronds of ferns.
Spadix 64.
Spathaceous, having or resembling a spathe.
Spathe, a sheathing calyx opening lengthwise on one side, consisting of one or more valves.
Spatulate or spatulate, obtuse or large at the end and gradually tapering into a stalk at base.
Spermoderm, the skin of a seed.
Spire, 63.
Spikelet, a small spike, the subdivision of a compound spike; as in many of the Grasses.
Spindle-shaped, see Fusiform.
Spine, 27.
Spinulose, covered with small spines.
Spore or Sporule, that part in cryptogamous plants which answers to the seed of other plants.
Spur, a sharp hollow projection from a flower commonly called the nectary.
Spurred, having spur-like elongations.
Squamiform, scale-shaped.
Squamose, scaly.
Squarrose or squarrous, ragged, having reflected or divergent scales.
Sclaminate, having stamens but not pistils.
S.aminiferous, bearing or supporting the stamens.
Standard, see Banner.
Stellate, like a star.
Stellate, type.
Stellate pubescence, hairs with branches like rays.
Stem, 13.
Stemless, 14.
Sterile, barren, producing no fruit.
Stigma, 111.
Stigmatiferous or stigmatose, bearing or belonging to the stigma.
Stipe, the stem of a fern or fungus; also the little footstalk of seeds, &c.; as in the Dandelion.
Sipilate, having or supported on a stipe.
Sipulate, belonging to stipes.
Sipule, 47.
Spermodermiferous, having scions or running shoots.
Spira, fine parallel ridges streaks or furrows.
Spirate, marked with striae.
Strict, straight and stiffly erect.
Sripote, clothed with bristly and appressed hairs.
Srubile, 161.
Sstitophiulate, surrounded by protuberances.
Style, 112.
S.ulpodium, the thickened foot or base of the style which is confluent with the epigynous disk; as in the Umbelliferae.
Sub, a particle prefixed to various terms, to imply the existence of a quality in a diminutive or inferior degree, as Subacutus, somewhat acute, less than acute, &c.
Suberose, cork-like.
Subciliate, slightly serrate.
Subsessile, nearly sessile.
Subulate, awl-shaped, narrow, stiff, and sharp-pointed.
Succulent, juicy.
Sucker, a shoot from the root or lower part of the stem.
Suffrutescent, almost shrubby.
Suffruticos, somewhat shrubby at base.
Sulcate, furrowed or grooved.
Superior, above; a term applied to the ovary when it is above the calyx, &c.
Surculose, with suckers or offsets.
Suture, 137.

Tendril, a filiform appendage of certain vines, which supports them by twining round other objects.
Torule, round, either cylindric or tapering.
Terminal, extreme, situated at the end.
Ternate, three together; as the leaves of common Clover.
GLOSSARY OF BOTANICAL TERMS.

**Tessellated**, in little squares or checkers, like a chess-board.
**Testa**, 168.
**Tetramerous**, of four parts or constituent portions.
**Triform**, see Spine.
**Truncate**, the passage into the tube of a corolla.
**Triradiate**, 69.
**Trigynoid**, resembling or in the form of a thyrse.
**Tomentose**, downy, covered with fine matted pubescence.
**Toothed**, divided so as to resemble teeth.
**Trapezoid**, 3-cleft.
**Triboliate**, 3-lobed.
**Tricolporate**, 3-celled.
**Tripinnate**, thrice-pinnate, when the leaflets of a bipinnate leaf become pinnate.
**Tripinnatifid**, pinnately divided, with the primary divisions twice pinnatifid.
**Triplinerved**, with three principal nerves from the base.
**Triquetrous**, having three sides or angles.
**Trilobate**, thrice-ternate, when the leaflets of a bitermate leaf become ternate.
**Truncate**, having a square termination as if cut off.
**Tube**, a pipe or hollow cylinder, applied to that of a monopetalous corolla formed by the united claws.
**Tuber**, 119.
**Tuberculate**, covered with knobs or tubercles.
**Tuberous**, or tuberiferous, bearing tubers, 119.
**Tubular**, shaped like a tube; in a compound flower, the florets which are not ligulate are called tubular.
**Turf**, a branch growing from the same root.
**Tumid**, swelling or enlarged.
**Tunicate**, coated with concentric layers; as the Onion.
**Turbinate**, shaped like a top or pear.
**Turon**, a thick, tender young shoot; as of Asparagus.
**Twin**, two of the same kind growing together.
**Twining**, winding round and ascending spirally.

**Umbel**, 66.
**Umbellated**, like an umbel.
**Umbelliferous**, bearing umbels.
**Umbilicate**, marked with a central depression.
**Unarmed**, without prickles or thorns.
**Uncinate**, hooked, hook-shaped.
**Undulate**, wavy, serpentine, gently rising and falling.
**Unequal**, the parts not corresponding in length, form, &c.
**Unguiculate**, inserted by a claw, 82.
**Uniform**, in one form or manner.
**Unilateral**, growing all on one side, or with the flowers leaning to one side.
**Unisexual**, of one sex, staminate or pistillate only.
**Urvicularia**, pitcher-shaped, swelling in the middle and slightly contracted at top.
**Utricle**, 145.

**Valvate aestivation**, when the sepals or petals are folded together and fit by their margins only.
**Valves**, the segments or parts of a seed-vessel into which it finally separates, 136; also the leaves which make up a glume or spathe.
**Valvate or valved**, consisting of valves or seed-cells.
**Var. (varietas)**, a variety of a species, not specifically distinct.
**Varicled**, arched over, with a concave covering.
**Veined**, having the divisions of the petiole irregularly branched on the under side of the leaf.
Venation, in reference to the leaf: the distribution of veins or the frame-work.

Ventricose, swelling, inflated.

Vernation, the mode in which young leaves are folded in the bud.

Verrucose, warty, covered with little protuberances.

Versatile, swinging lightly on a stalk so as to be continually changing direction.

Vertical, perpendicular.

Verticil or whorl, flowers or leaves arranged around the stem in a horizontal ring.

Verticillaster or verticillastrum, a false whorl or verticil; a condensed cyme or cluster, as in some of the Labiatae.

Verticillate, arranged in a verticil or whorl.

Vesicular, made up of vesicles or little bladders.

Vesiculose, bladder-like.

Villous or villose, hairy, the hairs long and soft.

Virescent, becoming green.

Virgate, long and slender, wand-like.

Viridescent, greenish.

Virose, poisonous, nauseous and strong to the smell.

Viscid or viscous, thick, glutinous, covered with adhesive juice.

Viviparous, producing a collateral offspring by means of bulbs.

Wedge-shaped, formed like a wedge, and commonly rounded at the largest end.

Wheel-shaped, see Rotate.

Whorl, see Verticil.

Winged, having the sides extended into a leafy expansion.

Wings, the two lateral petals of a papilionaceous flower, 81.

Woolly, clothed with a matted pubescence, resembling wool.
TABLE OF LINNEAN ARTIFICIAL CLASSES AND ORDERS.

DIV. I. Plants with conspicuous flowers. Phanerogamia.

A. Stamens and pistils in the same flower.

* Stamens free and equal.

Cl. 1. Monandria, with 1 stamen. 6. Hexandria, with 6 stamens.
2. Diandria, 2 stamens. 7. Heptandria, 7 stamens.
3. Triandria, 3 stamens. 8. Octandria, 8 stamens.
5. Pentandria, 5 stamens. 10. Decandria, 10 stamens.

*11. Dodecandria, 11 to 19 stamens.

12. Icosandria, 20 or more stamens, perigynous or inserted on the calyx.
13. Polyandria, 20 or more stamens, hypogynous or inserted on the receptacle.


** Stamens free, unequal.

14. Didynamia, 4 stamens, 2 longer than the others.

Two orders. 1. Gymnospermia, the seeds naked. 2. Angiospermia, the seeds enclosed in a pericarp.

15. Tetradynamia, 6 stamens, 4 longer than the others.

Two orders. 1. Siliculosa, fruit a silicle or pouch. 2. Siliquosa, fruit a long pod or siliquae.

*** Filaments united.

17. Diadelpia, filaments forming 2 sets.
*18. Poladelphia, filaments forming more than 2 sets.

Orders depend upon the number of stamens, and have the same names as the first 13 classes.

**** Anthers united.

19. Syngenesia, 5 stamens, the anthers united (compound flowers.)

Five orders. 1. Polygymia Áæqualis, florets all perfect. 2. P. Superflua, disk florets perfect, rays pistilliferous. 3. P. Frustranea, disk perfect, rays neutral. 4. P. Necessaria, disk with stamens, rays with a pistil. 5. P. Segregata, with a perianth to each floret.

***** Anthers united to the pistil.

20. Gynandria.

Orders named according to the number of stamens, as Monandria, &c.

B. Stamens and Pistils in different flowers.

21. Monœcia, stamens and pistils on the same individuals.
22. Dioœcia, stamens and pistils on different individuals.

Orders named according to the number of stamens, except where there is a union of the filaments; then named Monadelphia, &c.

*23. Polygymia, perfect and unisexual flowers either on the same or different individuals.

Three orders. Monœcia, Dioœcia, Triœcia.

DIV. II. Plants with inconspicuous flowers. Cryptogamia.


* The classes marked thus, viz. Dodecandria, Polyanodelphia, and Polygymia, have been discarded by most American botanists. They comprise, at least in the States to which this work is principally devoted, but few genera, and these, being variable in their characters, can be very well distributed among the other classes.
SYNOPSIS OF THE GENERA TREATED OF IN THIS WORK,
ACCORDING TO THE LINNÆAN SYSTEM;
WITH REFERENCES TO THE NATURAL ORDERS.

CLASS I.—MONANDRIA.—1 Stamen.


**Hippuris.** Calyx with the tube adnate to the ovary; the limb minute, entire. Petals none. Style received into the groove of the anther. Fruit 1-seeded. Haloragaceae, p. 113.


CLASS II.—DIANDRIA.—2 Stamens.


**Chionanthus.** Calyx 4-parted. Corolla deeply 4-parted; the lobes long and linear. Drupe 1-seeded. Oleaceae, p. 229.

**Veronica.** Calyx 4- rarely 5-parted. Corolla rotate, unequally 4-lobed; the lower segments narrower. Capsule 2-celled, few-seeded. Scrophulariaceae, p. 264.

**Lepandra.** Calyx 5-parted; segments acuminate. Corolla tubular; border 4-lobed, a little ringent, the lower segment narrower. Capsule 2-celled, many-seeded. Scrophulariaceae, p. 266.

**Gratiola.** Calyx 5-parted, often with 2 bracts at the base. Corolla tubular, sub-bilabiate; upper lip entire or shortly bifid; lower one 3-lobed. Capsule ovate, 2-celled, 2-valved, the valves at length 2-cleft. Scrophulariaceae, p. 262.

**Lindernia.** Calyx 5-parted, naked at base. Corolla ringent; upper lip short, reflexed, emarginate; lower one trifid, unequal. Capsule ovoid-oblong, 2-celled, 2-valved; dissepiment parallel with the valves. Scrophulariaceae, p. 263.

B2*
LINNAEAN ARRANGEMENT

HEMIANTHUS. Calyx tubular, cleft on the under side; border 4-toothed. Corolla with the upper lip obsolete; the lower 3-parted; intermediate segment ligulate and truncate, much longer and closely incurved. Capsule 1-celled, 2-valved, many-seeded. Scrophulariaceae, p. 263.


Obs. The remaining genera of this division have the corolla more or less bilabiate, and four naked seeds or achenia enclosed within the persistent calyx. They form, with the plants of Didynamia Gymnospermia, (from which indeed they only differ in having two of the stamens abortive,) the Natural Order Labiateae, p. 270.

*** Perianth double, superior.


**** Perianth single or none.


Order II.—DIGYNIA.—2 Pistils.

Anthoxanthum. Flowers glumaceous. Spikelets 3-flowered; the two lower flowers neutral, and each consisting of a single awned palea; the upper flower perfect, of two paleae, nearly equal, short, awnless. Gramminaceae, p. 437.

Class III.—TRIANDRIA.—3 Stamens.

Order I.—MONOGYNIA.—1 Pistil.

* Perianth double, superior.

Fedia. Calyx with the limb toothed and persistent or obsolete. Corolla tubular, not spurred; the limb 5-lobed, regular or slightly irregular. Fruit 3-celled; 2 cells empty, (sometimes confluent into one,) the other 1-seeded. Valerianaceae, p. 153.
Valeriana. Calyx with the limb involute, and at length evolved in a deciduous plumose pappus. Corolla with the tube obconic or cylindric, equal or gibbous at base, the limb obtusely 5-cleft. Fruit indehiscent, 1-celled, 1-seeded. Valerianaceae, p. 153.

** Perianth single, superior. **

Iris. Perianth 6-cleft; 3 of the segments larger and reflexed, the others erect. Stigmas 3, petaloid, covering the stamens. Iridaceae, p. 333.


*** Perianth double, inferior. ***

Commelyna. Perianth in 2 rows; the outer one 3-leaved, calycine; inner 3-leaved, petaloid. Capsule 3-celled, 3-valved; one valve abortive. Commelinaceae, p. 377.

Xyris. Perianth in 2 rows; outer row glumaceous, 2 of the segments somewhat boat-shaped; inner row petaloid; the segments with long nearly distinct claws and dilated laminæ. Capsule 1-celled. Xyridaceae, p. 371.

**** Perianth single, inferior. ****


***** Flowers glumaceous (dry and chaffy.) *****

Obs. All the genera of this division belong to the Subclass Glumaceals, (p. 387,) and all except Cenchrus, Spartina, and Oryzopsis, belong to the Order Cyperaceae, p. 387.

Order II.—DIGYNIA.—2 Pistils.

Obs. All the genera of this order are proper grasses, Graminaceae, p. 418. The family is so entirely natural that it is unnecessary to repeat the generic descriptions.

Order III.—TRIGYNIA.—3 Pistils.


Proserpinaca. Calyx superior, the tube adhering to the triquetrous ovary; limb 3-parted. Petals none. Fruit bony, 3-sided, 3-celled. Halo-ragaceae, p. 111.
CLASS IV.—TETRANDRIA.—4 Stamens, equal in height.

Order I.—Monogynia.—1 Pistil.

* Perianth double. Corolla 1-petalled, superior.


Dipsacus. Flowers collected in an ovoid or roundish head. Common calyx (involucre) foliaceous, many-leaved; proper superior, of one leaf. Corolla tubular, 4-cleft. Fruit crowned by the limb of the calyx. Dipsacaceae, p. 154.

Galium. Calyx with the tube ovate-globose or oblong; limb nearly wanting. Corolla rotate, 4-parted, (very rarely 3-parted). Fruit didymous, roundish, rarely oblong. Rubiaceae, p. 151.

Diodia. Calyx with the tube ovate or obovate, 2—4-toothed. Corolla funnel-form, 4-lobed. Fruit crowned with the calyx, 2-celled, bipartite. Rubiaceae, p. 150.

Hedyotis. Calyx with the tube ovate, the limb 4-toothed. Corolla funnel-form, salver-form or rotate, 4-parted. Capsule ovoid or globose, 2-celled, opening transversely at the top, many-seeded. Rubiaceae, p. 149.

Mitchella. Flowers in pairs with their ovaries united. Calyx 4-toothed. Corolla funnel-form; tube cylindric; limb 4-parted, spreading, villous on the inner side. Stigma 4-cleft. Berry didymous, 4-seeded. Rubiaceae, p. 150.

Linnaea. Calyx with the tube ovate; limb 5-parted. Corolla turbinate, subcampanulate, 5-lobed. Stigma globose. Berry dry, small, ovoid-globose, 3-celled (one cell only bearing a perfect seed.) Caprifoliaceae, p. 149.

** Perianth double (rarely single.) Corolla many-petalled, (rarely none,) superior.

Cornus. Calyx adherent to the ovary; the limb minute, 4-toothed. Petals 4, oblong, spreading. Drupes with the cells not united. Cornaceae, p. 142.

Isnardia. Calyx with the tube ovate or sub-cylindric, short, adhering to the ovary; limb 4-parted. Petals 4, often minute or wanting. Capsule short, 4-sided, 4-valved, many-seeded. Onagraceae, p. 110.

Sanguisorba. Flowers perfect or rarely polygamous. Calyx 4-cleft, with 2—3 scales at base externally. Petals none. Achenium dry, included in the hardened 4-winged calyx tube. Sanguisorbaceae, p. 106.

*** Perianth double. Corolla 1-petalled, inferior.


SWERTIA. Calyx 4—5-parted. Corolla rotate, 4—5-parted; the segments with 2 glanduliferous fimbriate pores at the base of each. Stigmas 2-lobed, (rarely 2.) Capsule 1-celled, 2-valved, many-seeded. Gentianaceae, p. 238.

FRASERA. Calyx 4-parted. Corolla deciduous, rotate, 4-parted, with 1 or 2 fringed glands on each lobe. Capsule compressed, 1-celled, 2-valved. Seeds few, large, winged. Gentianaceae, p. 238.


*(Some Gentiana, see CLASS V., ORDER II.)*

*Perianth double.* Corolla 4—5-petalled, inferior.

AMMANNIA. Calyx 4—5-toothed or lobed, the sinuses expanding into teeth or horns. Petals 4, or wanting. Capsule globose or ovate, many-seeded. Lythraceae, p. 115.


*Perianth single, inferior.*


ALCHEMILLA. Perianth with the tube somewhat contracted at the top; limb 8-parted, the alternate lobes smaller. Carpels 1—2, with a filiform capitulate style on the side, at length dry and 1-seeded. Sanguisorbaceae, p. 106.

**ORDER II.—DIGYNYA.—2 Pistils.**


**ORDER III.—TETRAGYNYA.—4 Pistils.**


SAGINA. Calyx 3—5-parted. Petals 4—5, or none. Capsule 1-celled, 4-valved, many-seeded. Caryophyllaceae, p. 47.

RUPPIA. Flowers 2, perfect, naked, on a spadix arising from the sheathing base of the leaves. Anthers large, peltate. Stigmas sessile, peltate. Fruit drupaceous, pedicellate. *Naiadaceae*, p. 386.

POTAMOGETON. Flowers perfect, on a spadix arising from a spathe. Perianth single, 4-leaved. Anthers nearly sessile, alternating with the divisions of the perianth. Ovaries 4, becoming four compressed and somewhat cochleate nuts. *Naiadaceae*, p. 386.

**CLASS V.—PENTANDRIA—5 Stamens.**

**ORDER I.—MONOGYNIA.—1 Pistil.**

* Perianth double, inferior. Corolla 1-petalled. Fruit consisting of four naked nuts or seeds.

OBS. The genera of this division constitute the Natural Order *Boraginaceae*, p. 247.


PHACELEA. Calyx 5-parted, the sinuses naked. Corolla tubular-campan-
OF THE GENERA.

ulate, caducous, 5-cleft or half 5-cleft, with 10 plaits or scales on the inside. Stamens often exserted. Style bifid. Capsule ovoid, 2-valved. *Hydrophyllaceae*, p. 253.

*Cosmanthus*. Calyx 5-parted; the sinuses naked. Corolla broadly campanulate, caducous, 5-cleft; tube without scales. Filaments slender, about as long as the corolla. Style bifid. Capsule 2-valved, septiferous in the middle. *Hydrophyllaceae*, p. 254.


*Convolvulus*. Calyx 5-parted, naked or with 2 bracts at base. Corolla funnel-form or campanulate, with 5 plaits. Stigma capitate or lobed. Capsule 2—3-celled, 2—3-valved. *Convolvulaceae*, p. 245.


*Polemonium*. Calyx campanulate, 5-cleft. Corolla campanulate-rotate; tube very short, closed by the dilated bases of the filaments. Capsule ovoid, obtuse, the cells many-seeded. *Polemoniaceae*, p. 244.


*** Perianth double, inferior. Corolla 1-petalled. Fruit a berry.***


*Nigandra*. Calyx 5-parted, 5-angled, the angles compressed, segments sagittate. Corolla campanulate, dry; the limb plaited and nearly entire. Stamens incurved. Berry 3—5-celled, covered by the calyx. *Solanaceae*, p. 256.
**** Perianth double, inferior. Corolla 1-petalled. Fruit a capsule.


Specularia. Calyx 5—(sometimes 3—4-) lobed; the tube elongated, prismatic or obconical. Corolla rotate, 5-lobed. Filaments membranaceous, hairy, shorter than the anthers. Stigmas 3. Capsule elongated, prismatic, 3-celled, opening laterally by 3 valves near the summit. Campanulaceae, p. 211.


Samolus. Calyx 5-cleft, the base adnate to the ovary. Corolla salverform, 5-parted, with 5 scales alternating with the lobes; tube short. Capsule half-inferior, 1-celled, many-seeded, opening with 5 valves. Primulaceae, p. 292.

**** Perianth double, superior. Corolla 1-petalled. Fruit a berry.


Symphoricarpus. Calyx with the tube globose; the limb small, 4—5-toothed. Corolla funnel-form, subequally 4—5-lobed. Stigma subglobose. Berry crowned by the calyx, 4-celled, 4-seeded; 2 of the cells sometimes abortive. Caprifoliaceae, p. 149.

Triosteum. Calyx with the tube ovoid and the limb 5-parted; lobes linear-lanceolate, persistent. Corolla tubular, subequally 5-lobed, gibbous at base. Stigma capitate. Berry rather dry, crowned by the calyx, with 3—5 bony nucules. Caprifoliaceae, p. 146.

***** Perianth double, inferior. Corolla 4—6-petalled. Fruit a capsule.


Impatiens. Sepals 5, the lower one spurred. Corolla 4-petalled, irregular; the two inner petals unequally bilobed. Stigmas 5, united. Capsule prismatic-terete, elongated, 5-valved. opening elastically. Balsaminaceae, p. 65.

Viola. Sepals 5, auricled at the base. Petals unequal, the lower one spurred. Anthers connate, the two lower ones with processes at their back. Capsule 1-celled, 3-valved, opening elastically. Violaceae, p. 36.

Solea. Sepals scarcely equal, not auricled at base, decurrent into a pedicle, at length reflexed. Petals unequal, the lowest one lobed and somewhat gibbous at base. Stamens cohering, the two lowest bearing a gland above the middle. Capsule somewhat 3-sided. Violaceae, p. 40.
Claytonia. Calyx of 2 ovate or roundish persistent sepals. Petals 5, obcordate or obovate, unguiculate. Style 5-cleft. Capsule 1-celled, 3-valved, 3—5-seeded. Portulacaceae, p. 120.

Ceanothus. Calyx 5-cleft, campanulate, persistent and somewhat adhering to the fruit. Petals 5, small, saccate and arched, with long claws. Styles 2—3, united to the middle. Fruit dry and coriaceous, 3-celled, 3-seeded, 3-parted, opening on the inner side. Rhamnaceae, p. 70.


******** Perianth double, inferior. Corolla 4—5-petalled. Fruit a drupe or berry.


Rhamnus. Calyx 4—5-cleft, urceolate. Petals alternating with the lobes of the calyx, sometimes very minute or wanting. Style 2—4-cleft. Fruit drupaceous, roundish, containing 2—4 cartilaginous nuts. Rhamnaceae, p. 70.

******** Perianth double, superior. Corolla 4—5-petalled.


******** Perianth single.


Order II.—DIGYNIA.—2 Pistils.

* Perianth double, inferior. Corolla 1-petalled.

Apocynum. Calyx 5-parted. Corolla campanulate, 5-cleft; the base furnished with 5 triangular scales, alternating with the lobes. Anthers
sagittate, connivent, adhering to the stigma. Follicles slender, elongated, coriaceous. Apocynaceae, p. 231.


Asclepias. Calyx small, 5-parted. Corolla 5-parted; the lobes lanceolate, reflexed. Stamineal crown 5-leaved; leaflets opposite the anthers, each mostly producing from its base a subulate averted process or little horn. Pollen-masses 5 distinct pairs, compressed, affixed by their attenuated summit in the cells of the anthers. Follicles ventricose, smooth or muricate. Asclepiadaceae, p. 232.


** Perianth double, inferior. Corolla 5-petalled.


*** Perianth double, superior. Corolla 5-petalled. Fruit fleshy.

Panax. Calyx with the margin very short, and obsolescent 5-toothed. Styles 2—3, short. Fruit fleshy, compressed, orbiculate or didymous, 2-celled; cells 1-seeded. Araliaceae, p. 141.

**** Perianth double, superior. Corolla 5-petalled. Fruit of 2 carpels.

Obs. The genera of this division form the Natural Order Umbelliferae, p. 129.

***** Perianth single.


Salsola. Perianth 5-cleft, persistent, enveloping the fruit with its base, and crowning it with its enlarged limb. Chenopodiaceae, p. 299.


Order III.—TRYGYNIA.—3 Pistils.

* Flowers superior.

** Viburnum. Calyx with the limb small, 5-toothed and persistent. Corolla rotate, subcampanulate or tubular, 5-lobed. Berry ovate or globose, 1-seeded, crowned by the teeth of the calyx. Caprifoliaceae, p. 144.

** Sambucus. Calyx with the limb small and 5-cleft. Corolla rotate or urceolate, 5-lobed; lobes obtuse. berry roundish, pulpy, 1-celled, 3—5-seeded. Caprifoliaceae, p. 144.

** Flowers inferior.


Order IV.—TETRAGYNIA.—4 Pistils.


Order V.—PENTAGYNIA.—5 Pistils.

** Aralia. Calyx with the margin very short, 5-toothed or entire. Petals 5, spreading. Berry 5-celled.—Flowers in umbels. Araliaceae, p. 140.


** Drosera. Calyx deeply 5-cleft. Petals 5. Capsule superior, globose or ovoid, 1—3-celled, 3—5-valved, many-seeded, Droseraceae, p. 41.

(See Cerastium and Spergula in CLASS X.)

Order VI.—HEXAGYNIA.—Many Pistils.


CLASS VI.—HEXANDRIA.—6 Stamens, equal in height.

Order I.—MONOGYNIA.—1 Pistil.

* Perianth double or in two rows, inferior.

BERBERIS. Sepals 6, mostly with 3 bracteoles at the base. Petals 6, with 2 glands upon their claws. Berry 2—3-seeded. Berberidaceae, p. 10.


PRINOS. Flowers mostly dioecious or polygamous. Calyx minute, 4—6-toothed. Corolla somewhat rotate, usually 6-parted. Fruit with 4—6 smooth bony nucules. Aquifoliaceae, p. 228.


** Perianth single, petaloid, issuing from a spathe.

AMARYLLIS. Perianth superior, 6-parted, unequal. Stamens arising from the orifice of the tube, declined or straight, unequal. Stigma 3-lobed. Capsule 3-celled, 3-valved. Amaryllidaceae, p. 354.


PONTEDERIA. Perianth inferior, 6-cleft, 2-lipped; under side of the tube perforated with a longitudinal foramen; the lower part persistent, calyceine. Stamens unequally inserted. Utricle muricate. Pontederaceae, p. 369.

*** Perianth single, petaloid, destitute of a spathe.

ALETRIS. Perianth inferior, tubular, or tubular-campanulate, 6-cleft, rugose. Stamens inserted at the orifice of the tube. Style triquetrous. Capsule 3-celled, many-seeded, opening at the summit. Hamodoraceae, p. 376.


HEMEROCALLIS. Perianth inferior, 6-parted; tube cylindric; limb campanulate, marcescent. Stamens declined. Capsule 3-sided, 3-celled, 3-valved, many-seeded. Liliaceae, p. 363.


ASPARAGUS. Perianth inferior, 6-parted, subcampanulate, the segments spreading at the apex. Anthers peltate. Berry 3-celled; cells 2-seeded. Liliaceae, p. 364.

ERYTHRONIUM. Perianth inferior, campanulate, 6-parted; segments reflexed; the 3 inner with a callous tooth on each side near the base and a nectariferous pore. Capsule narrowed at base or substipitate, 3-celled. Liliaceae, p. 362.


Smilacina. Perianth inferior, 6—(rarely 4-) parted, spreading. Stamens as many as the segments of the perianth, and inserted at their base. Berry globose, pulpy, 1—3-seeded. *Smilaceae*, p. 359.


**** Perianth single, calyx-like, on a spadix.


***** Perianth single, glumaceous.


Order II.—Digynia.—2 Pistils.


Order III.—Trigynia.—3 Pistils.

Rumex. Perianth 6-leaved; the three inner leaves somewhat colored, larger, often with tubercles on the outside and closing in a valvate manner over the fruit. Stigmas many-cleft. Nut triquetroes. *Polygonaceae*, p. 304.

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**Veratrum.** Polygamous. Perianth calyx-like, deeply 6-parted, spreading, persistent; the segments sessile and without glands. Stamens on the receptacle. Capsule ovoid, membranaceous, 3-lobed; the carpels distinct at the summit, many-seeded. *Melanthiaceae*, p. 366.


**Triglochin.** Perianth 6-leaved, somewhat colored, deciduous; leaves concave. Anthers subsessile. Capsules 3—6, united by a longitudinal receptacle from which they usually separate at the base, 1-seeded. *Juncaginaceae*, p. 379.


**Trillium.** Perianth deeply 6-parted; 3 outer segments (sepals) spreading; 3 inner petaloid, (petals.) Stamens inserted at the base of the segments, nearly equal. Styles stigmatose on the inside. Berry ovoid, 3-celled. *Trilliaceae*, p. 360.

**Saururus.** Flowers in a solitary spike. Scales 1-flowered. Corolla none. Fruit 3- or 4-celled; the carpels easily separating at maturity, 1- (rarely 2-) seeded, not opening. *Saururaceae*, p. 318.

**Order IV.—Polygynia.—Many Pistils.**

**Alisma.** Perianth 6-leaved; 3 outer leaves persistent, calycine; 3 inner colored, petaloid, deciduous. Carpels numerous, distinct, 1-seeded, crowned with the persistent style. *Alismaceae*, p. 379.

**Class VII.—Heptandria.—7 Stamens.**

**Order I.—Monogynia.—1 Pistil.**


**Æsculus.** Calyx campanulate, 5-toothed. Petals 4—5, more or less unequal. Filaments recurved backward. Fruit coriaceous. *Hippocastanaceae*, p. 62.

(*Ulmus in Class V., Order II.*)
CLASS VIII.—OCTANDRIA.—8 Stamens.

ORDER I.—MONOGYNIA.—1 Pistil.

* Flowers complete, superior.

Rhexia. Calyx with the tube ventricose-ovoid at base, narrowed at the apex; the limb 4-cleft. Petals 4, obovate. Capsule free in the calyx, 4-celled. Seeds cochlate. *Melastomaceae*, p. 117.

Cenothera. Calyx with a long 4-sided or 8-ribbed deciduous tube; segments 4, reflexed. Petals 4, equal. Capsule 4-valved, with many naked seeds. *Onagraceae*, p. 108.

Gaura. Calyx tubular, adnate to the ovary at base; segments 4, reflexed; tube deciduous. Petals mostly 4-clawed, somewhat unequal. Fruit 4-angled, dry and indehiscent, by abortion mostly 1-celled, 1—4-seeded. Seeds naked. *Onagraceae*, p. 108.


Oxycoccus. Calyx adnate to the ovary, with the limb 4-cleft. Corolla 4-parted, with the segments somewhat linear and revolute. Filaments connivent. Anthers tubular, 2-parted. Berry 4-celled, many-seeded. *Vacciniaceae*, p. 223.


** Flowers complete, inferior.

Menziesia. Calyx campanulate, 4-cleft or 4-toothed. Corolla tubular or globose; limb very short, 4-toothed, revolute. Filaments subulate, smooth. Capsule 4-celled, 4-valved. *Ericaceae*, p. 216.


*** Flowers incomplete.

(Monotropa in CLASS X.)

ORDER II.—DIGYNIA.—2 Pistils.

(Polygonum in ORDER TRIGYNIA. Vaccinium, Chrysosplenium and Scleranthus, in CLASS X.)

ORDER III.—TRIGYNIA.—3 Pistils.

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CLASS IX.—ENNEANDRIA.—9 Stamens.

Order I.—MONOGYNIA.—1 Pistil.

Laurus. Dioecious. Perianth colored, 5—6-parted. Fertile stamens 9, arranged in three series, the six outer ones with simple distinct filaments; three inner ones with two glands at the base of each. Drupe 1-seeded. *Lauraceae*, p. 305.

CLASS X.—DECANDRIA.—10 Stamens.

Order I.—MOXOGYNIA.—1 Pistil.

* Flowers regular.

Vaccinium. Calyx adherent to the ovary, 4—5-toothed. Corolla urceolate, cylindric, campanulate or somewhat rotate, 4—5-cleft. Berry globose, 4—10-celled, many- (or by abortion few-) seeded. *Vacciniaeae*, p. 221.

Obs. The remaining genera of this division are included in the Natural Orders, *Ericaceae*, p. 213, and *Pyrolaceae*, p. 224.

** Flowers irregular.

Cassia. Sepals 5, scarcely united at base, somewhat unequal. Stamens unequal; 3 upper ones usually abortive; 3 lower ones longer. Legume terete or compressed, many-seeded. *Leguminoseae*, p. 89.


Order II.—DIGYNIA.—2 Pistils.


Dianthus. Calyx tubular, 5-toothed, with 2—5 opposite imbricate scales at base. Petals 5, with long claws. Capsule 1-celled. Caryophyllaceae, p. 44.


Order III.—Trigynia.—3 Pistils.

Silene. Calyx tubular, 5-toothed, naked. Petals 5, unguiculate, mostly crowned at the orifice; limb bifid. Capsule 3-celled at base, dehiscent at the top into 6 teeth. Caryophyllaceae, p. 45.


 Meehlingia. Sepals 4—5. Petals 4—5, somewhat perigynous. Capsule splitting into twice as many (half) valves as there are stigmas. Seeds few, smooth. Caryophyllaceae, p. 50.


Order IV.—Pentagynia.—5 Pistils.

Sedum. Sepals usually 5, more or less united at base, ovate, often turgid and leafy. Petals 5, often spreading. Carpels 5, many-seeded, with a nectariferous scale at the base of each. Crassulaceae, p. 122.


 Cerastium. Calyx 5-sepalled. Petals 5, bifid or emarginate. Capsule membranaceous, cylindrical or oblong, opening at the summit by 10 teeth. Caryophyllaceae, p. 50.


 Penthorum. Sepals 5, united at base. Petals 5 or none. Carpels 5, united at the base into a 5-beaked, 5-celled capsule; cells opening transversely on the inner side of the beaks. Crassulaceae, p. 122.

(Silene and Stellaria in Order Trigynia.)

Order V.—Decagynia.—5—12 Pistils.

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CLASS XI.—ICOCANDRIA.—20 or more Stamens placed on the Calyx.

Order I.—MONOGYNIA.—1 Pistil.

Opuntia. Sepals numerous, leafy, adnate to the ovary; outer ones flat, short; inner ones petal-like, oblative, rosaceous; tube above the ovary none. Berry ovoid, umbilicate at the apex, tuberculate, often bearing spines. Cactaceae, p. 123.

Prunus. Calyx urceolate, hemispheric; limb 5-parted, deciduous. Drupe ovoid or oblong, fleshy, very smooth, covered with grayish dust; stone compressed, acute at both ends, subsulcate at the margin, elsewhere smooth. Drupaceae, p. 90.

Cerasus. Flowers as in the preceding. Drupe globose or umbilicate at base, fleshy, very smooth, destitute of gray powder; nucleus subglobsse, smooth. Drupaceae, p. 91.


Order II.—DI-PENTAGYNIA.—2—5 Pistils.


Obs. The remaining genera belong to the Natural Orders Rosaceae, p. 92, and Pomaceae, p. 102.

Order III.—POLYGYNIA.—Many Pistils.

Calycanthus. Lobes of the calyx in many rows, imbricate, lanceolate, colored, all more or less coriaceous or fleshy. Corolla none. Stamens unequal. Nuts enclosed in the fleshy tube of the calyx. Calycanthaceae, p. 107.

Obs. The remaining genera belong to the Natural Order Rosaceae, p. 92.

CLASS XII.—POLYANDRIA.—Many Stamens inserted upon the Receptacle.

Order I.—MONOGYNIA.—1 Pistil.

Tilia. Calyx 5-parted, deciduous. Petals 5, naked, or with a small scale within. Fruit coriaceous, by abortion 1-celled, 1—2-seeded. Tiliaceae, p. 56.

Helianthemum. Calyx with 3 equal sepals, or 5 disposed in two rows; the two outer ones smaller, rarely larger. Petals 5, (sometimes wanting,) often irregularly denticulate at the apex. Capsule 3-valved, with the dissepiment in the middle of the valves. Cistaceae, p. 34.

Hudsonia. Calyx 5-parted; segments unequal, the two outer ones minute. Petals 5. Capsule 1-celled, 3-valved, 1—3-seeded. Cistaceae, p. 36.
PORTULACA. Calyx adnate to the ovary, 2-parted, finally separating at base and deciduous. Petals 4—6, inserted in the calyx, equal. Capsule subglobose, 4-celled, many-seeded, opening circularly. Portulacaceae, p. 120.

TALINUM. Sepals 2, ovate, deciduous. Petals 5, distinct, or somewhat connected at base. Capsule 1-celled, 3-valved, many-seeded. Portulacaceae, p. 130.


NYMPHEA. Sepals 4, at the base of the disk. Petals and stamens inserted into the fleshy disk surrounding the ovary. Nymphaeaceae, p. 19.

NYPHAR. Sepals 5—6, and with the petals and stamens inserted at the base of the disk. Nymphaeaceae, p. 19.

ORDER II.—DI-PENTAGYNYA.—2—5 Pistils.


HYPERICUM. Sepals 5, more or less united at the base, mostly equal. Petals 5, oblique, and often inequilateral. Stamens mostly numerous, sometimes few, distinct or united into 3—5 parcels. Styles 3—5, distinct or more or less united. Capsule membranaceous. Hypericaceae, p. 57.


Obs. The remaining genera belong to the Natural Order Ranunculaceae, p. 3.
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ORDER III.—POLYGNIA.—Many Pistils.


Obs. The remaining genera belong to the Order Ranunculaceae, p. 3.

CLASS XIII.—DIDYNAMIA.—4 Stamens; 2 longer than the other 2.

2 Orders.—1. Gymnospermia.—Seeds apparently naked.
2. Angiospermia.—Seeds in a distinct capsule.

Obs. The genera of this class form a very natural group, having irregular or bilabiate flowers, with mostly 4 stamens (2 longer); but sometimes 2 are abortive, and hence such are arranged artificially in the class Diandria. The whole will be more easily, as well as correctly, studied, by the Natural Orders. The genera belonging to the order Gymnospermia will be found in the Natural Order Labiatae, p. 270; those belonging to Angiospermia, in the Natural Orders Bignoniaceae, p. 241; Pedaliaceae, p. 242; Orobancheaceae, p. 257; Scrophulariaceae, p. 258; Verbenaceae, p. 283, and Acanthaceae, p. 286.

CLASS XIV.—TETRADYNAMIA.—6 Stamens; 4 long and 2 short.

Obs. This class is entirely natural; and it is therefore altogether unnecessary to repeat the generic descriptions. It is identical with the Natural Order Crucifera, p. 23. I have, chiefly for the sake of convenience, preserved the Linnean division into Siliculose and Siliquose. Gynandrospis and Polanisia (Cleome Linn.) usually arranged under this class, form the order Capparidaceae, p. 33.

CLASS XV.—MONADELPHIA.—Filaments combined in one set.

Order I.—Pentandria.—5 perfect Stamens.


(Geranium in Order Decandria.)

Order II.—Decandria.—10 Stamens.

Geranium. Sepals 5, equal. Petals 5, equal. Stamens 10, all fertile; 5 alternate ones longer, and with nectariferous scales at the base. Carpels
with long awns, at length separating elastically from the summit to the base. *Geraniaceae*, p. 64.

*Erodium*. Sepals 5, equal, regular. Petals 5, mostly equal. Stamens 10; 5 outer ones shorter and sterile; the perfect ones with a nectariferous scale at the base. Styles persistent, bearded on the inside, at length spirally twisted. *Geraniaceae*, p. 65.

**Order III.—Polyandria.**—Many Stamens.

**Obs.** The genera of order from the Natural Order *Malvaceae*, p. 54.

**CLASS XVI.—Diaelphia.**—Filaments combined in two sets (except in some of the 3d Order.)

**Order I.—Hexandria.**—6 Stamens.

**Obs.** The genera belong to the Natural Order *Fumariacea*, p. 22.

**Order II.—Octandria.**—8 Stamens.


**Order III.—Decandria.**—10 Stamens.

**Obs.** The genera of this order, with a few usually arranged under the class *Decandria*, constitute the Natural Order *Leguminosae*, p. 72.

**CLASS XVII.—Syngenesia.**

**Obs.** The plants of this class, with a few exceptions, have 5 anthers united into a single tube. They are further characterized by the flowers being clustered together in heads and inserted upon a common receptacle, which is surrounded by an involucre; being usually known as Compound Flowers. They form the Natural Order *Compositeae*, p. 154.

**CLASS XVIII.—Gynandria.**—Stamens situated upon the style or column above the germ.

**Obs.** The orders Monandria and Diandria constitute the Or- chidaceae, p. 343.

**Order III.—Hexandria.**—6 Stamens.

*Aristolochia*. Perianth tubular, ventricose at base, dilated at the apex and ligulate. Capsule inferior, 6-sided, 1-celled, many-seeded. *Aristolochiaceae*, p. 309.

**Order IV.—Dodecandria.**—12 or more Stamens.

CLASS XIX.—MONECIA.—Stamens and Pistils in separate flowers on the same plant.

Order I.—MONANDRIA.—1 Stamen.


Euphorbia. Rarely furnished with a perianth. Involucre 1-leaved, campanulate, 4–5-lobed; the lobes usually alternating with peltate glands. Sterile Fl. numerous, each consisting of an anther with its filament articulated in the middle. Fertile Fl. solitary, central, on a long peduncle. Styles 3, usually 2-cleft. Capsule 3-celled, 3-seeded. Euphorbiaceae, p. 312.

Order II.—DIANDRIA.—2 Stamens.


(Carex, Order III. Callitriche, CLASS MONANDRIA, ORDER DIGYNIA.)

Order III.—TRIANDRIA.—3 Stamens.


Carex. Sterile Fl. Stamens 3, rarely 2 or 1. Fertile Fl. Perigynium membranaceous or somewhat coriaceous, 2-toothed, emarginate or truncate at the apex. Style single, included. Stigmas 2–3. Achenium lenticular, plano-convex or triangular, crowned with the lower portion of the style. Cyperaceae, p. 403.

Typha. Flowers collected into a long dense cylindrical spike. Sterile Fl. above. Stamens intermixed with simple hairs, inserted directly on the axis. Fertile Fl. below the sterile on the same axis. Fruit oblong, very small, stipitate. Typhaceae, p. 381.


Tripsacum. Sterile Spikelets in pairs on each joint of the rachis, and longer than the joint, collateral, 2-flowered. Flowers with 2 paleæ. Fertile Spikelets solitary, as long as the joint, 2-flowered. Flowers with 2 paleæ; the outer or lower flower neutral, the inner or upper one fertile. Graminaceae, p. 452.

Comptonia. Sterile Fl. Ament cylindric, imbricate; scales reniform-

**Adike.** Perianth 3—(sometimes 4) leaved; leaves nearly equal, oblong or lanceolate. **Sterile Fl.** Stamens 3. **Fertile Fl.** Perianth with a petaloid cucullate scale at the base of each of the leaves inside, membranaceous in fruit. Stigma 1, minute, capitate, sessile. Nut minutely papillose, straight. *Urticaceae*, p. 315.

**Order IV.**—**TETRANDRIA.**—4 Staminels.


**Betula.** **Sterile Fl.** Ament imbricate, cylindric; scales ternate, the middle one bearing the stamens. **Fertile Fl.** Ament ovoid-oblong; scales trifid, 3-flowered. Nut compressed, winged on each side. *Betulaceae*, p. 325.

**Bertmeria.** **Sterile Fl.** Perianth 4-parted. **Fertile Fl.** Perianth none, but a cluster of ovate acuminate scales, with a compressed ovary within each scale. Nut ovate, pointed with the subulate style. *Urticaceae*, p. 316.


**Parietaria.** Flowers polygamous, surrounded by a many-cleft involucre. **Perfect Fl.** Perianth 4-parted, persistent. Filaments at first incurved, then expanding with elastic force. Style 1. Nut enclosed by the enlarged perianth. *Urticaceae*, p. 316.


**Order V.**—**PENTANDRIA.**—5 Staminels.


**Xanthium.** Heads in glomerate spikes, sterile at the summit, pistillate below. **Sterile Fl.** Involucre subglobose, many-flowered, with the scales in one series. Receptacle cylindric, catyfyl. Corolla short, 5-lobed, somewhat hairy. **Fertile Fl.** Involucre with hooked prickles, surrounded


*(Fagus and Quercus in Order POLYANDRIA.)*

**Order VI.**—HEXANDRIA.—6 Stamens.


**Order VII.**—POLYANDRIA.—Many Stamens.

*Stems not woody.*


*Arisema*. Spathe convolute below, the limb arched or flattish. Spadix naked above, the lower part covered with flowers, of which the upper are sterile and the lower fertile, or in some plants all sterile. Anthers somewhat verticillate and distinct. Stigma nearly sessile. Berry 1—several-seeded. *Araceae*, p. 381.


**Stems woody. (Trees or Shrubs.)**

*Obs*. The genera of this division are included in the Natural Orders *Cupuliferae*, p. 326; *Platanaceae*, p. 333; *Altingiaceae*, p. 333; and *Juglandaceae*, p. 335.
OF THE GENERA.

ORDER VIII.—MONADELPHIA.—Stamens united into 1 set (sometimes in two or three sets.)

* Stems not woody.


** Stems woody.


PINEUS. Aments racemosely clustered; scales peltate. Stamens numerous, with short filaments. Fertile Fl. Aments more or less conic or cylindric; scales closely imbricate, 2-flowered, enlarging and becoming woody, forming a cone. Seeds winged at the summit, covered by the scales of the cone. Conifera, p. 339.

CLASS XX.—DIECIA.—Stamens and Pistils in separate flowers and on different plants.

ORDER I.—DIANDRIA.—Stamens 1—5, mostly 2.


VALISNERIA. Sterile Fl. Spathe ovate, 2—4-parted. Spadix covered with minute flowers. Perianth 3-parted. Stamens 2. Fertile Fl. Scape very long, flexuous or spiral. Spathe tubular, bifid, 1-flowered. Perianth elongated, 6-parted; the alternate segments linear. Style none. Stigmas 3,
iviii  LINNÆAN ARRANGEMENT


*Fraxinus*. Polygamous. Calyx small, 4-cleft or none. Corolla none or 4-petalled; the petals cohering at the base in pairs, oblong or linear. Stamens 2. Capsule 2-celled, compressed, winged at the apex, by abortion 1-seeded. *Oleaceae*, p. 230.

**Order II.—TRIANDRIA.—3 Stamens.**


**Order III.—TETRANDRIA.—4 Stamens.**


(Rhamnus in CLASS PENTANDRIA, Order MONOGYNIA.)

**Order IV.—PENTANDRIA.—5 Stamens.**


(Salix, Order I. *Ribes*, CLASS PENTANDRIA.)
OF THE GENERA.

Order V.—Hexandria.—6 Stamens.


Order VI.—Octandria.—8 Stamens.


Order VII.—Enneandria.—9 Stamens.


Order VIII.—Decandria.—10 Stamens.

Gymnocladus. Calyx tubular, 5-cleft. Petals 5, equal, oblong, exserted from the tube. Legume oblong, very large and thick, pulpy inside. Leguminosae, p. 89.

Order IX.—Polyandria.—Many Stamens.


Order X.—Monadelphia.—Stamens united.

TAXUS. Sterile Fl. consisting of peltate anthers in an ament; anther-cells 3—6 or more, inserted in the lobes of the connective, opening beneath. Fertile Fl. solitary, with imbricate scales at the base. Seed nut-like, seated in the disk which becomes a succulent cup. Coniferae, p. 341.

CLASS XXI.—CRYPTOGAMIA.—Stamens and Pistils not visible.

Order I.—FILICES.

This includes the Fern-like plants, being the Natural Orders Equisitaceae, p. 454; Filices, p. 456; Lycopodaceae, p. 467; and Marsileaceae, p. 470.
**TABLE OF THE NATURAL ORDERS NOTICED IN THIS WORK.**

**DIVISION I.**

FLOWERING OR PHÉNOGAMOUS PLANTS.

**CLASS I.—EXOGENOUS OR DICOTYLEDONOUS PLANTS.**

**Subclass I.—Thalamiflorals.**

Calyx many-sepalled. Petals many, distinct, and with the stamens inserted into the receptacle.*

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**Subclass II.—Calyciflorals.**

Calyx with the sepals more or less united at base. Petals and stamens inserted into the calyx.

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* In this subclass are placed some genera and species in which the petals are united, and a few are excluded in which the petals are distinct to the base; but all these plants agree with the orders under which they are arranged in some more important characters. The same remark is more or less applicable to the other subclasses.
TABLE OF THE NATURAL ORDERS.

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Subclass III.—Corolliflorals.

Petals united into a hypogynous corolla, or not attached to the calyx. Stamens inserted into the corolla.

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Subclass IV.—Monochlamydeals.

Flowers with a single perianth, or whose calyx and corolla form only one envelope.

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CLASS II.—ENDOGENOUS OR MONOCOTYLEDONOUS PLANTS.

Subclass I.—Petaloidaeals.

Stamens and pistils naked, or covered by verticillate floral envelopes.

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Subclass II.—Glumaceas.
Flowers destitute of a true perianth, but consisting of imbricate colorless or herbaceous scales.

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DIVISION II.
FLOWERLESS OR CRYPTOAMOUS PLANTS.

CLASS I.—FERN-LIKE PLANTS.

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GENERIC AND SPECIFIC DESCRIPTIONS

OF THE

PLANTS OF THE UNITED STATES,

NORTH OF VIRGINIA.

ARRANGED ACCORDING TO THE NATURAL SYSTEM.
BOTANY OF THE UNITED STATES,
NORTH OF VIRGINIA.

DIVISION I.
FLOWERING or PHENOGAMOUS PLANTS,
PLANTS FURNISHED WITH FLOWERS AND PRODUCING SEEDS.

CLASS I. EXOGENOUS or DICOTYLEDONOUS PLANTS.

Stem composed of bark, wood and pith; increasing by an annual deposit of new wood and cortical matter between the wood and bark. Leaves articulated with the stem, their veins reticulated. Propagation effected by stamens and pistils. Ovules in a pericarp; embryo with two or more opposite cotyledons.

SUB-CLASS I. THALAMIFLORALS.

Calyx many sepalled. Petals many, distinct, and with the stamens inserted into the receptacle.

ORDER I. RANUNCULACEÆ.—Crowfoots.

Calyx of 3—6, (but usually 5,) distinct deciduous sepals. Petals 3—15 (sometimes wanting.) Stamens indefinite in number, distinct. Pistils numerous. Fruit either dry nuts or carpels, baccate, or follicular. Seeds solitary or several.—Herbaceous plants or rarely shrubs. Leaves alternate or opposite, generally much divided, with the petiole dilated at the base. Flowers usually conspicuous.
1. CLEMATIS. Linn.—Virgin's Bower.

(From the Greek κλαμα, a shoot or tendril; in allusion to the climbing habit of the genus.)

Involucre none, or like a calyx under the flower. Sepals 4—8, colored. Petals none, or shorter than the sepals. Carpels many, terminated by a long mostly feathery awn.


1. C. Virginiana Linn.: stem climbing; leaves ternate; leaflets cordate-ovate, acute, coarsely toothed or lobed; flowers paniculate, dioecious. Woods and thickets. Can. to Flor. N. to lat. 55° W. to Columbia river. Aug. 12.—*Stem long. Flowers white, in large panicles. Tails of the carpels at length clothed with long silken hairs, having the appearance of tufts of wool.*

Virgin's Bower.

2. C. Viorna Linn.: stem climbing; leaves pinnately divided; segments entire, or 3-lobed, ovate, acute; floral ones entire; peduncles 1-flowered; sepals thick, acuminate, connivent, reflexed at the apex. Woods. Penn. to Geor. W. to Miss. June, July. 12.—*Flowers large, nodding, violet, on peduncles 3—6 inches long. Tails of the carpels from 1 to near two inches long, plumose.*

Leather Flower.

3. C. ochroleuca Ait.: herbaceous, erect, simple, pubescent; leaves simple, ovate, very entire, the younger ones with the calyx silky; flower peduncled, terminal, solitary, nodding. C. sericea Mich.

Woods. N. Y. to Geor. May, June 12.—*Stem 12—18 inches high. Flowers yellowish-white. Carpels conspicuously feathered, the silk of a yellowish color.*

Silky Virgin's Bower.

§ 2. ATRAGENE. Involucre none. Sepals 4. Petals several, minute.


Rocks. Ver. to Car. N. to Lat. 54° W. to the Rocky Mountains. April, May. 12.—*Stem climbing. Flowers very large, purple.*

Whorl-leaved Virgin's Bower.

2. THALICTRUM. Linn.—Meadow Rue.

(Supposed to be from the Greek ὀλέος, to be green; in allusion to its verdant aspect.)

Involucre under the flower none. Sepals 4, rarely 5, petaloid, generally caducous. Petals none. Carpels dry, not awned, sometimes stipitate, sometimes with a longitudinal furrow. Often dioecious or polygamous.

* Stamens longer than the sepals.

1. T. Cornutii Linn.: leaves decompound; leaflets roundish-ovate or oblong, 3-lobed, glaucous beneath, with the nerves scarcely prominent; peduncles longer than the leaves; flowers dioecious or polygamous; carpels
nearly sessile, acute at each end, strongly ribbed, twice as long as the style. —T. Cornuti and T. pubescens Pursh. T. revolutum and T. corynelloum D. C.

Wet grounds. From lat. 56° N. to Car. June, July. 2—Stem 3—5 feet high, branching. Leaves very variable in form, deep-green above, paler glaucous smooth or pubescent beneath. Flowers in a compound leafy panicle. Sepals greenish-white, oblong, much shorter than the stamens. Carpels about 3 lines long, beaked with the persistent style. Common Meadow Rue.

2. T. dioicum Linn. : very smooth; leaves decmpound, on short petioles; leaflets rounded, crenately and obtusely lobed, glaucous beneath; flowers dioecious or polygamous; peduncles as long as the leaves; carpels oblong, sessile, strongly ribbed. T. lavigatum Mich. T. purpurascens Linn.


** Stamens shorter than the petaloid calyx.**

3. T. anemomoides Mich. : root tuberous; radical leaves biternate; leaflets obovate, 3-toothed; floral leaves petioled, resembling an involucr; flowers perfect, few, umbellled; petaloid calyx 8—10-leaved. Anemone thalictroides Linn.

Woods. Common throughout the U. S. April—June. 2—Stems or scapes 4—8 inches long, often several from one root. Flowers about an inch in diameter. Sepals 6—10, white or purplish, twice as long as the stamens. The flowers of this species resemble those of Anemone, but the fruit that of Thalictrum.

3. ANEMONE. Linn.—Wind Flower.

(From the Greek anemos, wind; because the flowers are supposed to open when the wind blows.)

Involucr remote from the flower, of 3 divided leaves. Calyx petaloid, with 5—15 sepals. Petals none. Achenia mucronate.

1. A. nemorosa Linn.: leaves ternate; leaflets undivided, or with the middle one 3-cleft and the lateral one 2-parted, incisely toothed, acute; those of the involucre similar, petioled; sepals 4—6, oval or elliptical. A. lancifolia Pursh.

var. quinquefolia, D. C.: lateral leaves of the involucr 2-parted to the base. A. quinqufolia Linn.

Woods. Can. to Car. N. to lat. 53°. W. to the Rocky Mountains. April, May. 2—Stem or scape 4—8 inches high, slender. Flowers about an inch in diameter. Sepals 4—7, white or purplish. Wood Anemone.

2. A. Pennsylvtica Linn.: leaves 3—5-parted; segments 3-cleft; lobes oblone, incisely toothed, acuminate; involucr similar, 2-leaved, sessile; sepals 5, elliptic; carpels hairy, compressed, crowned with a long style. A. acornifolia Mich. A. dicholoma Linn.


3. A. cylindrica Gray: silky, pubescent; leaves ternately divided; late-
ral segments 2-parted, the terminal one 2-cleft; lobes linear-lanceolate, with the apex incisely toothed; those of the involucre similar and petioled; peduncles 2—6, rarely solitary; sepals 5, ovate, obtuse; carpels densely woolly, in a long cylindrical head.


Cylindrical-headed Wind Flower.

4. A. Virginiana Linn.: leaves ternate; segments ovate-lanceolate, 3-cleft, acuminate, incisely toothed; those of the involucre similar, petiolate; sepals 5, elliptic, acuminate, silky without; peduncles elongated; carpels densely woolly, in an ovoid-oblong head.

Woods. Throughout the U. S. and Can. as far N. as lat. 55°. July. \( \mathbb{Q} \).—Stem 18—20 inches high. Flowers three-fifths of an inch in diameter. Sepals greenish-white, two narrower than the others. Heads of carpels three-fourths of an inch long.

Thimble Weed.

5. A. multifida Poir.: hairy; leaves ternately divided; segments cuneiform, laciniately 3-cleft, the lobes linear, acute; those of the involucre similar, on short petioles; sepals 5—8, oval, obtuse; heads of carpels oval, woolly.


Cut-leaved Wind Flower.

4. HEPATIC. Willd.—Liverwort.

(From the Greek \( \pi \alpha \rho \), the liver; from the supposed resemblance of its leaves.)

Involucre 3-leaved, 1-flowered, resembling a calyx, entire. Sepals petaloid, 6—9, arranged in 2 or 3 rows. Ovaries many. Carpels without awns.

H. triloba, Willd.: leaves cordate, 3—5-lobed; lobes entire. Anemone Hepatica Linn.

var. 1. obtusa Pursh.: leaves 3-lobed; lobes roundish, obtuse. H. Americana D. C.

var. 2. acuta Pursh.: leaves 3—5-lobed; lobes spreading, acute. H. acutiloba D. C.

In woods. Common throughout the U. S. and N. to lat. 52°. April, May. \( \mathbb{Q} \).—There appears to be no doubt that these supposed distinct species are nothing more than varieties. They grow indiscriminately, and the lobes of the leaves assume almost every variety of form. The sepals are white, blue, or pale purple. This plant has been much used as a remedy in pulmonary diseases; but its virtues have no doubt been overrated.

Liverwort. Early Anemone.

5. HYDRASTIS. Linn.—Yellow Root.

(Supposed to be from the Greek \( \delta \omega \rho \), water; from its growing in moist places.)
RANUNCULACEÆ.


H. Canadensis Linn.

Rocks woods. Can. to Car. W. to Miss. Rare. May. 2—Stem 6—10 inches high, with two nearly opposite leaves above. Leaves 2—5 inches wide, palmately 3—5-lobed; lobes acute, doubly serrate. Flower solitary, on a peduncle about an inch long. Sepals fleshy, pale rose-color, caducous. Fruit fleshy, purplish, about the size of a large raspberry. The root affords a juice of a fine yellow color, which is used by the Indians for staining skins and clothing.

Yellow Root. Yellow Puccoon.

6. RANUNCULUS. Linn.—Crowfoot.

( Probably from the Latin rana, a frog; the plant often growing in wet places where frogs abound.)

Sepals 5, deciduous. Petals 5, rarely 10, with a honey scale at the base on the inside. Stamens and ovaries numerous. Carpels ovate, somewhat compressed, terminating in a point or horn, smooth, striated, or tuberculated, arranged in a globose or cylindric head.

*Carpels transversely rugose-striate. Petals white; claws yellow.

1. R. aquatilis, var. capillaceus D. C.: stem filiform, floating; leaves all submersed, divided into capillary diverging segments; petals obovate, longer than the calyx. R. fluviatilis Wild.

In streams. Throughout the U. S. and British America. N. to lat. 68°. Rather rare. July, Aug. 2l.—Stem long. Leaves petioled. Flowers small, white or ochroleucous. There are several varieties of R. aquatilis, which have been described as distinct species.

Water Crowfoot.

**Carpels smooth, ovate, collected into a roundish head. Flowers yellow.

†Leaves undivided.

2. R. Fammula Linn.: leaves glabrous, linear-lanceolate or ovate-lanceolate, subentire, the lower ones petiolate, the upper ones nearly sessile; stem more or less decumbent, rooting at the lower joints; peduncles opposite to the leaves. R. Fammula, var. major Hook.


Small Spearwort.


River banks. Can. to N. Y. N. to Labrador. W. to Oregon. July, Aug. 2l.—A very delicate species. Stem 6—12 inches long. Flowers small. Fruit very smooth. Although coming from such high authority, I cannot yet adopt the opinion of Dr. Hooker, that this plant is a mere variety of R. Fammula. From a comparison of specimens, I am satisfied that our plant is identical with the foreign R. reptans.

Filiform Crowfoot.
4. *R. pusillus* Pursh.: stem erect or decumbent; leaves petioled; lower ones ovate and subcordate, entire or sparingly toothed; upper ones linear-lanceolate; pedicels opposite to the leaves, solitary, 1-flowered; carpels smooth, with a minute blunt point.

Wet grounds. N. J. to Geor. and Louisiana. June. Aug. 4. —Stems 6—12 inches high, weak. *Flowers* small, pale-yellow. Distinguished from *R. Famula* by its smaller size, and by its lower leaves being ovate. According to Dr. Torrey, a variety, (muticus,) in which the carpels are destitute of a beak, occurs in the low grounds of Bloomingdale, about five miles from the City Hall. The same variety is also found in Chester co. Penn. *Darlingt. Fl. Cest.*

Small-flowered Crowfoot.

5. *R. Cymbalaria* Pursh.: stoloniferous; leaves petiolate, smooth, somewhat fleshy, cordate, reniform or ovate, coarsely crenate; scape 1—3 flowered; petals spatulate, longer than the calyx; carpels ovate, ribbed, in oblong heads. *R. Cymbalaria*, var. *Americanus* D. C.

Salt marshes. N. Y. Mass. Can. to lat. 68° N., and from Hudson's Bay to the summits of the Rocky Mountains, where it does not appear to be confined to salt marshes. July. Aug. 4. —Scapes 2—6 inches high. *Flowers* small. *Fruit* oblong. Its runners are very properly compared by Dr. Smith, to those of the garden strawberry.

†+ Leaves divided.

6. *R abortivus* Linn.: smooth; radical leaves petioled, cordate-orbicular, crenate, sometimes 3-parted; cauline ternate and 3—5-cleft, with linear-oblong nearly entire segments; upper ones sessile; sepals a little longer than the petals, reflexed.

Wet grounds. Throughout the U. S. and Can. to lat. 57° N. W. to the Rocky Mountains. May. 2. —Stem a foot high, simple or branching, smooth. *Leaves* very variously dissected, mostly smooth. *Flowers* small, yellow, the petals being sometimes longer than the calyx. *Carpels* compressed, forming an ovate or nearly globose head. *R. nitidus* of Walter, is a variety of this species, differing only in size, being nearly twice as large. *Kidney-leaved Crowfoot.*

7. *R. seleratrus* Linn.: smooth; radical leaves petioled, 3-parted, the segments lobed; cauline ones 3-lobed, lobes oblong, linear, entire; sepals reflexed, about equal to the petals; carpels small, numerous, forming a cylindrical head.


8. *R. Purshii* Richardson: submerged leaves 2—3-chotomously divided, with the segments flat and filiform; emersed ones reniform, 3—5-parted, the lobes variously divided; petals 5—8, obovate, twice as large as the reflexed sepals; carpels in globose heads. *R. multifidus* Pursh. *R. lacustris* Beck & Tracy.

Ponds and muddy places. Arct. Amer. to Car. W. to the Rocky Mountains. May—July. 4. —Stem 1—4 feet long. *Leaves* varying with the place of growth, from being all divided into numerous filiform segments, to all rounded or reniform, and cleft into 3—5 lobes. *Flowers* large, shining, bright yellow. *Pursh's Crowfoot.*

9. *R. acris* Linn.: leaves mostly pubescent, 3—5 parted; lobes incisely
toothed, acute, the upper ones linear; stem many-flowered; peduncles terete, not furrowed; calyx spreading, villous; carpels roundish, compressed, terminated by a short recurved beak.


10. *R. repens* Linn.: leaves ternate; leaflets wedgeform, 3-lobed, incisely dentate; central one petiolate; main stems prostrate, flowering ones erect; peduncles furrowed; calyx pilose, spreading; carpels with a straight point. *R. nitidus* Muhl. *R. Maryandiicus* Pursh.


11. *R. Clintonii* Beck: somewhat hairy; stems creeping and rooting at each of the joints; lower leaves on long petioles, ternate; leaflets toothed and incised, cuneate, terminal one petiolated; floral leaves incised or linear; peduncle 1—3 flowered; petals rounded; calyx spreading; carpels margined, with a short uncinate style. *R. prostratus* Eat. *R. repens* Torr. *& Gr.*

Banks of the canal, near Rome, Oneida co., N. Y. June, July. ? — Much smaller than *R. repens*, at least of American botanists, in all its parts except the flower, which is of a bright yellow, and about as large as that of *R. acris*. Leaves seldom more than ½ inches in length, and about the same in breadth. Stems distinctly creeping like those of *R. reptans*; flowering ones 6—8 inches high. Style short and hooked. This species, which was introduced into the 1st edition, I still believe to be distinct. *Clinton’s Crowfoot.*

12. *R. hispidus* Mich.: erect, branched; stem and petioles with stiff spreading hairs; leaves ternate or 3-parted; leaflets or segments acutely lobed; pubescence of the pedicels appressed; calyx hairy, at length reflexed; carpels in a globose head, margined, compressed, smooth; style short and straight. *R. Pennsylvanicus* Pursh.

Wet grounds. Can. to Car. N. to lat. 67°; and from Hudson’s Bay to the Pacific. June—Aug. ? — Stem 18 inches high, very hairy; Lower leaves on long petioles; upper ones nearly sessile; leaflets nearly all petiolated, 3-cleft or 3-parted, attenuate at base. Flowers about the size of *R. acris*. **Hairy Crowfoot.**

13. *R. Pennsylvanicus* Linn.: stem erect and with the petioles covered with stiff spreading hairs; leaves ternate, villous; segments subpetiolate, acutely 3-lobed, incisely serrate; calyx reflexed, longer than the small petals; carpels with a short oblique style, collected into an oblong head. *R. hispidus* Pursh.


14. *R. recurvatus* Pursh.: stem erect and with the petioles covered with spreading hairs; leaves 3-parted, hairy; segments oval, subincised, the lateral ones 2-lobed; calyx reflexed; petals lanceolate; carpels crowned with a sharp hooked style.

Shady woods. Throughout the U. S., and from Labrador to the Columbia.
10  RANUNCULACEÆ.

river. May—July. 24.—Stem 12—15 inches high. Flowers small, pale yellow, on short peduncles.

15. *R. fascicularis* Muhl.: stem erect, branched; leaves on long petioles, pubescent, pinnately divided; the lobes oblong, obovate, pinnatifid; calyx spreading, shorter than the petals, villous; carpels orbicular, crowned with a slender subulate style, collected into a sub-globose head.

Woods. Can. to Penn. W. to Miss. April, May. 24.—Root fascicled. Stem 6—12 inches high. Flowers about as large as those of *R. acris*, pale yellow. Variés considerably in the form of its leaves, which are however always much more compound than is usual in this genus.

**Bundle-rooted Crowfoot.**

16. *R. bulbosus* Linn.: stem erect, hairy, bulbous at the base; leaves terminate, or quinate-pinnate; leaflets 3—5-parted, segments trifid or incised; peduncles sulcate; calyx reflexed, hairy; carpels in a globose head, with a short recurved beak.


**Carpels aculeate or tuberculate.**

17. *R. muricatus* Linn. : stem erect or diffuse; leaves smooth, petiolate, suborbiculate, 3-lobed, coarsely dentate; peduncles opposite to the leaves; calyx spreading; carpels tuberculate-aculeate, terminated by an ensiform beak.


**Muricate Crowfoot.**

7. CALTHA. Linn.—Marsh Marigold.

(From the Greek καλάθος, a basket: in allusion to the form of the flower.)


1. *C. palustris* Linn.: stem succulent, erect; leaves cordate, suborbicular, obtusely crenate, petiolate; flowers large, pedunculate; sepals broad oval.

var. *integerrima* Torr. & Gr.: radical leaves entire; floral ones sessile, obscurely crenate; petals obovate. *C. integerrima* Pursh.

In swamps. Can. to Car. W. to Miss. Labrador to the Columbia river. April, May. 24.—Root of coarse fasciculate fibres. Stem 6—12 inches high, erect, somewhat succulent, dichotomously branched above. Leaves large and shining. Flowers few, an inch or more in diameter, bright yellow. *Common Marsh Marigold.*


3. *C. flabellifolia Pursh.:* stem procumbent, many-flowered; leaves dilated-reniform; lobes widely spreading, coarsely and acutely toothed; peduncles axillary, solitary, 1-flowered; sepals obovate; capsules uncinate. *C. palustris, var. flabellifolia Torr. & Gr.*


8. TROLLIUS. Linn.—Globe Flower.

(Said to be derived from the obsolete German *trol,* signifying anything round.)


*T. Americanus Muhl.:* leaves palmate; sepals 5—6, spreading; petals 15—25, shorter than the stamens. *T. laxus Pursh.*


9. COPTIS. Salisb.—Gold Thread.

(From the Greek *κοπτω,* to cut; in allusion to the numerous divisions of the leaves.)

Sepals 5—6, colored, petaloid, deciduous. Petals small, cucullate. Stamens 20—25. Follicles 3—10, on long stalks, membranous, 4—8 seeded.

*C. trifolia Salisb.:* leaves on long petioles, ternate; leaflets cuneiform-obovate, obtuse, toothed or obscurely 3-lobed; scape 1-flowered. *Helleborus trifolius Linn.*


*Common Gold Thread.*

10. AQUILEGIA. Linn.—Columbine.

(From the Latin *aquila,* an eagle; the spurs or nectaries having some resemblance to the claws of that bird.)

Sepals 5, deciduous, petaloid. Petals 5, bilabiate, drawn out into a hollow spur at base. Follicles 5, distinct, many-seeded, with acuminate styles.

*A. Canadensis Linn.:* spur straight; styles and stamens exerted; sepals somewhat acute, a little longer than the petals; segments of the leaves 3-parted, rather obtuse, incisely toothed.
RANUNCULACEÆ.

Rocks. Throughout the U. S. and Can. N. to Hudson's Bay. April, May.

11. HELLEBORUS. Adans.—Hellebore.

(From the Greek ὅλος, to cause death; and ὕπος, food; on account of its poisonous properties.)


H. viridis Linn.: radical leaves glabrous, pedately divided; the cauline few, nearly sessile, palmately parted; peduncles often geminate; sepals roundish-ovate, green.

On the plains near Jamaica, and in a wood near Brooklyn, N. Y. April. 2. — Stems about a foot high. Radical leaves on long petioles. Flowers an inch or more in diameter. A naturalized foreigner. Torr. & Gr.

Green Hellebore.

12. DELPHINIUM. Linn.—Larkspur.

(From the Greek ἰχθύς, a dolphin; from the shape of the upper sepal.)

Calyx deciduous, petaloid, irregular, the upper sepal produced downward into a spur. Petals 4; 2 upper ones horned behind. Ovaries 1—5. Follicles many-seeded.


1. D. azureum Mich.: petioles a little dilated at the base; leaves 3—5 parted, many-cleft, lobes linear; raceme erect; petals densely bearded at the apex; flowers on short pedicels.

Woods. Penn. to Geor. W. to Miss. May. 2.—Stem 2 feet high. Flowers large, blue.

2. D. exaltatum Art.: petioles not dilated at the base; leaves flat, 3—7 cleft beyond the middle; lobes wedgeform, 3-cleft at the apex, acuminate; lateral ones often 2-lobed; raceme erect; spur straight, as long as the calyx; capsules 3. D. tridactylum Mich.

Woods. Penn. to Car. W. to Miss. May. 2.—Stem 2 feet high. Flowers large, light blue.

3. D. tricorne Mich.: petioles smooth at the base, scarcely dilated; leaves 5-parted, lobes 3—5-cleft; segments linear; petals shorter than the calyx; carpels reflexed, spreading at base, arcuate.


4. D. Consolida Linn.: stem erect, smoothish, divaricately branched;
flowers few, in lax racemes; pedicels longer than the bracts; carpels smooth.


13. ACONITUM. Linn.—Wolfsbane.

(From the Greek ἄκων, a cliff or rock; in allusion to its place of growth.)

Calyx petaloid, irregular, deciduous; the upper sepal large and helmet-form. Petals 5; the 3 lower ones minute, often converted into stamens; the 2 upper on long claws, expanded into a sac or short spur at the summit. Follicles 3—5, many-seeded.

A. uncinatum Linn.; panicle rather loose, with divergent branches; galea exactly conical; spur inclined, somewhat spiral; leaves 3-lobed; lobes equal.

Mountains. N. Y. to Geor. Sept. ④.—Stem twining, branching. Leaves coriaceous, deeply 3-lobed. Flowers 3—4, near the summit of each branch, large, bright blue. De Candolle notices two American varieties of this species.

American Monkshood.

14. ACTÉEA. Linn.—Baneberry.

(From the Greek ἀκτέ, the elder; on account of its resemblance to that plant.)


1. A. rubra Willd.: leaves twice and thrice ternate; raceme hemispherical; petals shorter than the stamens, acute; pedicels of the fruit smaller than the peduncle; berries shining, red, many-seeded. A. spicata Mich. A. brachypetala. D. C. A. Americana, var. rubra Pursh.


Red Cohosh.

2. A. alba Big.: leaves twice and thrice ternate; raceme oblong; petals equal to the stamens; pedicels of the fruit as large as the peduncle; berries white, few-seeded. A. spicata, var. alba Mich. A. Americana, var. alba Pursh. A. pachypoda Ell.


White Cohosh.

15. CIMICIFUGA. Linn.—Bugbane.

(From the Latin cimex, a bug, and fugo, to drive away.)

Sepals 4—5. Petals 3—5, concave or unguiculate, sometimes fewer or none. Stamens numerous. Style short. Carpels 1—8, follicular, many-seeded.

C. racemosa Ell. : racemes very long; leaves ternately decompound; leaflets ovate-oblong, incisely toothed. C. Serpentaria Pursh. Actea racemosa Linn.
14 MAGNOLIACEÆ.


16. ZANTHORIZA. Linn.—Yellow Root.

(From the Greek ἕλανδρος, yellow, and μῦξα, a root.)


ORDER II. MAGNOLIACEÆ.—MAGNOLIADS.

Sepals 3—6, deciduous. Petals 3—27, in several rows. Stamens indefinite, distinct, hypogynous; anthers adnate, long. Ovaries numerous; style short; stigma simple. Fruit either dry or succulent, consisting of numerous carpels, which are arranged upon an elongated axis. Seeds solitary or several.—Trees or shrubs. Leaves alternate, coriaceous. Flowers large, solitary, often odoriferous.

1. MAGNOLIA. Linn.—Magnolia.

(In honor of Prof. Magnol, a French botanist.)


1. M. glauca Linn.: leaves perennial, oblong or oval, petiolate, glaucous beneath; flowers 9—12 petalled; petals obovate, concave. Swamps. Mass. to Flor. W. to Miss. May, June.—A shrub or tree 10—15, sometimes 30 feet high, with a smooth whitish bark. Flowers terminal, on thick pedunclcs, white, 2—3 inches broad, very fragrant. The bark is aromatic and bitter. Sweet Bay.


3. M. tripetala Linn.: leaves deciduous, cuneate-lanceolate, acute, silky when young; petals 9, oval-lanceolate, acute, the outer ones reflected. M. Umbrella Linn.
Mountain woods. Penn. to Geor. June.—A small tree with irregular branches and very large leaves. Flowers white, 7—8 inches in diameter. *Umbrella Tree.*

2. LIRIODENDRON. Linn.—Tulip Tree.

(From the Greek λιρις, a lily, and δενδρον, a tree; from the appearance of its flowers.)


*L. Tulipifera Linn.*

Woods. Throughout the U. S. June, July. One of the largest trees of our forest. Leaves alternate, 3-lobed; the middle lobe truncate. Flowers solitary, large, each with two large caduceous bracts at the base. Sepals obovate-oblong, spreading and at length deciduous. Petals lance-ovate, greenish-yellow, stained with reddish orange below the middle. According to Dr. Darlington, there are two varieties of this species, differing chiefly in the color and texture of the wood; the one being yellow and the other white. The yellow is the most valuable, but both are employed extensively by cabinet makers. The bark is a valuable tonic, &c.—See Big. Med. Bot.

_Tulip Tree._ White Wood,

Order III. ANONACEÆ.—Anonads.

Sepals 3—4, persistent, usually partly cohering. Petals 6, in two rows, coriaceous. Stamens indefinite, covering a large hypogynous disk, packed closely together; filaments short; anthers adnate. Ovaries mostly numerous; styles short; stigmas simple. Fruit consisting of a number of carpels. Seeds attached to the suture in one or two rows.—Trees or shrubs. Leaves alternate, simple, almost always entire, without stipules. Flowers usually green or brown, axillary, mostly solitary.

ASIMINA. Adans.—Papaw.

(A name given by Adanson, the origin of which is unknown.)

Calyx deeply 3-parted. Petals 6, spreading, ovate-oblong; inner ones smallest. Anthers many, sub sessile. Carpels usually 3, baccate, ovate or oblong, sessile, pulpy within. Seeds many.

* A. triloba D. C.: leaves oblong, crenate, acuminate, and with the branches smoothish; flowers on short peduncles; outer petals roundish ovate, 4 times as long as the calyx. *Anona triloba Linn.* Porcelia triloba Pursh. *Uvaria triloba* Torr. & Gr.

Banks of streams. Western N. Y. to Flor. W. to Miss. April.—A small tree usually from 10 to 15 feet high, with slender nearly smooth branches. Flowers solitary, lateral, appearing rather before the leaves, dark brownish-purple. Fruit large, fleshy, sweetish. Nuttall states that the fruit does not come to perfection N. or E. of Steubenville, Ohio. *Trav. in Arkansas.*

_Papaw Tree._
Order IV. Menispermaceae.—Menispermads.

Flowers diclinous, usually dioecious and very small. Sepals and petals conjoined in one or several rows, each of which is composed of 3 or 4 parts, deciduous. Stamens monadelphous or occasionally distinct, sometimes opposite the petals and equal to them in number, sometimes 3 or 4 times as many; anthers adnate. Ovaries sometimes numerous, each with one style, distinct or rarely united. Drupes mostly berried, 1-seeded, compressed. Seed same shape as the fruit; albumen wanting or small.—Shrubs, with a flexible tough tissue and sarmentaceous habit. Leaves alternate and entire. Flowers small, usually racemose.

Menispermum. Linn.—Moonseed.

(From the Greek μήνη, the moon, and σπέρμα, a seed; on account of the lunate form of the seeds.)

Sepals and petals arranged in fours, 2 or 3-rowed. Sterile Fl. Stamens 12—20. Fertile Fl. Ovaries 1—4. Drupe berried, roundish-reniform, with a single lunate nut or seed. Sterile and fertile flowers often dissimilar.

M. Canadense Linn: leaves peltate, somewhat glabrous, cordate, obtusely angled, mucronate; racemes solitary, compound; petals 4—8.


Order V. Berberidaceae.—Berberids.

Sepals 3—4—6, deciduous, in a double row, surrounded externally by petaloid scales. Petals either equal to the sepals in number and opposite to them, or twice as many, generally with an appendage at the base in the inside. Stamens equal in number to the petals, and opposite to them. Ovary solitary, 1-celled; style rather lateral; stigma orbicular. Fruit a berry or capsule. Seeds crustaceous or membranous.—Shrubs or herbaceous plants, with alternate leaves.

1. Berberis. Linn.—Barberry.

(Supposed to be the Arabian name of the plant.)

Sepals 6, mostly with 3 bracteoles at the base. Petals 6, with 2 glands upon their claws. Stamens without teeth, or
with 2—3 teeth. Berry 2—3-seeded. Seeds 2, rarely 3, inserted laterally at the base of the cell.

*B. vulgaris* Linn.: spines 3-parted; leaves simple, obovate, attenuate at base, closely serrate with bristly teeth; racemes many-flowered, pendulous; petals entire. *B. Canadensis* Pursh. *Nutt.*

Road sides and fields. Throughout the U. S. and Can. April, May. 12.—A shrub 4—6 feet high. *Leaves* alternate. *Flowers* in pendulous racemes, pale yellow. *Berries* red, and of an agreeable acid. Supposed to have been introduced from Europe. At all events the American, is exactly similar to the European, plant.

2. **LEONTICE. Linn.—Lion's Foot.**

(Abridged from the Greek *leontapetalon*; the leaf resembling the print of a lion's foot.)

Sepals 6, naked without. Petals 6, bearing a scale at the base within. Capsules 2—4-seeded. Seeds globose, inserted into the bottom of the capsule.

*L. thalictroides* Linn.: lower leaf trinerved, upper one binate; leaflets oblong ovate and cuneate-ovate, mostly 3-lobed at the apex; flowers paniculate; peduncle from the base of the upper petioles. *Caulophyllum thalictroides. Mich.*


3. **PODOPHYLLUM. Linn.—May Apple.**

(From the Greek *pous, foot, and phyllos, a leaf*; the leaf resembling a web foot.)


*P. peltatum* Linn.: stem erect, 2-leaved, 1-flowered; fruit oval.


4. **JEFFERSONIA. Bart.—Twin-leaf.**

(In honor of Thomas Jefferson.)


Western and Northern N. Y. Penn. Virg. and Tenn. May. 12.—Scape a
foot high. Leaf binnate, petioled. Flower terminal, solitary, large, white, resembling that of Sanguinaria. Capsule large, coriaceous. Seeds shining, oblong.

**Order VI. CACOMBACEÆ.—Water-shields.**

Sepals 3 or 4, colored inside, persistent. Petals 3 or 4, alternate with the sepals. Stamens definite or indefinite; anthers linear, turned inwards, continuous with the filament. Ovaries 2 or more. Fruit indehiscent, tipped by the indurated style. Seeds few, pendulous; embryo seated at the base of a fleshy albumen.—Aquatics, with floating leaves. Flowers axillary, solitary, yellow or purple.

**HYDROPELTIS. Mich.—Water-shield.**


**Order VII. NELUMBIACEÆ.—Water Beans.**

Sepals 4 or 5. Petals numerous, oblong, in many rows. Stamens numerous, arising from within the petals in several rows; filaments petaloid; anthers adnate. Torus a fleshy elevated disk, very large, enclosing the numerous separate ovaries in hollows of its substance. Nuts numerous, half buried in hollows of the disk in which they are finally loose. Seeds solitary, rarely 2.—Herbs with peltate fleshy floating leaves, arising from a prostrate trunk, growing in quiet waters.

**NELUMBIUM. Juss.—Sacred Bean.**

(From the Ceylon name, *Nelumbo.*)

Calyx petaloid, of 4—6 sepals. Petals numerous. Carpels numerous, deeply immersed in the upper surface of a turbinate receptacle or torus, 1-seeded. Seed large, round, solitary.

*N. luteum* Willd.: anthers produced into a linear appendage at the extremity; leaves peltate, orbicular, very entire. *Cyamus flavicomus* Salish. *Pursh.* *C. luteus* Nutt.

Lakes. N. Y. to Car. W. to Miss. July. 24.—Leaves a foot or more in diameter, alternate, peltate. Peduncles very long, more or less scabrous. Flowers yellowish-white, and larger than that produced by any plant in North America, except *Magnolia macrophylla.* Water Chinquepin.
Order VIII. NYMPHÆACEÆ.—Water-lilies.

Sepals and petals numerous, imbricated, passing gradually into each other. Stamens numerous, inserted above the petals into the disk; filaments petaloid; anthers adnate. Disk large, fleshy, surrounding the ovary more or less. Ovary with radiating stigmas. Fruit many-celled, indehiscent. Seeds very numerous.—Herbs with peltate or cordate fleshy leaves, arising from a prostrate trunk, growing in quiet waters.

1. NYMPHÆA. Linn.—White Water-lily.

(From its imbibing the water, as the Nymphs were supposed to do.)

Sepals 4, at the base of the disk. Petals and stamens inserted into the fleshy disk surrounding the ovary.

* N. odorata Ait.: leaves, floating, orbicular-cordate, very entire; nerves and veins prominent; stigma 16—20 rayed; rays incurved.

Ponds. Can. to Car. June, July. 2l.—There are two varieties of this plant. One has the sinus and lobes of the leaves more or less acute; the flowers white (*N. alba* Mich.) The other is smaller, has purplish leaves and peduncles, and rose-colored flowers (*N. minor* D. C.). Both have the leaves on very long petioles, coriaceous, and lying on the surface of the water. **Flowers 3—4 inches in diameter, very odorous. White Pond Lily.**

2. NUPHAR. Smith.—Yellow Water-lily.

(A name applied by Dioscorides.)

Sepals, petals, and stamens, inserted at the base of the disk.

1. *N. lutea* Smith: calyx with 5 sepals; stigma entire, 16—20 rayed, deeply umbilicate; leaves cordate, oval, lobes approximate; petioles 3-sided, acute-angled. **Nymphæa lutea** Linn.

In water. N. S. and N. to lat. 64°. June. 2l.—Sepals very obtuse. Petals much smaller, truncate. Confounded by some of our botanists with the next species, from which it is quite distinct. **Small-flowered Yellow Water-lily.**

2. *N. advena* Ait.: calyx 6-sepalled; petals numerous, small; leaves cordate, with divaricate lobes; petioles semicylindrical; fruit sulcate. **Nymphæa advena** Mich.

In water. Can. to Car. W. to Oregon. June, July. 2l.—Leaves upright or floating. **Flowers large, yellow. Common Yellow Water-lily.**

3. *N. Kalmiana* Ait.: calyx 5-leaved; stigmas incised. 8—12-rayed; leaves cordate, submersed, with approximate lobes; petioles terete.—**Nymphæa lutea** var. Kalmiana Mich.

In water. N. S. and Can. July, Aug. 2l.—Leaves and flowers small. Torrey considers it a variety of *N. lutea. Kalm's Water-lily.**

Order IX. PAPAVERACEÆ.—Poppyworts.

Sepals 2, rarely 3, deciduous. Petals 4 or 6, usually crumpled before expansion, occasionally none. Stamens numerous;
PAPAVERACEÆ.

anthers 2-celled, innate. Ovary 1; style short or none. Fruit 1-celled, either pod-shaped or capsular, with several placentæ. Seeds numerous, with a minute embryo.—Herbaceous plants or shrubs, often with a milky juice. Leaves alternate, more or less divided. Peduncles long, 1-flowered.

1. ARGEMONE. Linn.—Prickly Poppy.

(From the Greek ἀργίμω, a disease of the eye; supposed to be relieved by this plant.)


A. Mexicana Linn.


2. SANGUINARIA. Linn.—Blood-root.

(From the Latin sanguis, blood; in allusion to the color of its juice.)


S. Canadensis Linn.


3. MECONOPSIS. D. C.—Meconopsis.

(From the Greek μεκός, a poppy, and ὁμος, appearance; on account of its resemblance to the poppy.)


Alleghany Mountains. Hooker. Shady woods on the banks of the Ohio.—
4. CHELIDONIUM. Linn.—Celandine.

(From the Greek χελίδον, a swallow; its flowers appearing about the same time as that bird.)

Sepals 2, glabrous. Petals 4. Stamens many. Capsule elongated, (resembling a siliqua,) 2-valved, 1-celled; valves dehiscent from the base to the apex. Seeds several, furnished with a glandular crest.

C. majus Linn.: leaves pseudo-pinnate, glaucous; segments ovate, crenate-lobed; pedicels somewhat umbellate; petals elliptic, entire.


5. PAPAVER. Linn.—Poppy.

(From the Celtic Papa, pap; being added to the food of children to induce sleep.)


P. dubium Linn.: leaves pseudo-pinnate; segments lance-oblong, pinnatifidly incised, sessile, decurrent; stem with spreading hairs; peduncles with appressed bristly hairs; capsule obovoid-oblong, smooth.


ORDER X. SARRACENIACEÆ.—SARRACENIADS.

Calyx 4—6-leaved, much imbricated, without a corolla; or consisting of 5 persistent sepals, often having a 3-leaved involucre on the outside, and 5 unguiculate, concave petals. Stamens numerous; anthers oblong, adnate. Ovary, 2—5-celled; style simple, truncate, or expanded into a large peltate plate with 5 stigmatic angles. Capsule with 3—5 cells. Seeds minute, very numerous.—Herbs found in bogs. Leaves radical, with a hollow urn-shaped petiole, at whose apex the lamina is articulated, and which fits like a lid. Scapes each bearing one large flower.
SARRACENIA. Linn.—Side-saddle Flower.

(In honor of Dr. Sarrazin, who resided in Quebec, and sent the plant to Tournefort.)

Sepals 5, with a 3-leaved involucre. Petals 5. Stigma very large, peltate, 5-angled. Capsule 5-celled.

*S. purpurea* Linn.: leaves much shorter than the scape, inflated, contracted at the mouth, having a broad arched lateral wing; appendix erect, broad-cordate, undulate, not mucronate.


Scape 1—2 feet high, with a solitary terminal purple flower. A variety with yellow flowers has been found in Northampton, Mass. and in Seneca co. N. Y.

Common Side-saddle Flower.

ORDER XI. FUMARIACEÆ.—FUMARIAE.—FUMEROWTS.

Sepals 2, deciduous. Petals 4, cruciate, very irregular. Stamens 4, distinct, or 6, in 2 parcels, opposite the outer petals, very seldom all separate. Ovary free, 1-celled. Stigma with 2 or more points. Fruit either an indehiscent 1 or 2-seeded nut, or a 2-valved many-seeded pod. Seeds horizontal, with fleshy albumen.—Herbs with brittle stems and a watery juice. Leaves usually alternate, many-cleft, often with tendrils.

1. FUMARIA. Linn.—Fumitory.

(From the Latin *fumus*, smoke; perhaps in allusion to the effect of its juice and odor on the eyes.)

Calyx of 2 sepals. Petals 4, one gibbous or spurred at the base. Pouch ovate or globose, 1-seeded, indehiscent, not pointed with a style.

*F. officinalis* Linn.: stem sub-erect; leaves bipinnate and cleft with linear segments; racemes rather loose; fruit-bearing pedicels erect, twice as long as the bracts; pouch globose; smooth, somewhat retuse. Near cultivated ground. N. Y. to Car. May—July, Aug. ①.—Stem a foot high. Flowers rose-colored. Introduced from Europe. Common Fumitory.

2. DICENTRA. Borckh.—Dicentra.

(From the Greek δίς twice, and κινποῦ a spur.)

Petals 4, 2 outer ones equally spurred or gibbous at base. Pod 2-valved, many-seeded.


Shady hills. Throughout Can. and N. S. W. to Miss. April, May. ②.—Root bulbous. Scape 6—8 inches high. Leaves 2, triternately decussate.
CRUCIFERÆ.

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Flowers large, white, tinged with yellow and purple. Spurs frequently much divericated. 

2. *D. Canadensis* Torr.: scape naked, raceme simple, 4—6 flowered; spurs short, rounded; wing of the inner petals projecting beyond the summit. 

*Dicyttra Canadensis* D. C. *Corydalis Canadensis* Goldie.

Rocky woods. Can. to N. Y. W. to Ken. April. 4—Root tuberous. 

*Scope* 5—6 inches high, rising above the leaves, which usually have the segments longer and narrower than those of the preceding species. 

*Flowers* fragrant, white, tinged with pale purple. 

3. *D. eximia* Torr.: scape naked; raceme compound, the branches cymulose; spurs short, obtuse, somewhat incurved; wings of the petals projecting beyond the summit; leaves numerous. 

*Dicyttra eximia* D. C. *Corydalis formosa Pursh.*


*Scope* 8—12 inches high. *Leaves* numerous. 

*Flowers pendulous, reddish purple.* 

3. CORYDALIS. D. C. Corydalis.

(From *κορυδαλς*, the Greek name of Fumitory.)

Petals 4, one spurred at base. Pod 2-valved, compressed, many-seeded.

1. *C. glauca* Pursh.: stem erect, branched; leaves glaucous, decomposed; segments cuneate, trifid; bracts oblong, acute, shorter than the pedicels; pod linear, flat, scarcely torulose. —*Fumaria glauca* Curtis.

Rocky woods. Can. N. to 64° S. to Car. W. to Miss. May—July. 1 or 2. — *Stem* 1—2 feet high. *Leaves* 1—3 inches long, the lower ones on long petioles. 

*Flowers* variegated with red, yellow and green. 

Glaucescent *Corydalis.*

2. *C. aurea* Willd.: stem branched, diffuse; leaves glaucous, doubly pinnate; lobes oblong, acute; bracts lanceolate or ovate, acuminate, toothed; pod terete, torulose. 

*Fumaria aurea* Muhl.

Shady rocks. Throughout Can. and N. to lat. 64°, W. to Rocky Mountains, and S. to S. Car. April—August. 1 or 2. — *Stem* 8—12 inches high, branching, slender. 

*Racemes* terminal and opposite the leaves. 

*Flowers* small, bright yellow. 

Golden *Corydalis.*

4. ADLUMIA. Raf.—Climbing Fumitory.

(In honor of *Mr. John Adlum*, a distinguished cultivator of the vine.)

Petals 4, united in a spongy monopetalous corolla, persistent, and with two protuberances at base. Pod 2-valved, many-seeded.

*A. cirrhosa* Raf.: *Corydalis fungosa* Pers. 

*Fumaria fungosa* Willd.


*Leaves* pinnately divided, the midrib twining like a tendril. 

*Flowers* in compound axillary racemes, pale violet or nearly white. 

Climbing *Fumitory.*

ORDER XII. CRUCIFERÆ.—CRUCIFERS.

Sepals 4, deciduous, imbricate or valvate. Petals 4, cruciate, alternate with the sepals. Stamens 6, of which two are shorter,
solitary, and opposite the lateral sepals, and four longer, in pairs, opposite the anterior, and posterior sepals. Disk with various green glands between the petals and the stamens and ovary. Ovary superior, 1-celled. Stigmas 2. Fruit a silicule or silique (pouch or pod,) rarely 1-celled and valveless, generally 2-celled and 2-valved, 1 or many-seeded, indehiscent or opening by the two valves. Seeds attached in a single row by a cord to each of the placentæ, generally pendulous, without albumen; the embryo with the radical folded upon the cotyledons.—Herbaceous plants. Leaves alternate. Flowers usually yellow or white, in corymbs or racemes.

I. SILICULOSÆ.—Pod short and broad (pouch.)


(An old Arabic word, applied probably to this or some allied genus.)

Pouch 2-jointed, compressed; the upper joint ensiform or ovate. Seed solitary in the cells; upper erect, lower (sometimes abortive) pendulous.

C. Americana Nutt.: leaves fleshy, obovate, attenuate at base, more or less toothed and lobed; joints of the pouch 1-seeded; the uppermost one ovate, acute. C. maritima, var. Americana Torr. Bunias maritima Pursh. B. edentula Big.


2. Thlaspi. Linn.—Penny Cress.

(From the Greek ðλασπ, to flatten; probably on account of its compressed seed vessels.)

Pouch emarginate at the apex; valves boat-form, winged on the back; cells 2—many-seeded. Petals equal. Calyx equal at base.

1. T. arvense Linn.: leaves oblong-sagittate, coarsely toothed, smooth; pouch suborbicular, shorter than the pedicel, its wings dilated longitudinally.


2. T. tuberosum Nutt.: leaves rhombic-ovate, obsoletely toothed, smooth, sessile; radical ones upon long petioles; stem pubescent, very short and simple; root tuberous; pouch suborbicular, short.

3. CAPSELLA. D. C.—Shepherd’s Purse.

(The diminutive of \textit{capsula}; a little capsule or box.)

Pouch triangular, wedge-form at base; valves boat-form, not winged; cells many-seeded.

C. \textit{Bursa-pastoris} D. C.: radical leaves pinnatifid.

Cultivated grounds. Throughout the U. S. April—Oct. (1) — Stem from 3 inches to 1—2 feet high. \textit{Radical leaves} more or less pinnatifid, hairy; cauline ones oblong, toothed, sagittate at base. \textit{Flowers} small, white, in terminal spiked racemes. Introduced from Europe. \textit{Common Shepherd’s Purse}.

4. DRABA. Linn.—Whitlow Grass.

(From the Greek \textgreek{δραβας}, \textgreek{αριδι}, as are the leaves of many of this genus.)

Pouch sessile, oval or oblong; valves flat or slightly convex.


1. \textit{D. Caroliniana} Wall.: stem leafy and hispid at the base, naked and smooth at the top; leaves ovate-roundish, entire, hispid; pouch linear, smooth, longer than the pedicel. \textit{D. hispidula} Mich.


2. \textit{D. arabisans} Mich.: stem leafy, somewhat branched, subpubescent; leaves sparingly toothed; radical ones wedge-lanceolate; cauline oblong; pouch smooth, lanceolate-oblong, longer than the pedicel.


\textit{Bunch-flowered Whitlow-grass}.

5. EROPHILA. D. C.—Erophila.

(From the Greek \textgreek{εροφηλα}, \textgreek{εροφυλας}, \textgreek{ερόφνη}, \textgreek{εροφελα} to love; in allusion to its early flowering.)

Pouch oval or oblong; valves flat. Seeds many, not margined. Calyx equal. Petals 2-parted. Stamens without teeth.


Fields. Can. to Virg. March—May. (1) — Scape 2—6 inches high, naked. \textit{Leaves} lanceolate, somewhat toothed, hairy. \textit{Flowers} minute, white. \textit{Pouch} on long pedicels, with a very short style. Specimens of this plant obtained from my friend, Dr. Matthew Stevenson, of Washington co. N. Y. agree in all respects with the foreign \textit{E. vulgaris}, as do also those which I have collected elsewhere. \textit{Common Whitlow Grass}.

6. COCHLEARIA. Linn.—Scurvy Grass.

(From the Latin, \textlatin{cochlear}, a spoon; from a fancied resemblance in the leaves.)

Pouch sessile, ovate, globose, or oblong; valves, ventricose.

C. Armoracia, Linn. : root large, fleshy; radical leaves on long petioles, oblong, crenate; cauline long-lanceolate, serrate or entire; pouch oblong; stigma dilated, nearly sessile.

Waste grounds. June. 4.—Root large and very pungent to the taste. Stem 2—3 feet high. Flowers white, in elongated racemes. Introduced, and extensively cultivated. Used as a condiment. Horse Radish.

7. LEPIDIUM. Linn.—Pepper-grass.
(From the Greek λεπίς, a scale; in allusion to the form of the pouch.)

Pouch ovate or somewhat cordate; valves keeled or rarely ventricose, dehiscent; cells 1-seeded. Seeds somewhat triquetrous or compressed. Petals equal.

1. L. Virginicum Linn. : stem branched; radical leaves pinnatifid: cauline linear-lanceolate, serrate, smooth; stamens often 2; pouch orbicular, flat, emarginate, shorter than the pedicel. Thlaspi Virginianum Poir.


2. L. campestre Brown : cauline leaves sagittate, toothed; pouch ovate, winged, rough with minute scales, emarginate; style scarcely longer than the notch. Thlaspi campestre Linn.

Waste places. Long Island, Staten Island, and elsewhere in the U. S. June, July. 1 or 2.—Stem a foot high, erect, simple or paniculately branched above. Racemes much elongated in fruit. Flowers white. Introduced. Field Pepper-grass.

3. L. Smithii Hook : cauline leaves sagittate, toothed; pouch ovate, emarginate, winged, smooth or minutely scaly on the back; style much exerted beyond the notch. L. hirtum Deek Bot. 1st Ed.

Fields near New Brunswick, N. J. June. 2.—Stem 12—18 inches high, very leafy. Lower leaves petiolated, and somewhat pinnatifid; cauline sub-clasping, sagittate, toothed, covered with a whitish pubescence. Flowers in dense hairy racemes. Pouch, in my specimens, scabrous, emarginate, with a style about half its length. Perhaps introduced. Rough Pepper-grass.

8. CAMELINA. Crantz.—Camelina.
(From the Greek χαμίνα, dwarf or humble, and λινός, flax; on account of a fancied resemblance in the plants.)

Pouch obovate or subglobose; valves ventricose, dehiscent with part of the style; cells many-seeded. Style filiform. Seeds oblong, not margined.

C. sativa D. C. : pouch obovate, pyriform, margined, tipped with the pointed style; leaves roughish, sub-entire, lanceolate, sagittate; flowers numerous, in coryumbs. Myagrum sativum Linn.

9. SUBULARIA. Linn.—Awl-wort.
(From the Latin subula, an awl; the leaves being subulate, or awl-shaped.)

Pouch oval; dissepiment elliptical; valves convex; cells many-seeded. Stigma sessile. Cotyledons incumbent, linear, 2-olate.

*S. aquatica* Linn.

10. LUNARIA. Linn.—Honesty.
(From the Latin luna, the moon; in allusion to the form and appearance of its pouch.)

Pouch pedicellate, elliptic or lanceolate; valves flat. Funicles long, adhering to the dissepiment. Calyx somewhat bisaccate. Petals nearly entire. Stamens not toothed.

Biennial Honesty.

II. SILIQUOSÆ.—Pod mostly long and narrow.

11. DENTARIA. Linn.—Tooth-wort.
(From the Latin dens, a tooth; on account of the tooth-like scales of the root.)

Pod narrow-lanceolate, with a long tapering style; valves flat, nerveless, often opening elastically. Seeds ovate, not margined, in one row.


2. *D. diphylla* Mich.: cauline leaves mostly 2, on short petioles, ternate; leaflets ovate-oblong, unequally or coarsely serrate or lacinate.

Woods. Throughout Can. and U.S. May. 2. —Stem 6–10 inches high. Leaves large, opposite or closely approximate above the middle of the stem. Flowers white or pale purple, larger than in the preceding species. Pod about an inch long. Pepper-root.

3. *D. heterophylla* Nutt: stem 2-leaved; leaves ternate, petiolate; leaflets linear, sub-lanceolate, acute, entire, margin rough, ciliate; radical leaves ovate-oblong, incised and coarsely toothed.

4. *D. maxima* Nutt.: leaves many, alternate, on long petioles, ternate; leaflets sub-oval, incisely and acutely toothed, lateral ones lobed; axils naked; racemes lateral and terminal.


**Tall Tooth-wort.**

12. **BARBAREA.** Brown.—Winter-cress.

(From St. Barbara, to whom this plant was formerly dedicated.)

Pod 4-angled and somewhat 2-edged; valves awnless at the apex. Seeds in a single row. Calyx erect, equal at base.

1. *B. vulgaris* Brown: lower leaves lyrate, the terminal lobes roundish; upper ones sessile, obovate, toothed; pod 4-sided, tapering into a slender style. *Erysimum Barbarea Linn.*


13. **ARABIS.** Linn.—Wall-cress.

(Supposed to have received this name, because originally an Arabian genus.)

Pod linear, plane; valves flat, 1-nerved in the middle. Seeds in one row in each cell, oval or orbicular, compressed. Cotyledons flat, accumbent.

1. *A. sagittata* D. C.: leaves subdentate, rough, with the pubescence often branched; radical ones obovate or oblong, attenuated into a petiole; cauline lanceolate, sagittate-cordate; pedicels of the length of the calyx; pods stilly erect.


**Sagittate Wall-cress.**

2. *A. hirsuta* D. C.: leaves dentate, pubescent or scabrous; radical ones obovate-oblong, tapering into a petiole; cauline obovate-lanceolate; pedicels as long as the calyx; pod erect. *Turritis hirsuta* Jacq.

Conn. *Robbins.* Alleghany Mountains. *Hook.* June. 2. — *Stem* 6—12 inches high. hairy. *Flowers* small, white. A specimen of this plant, gathered in Connecticut by Dr. Robbins, agrees very well with the foreign one, from which it seems to me our *A. sagittata* is quite distinct.

**Hairy Wall-cress.**
3. *A. lyrata* Linn.: stem somewhat branched, hairy at base; radical leaves lyrate-pinnatifid, often pilose; those of the stem linear or spatulate, entire, smooth; pedicels somewhat spreading; pod rather erect and nearly straight. *Sisymbrium arabisoides* Hook.

On rocks. Throughout the N. S. and Can. W. to the Rocky Mountains. April—June. ①.—Stem 8—12 inches high. Flowers large, white, or rarely pale purple.

Lyre-leaved Wall-cress.


Rocky places. N. S. May. ②.—Stem 1—3 feet high. Flowers few, small, in corymbed racemes. Pod 2 inches long, linear, somewhat tortuous, tapering at the extremity into a very short style.

Smooth Wall-cress.

5. *A. dentata* Torr. ⑥ Gr.: rough with a stellate pubescence; radical leaves obovate, tapering at base into a petiole which is as long as the lamina, irregularly dentate; cauleine oblong, clasping; pod short, spreading; seeds slightly margined.

Sandy grounds. N. Y. to Miss. and Arkansas. May. ①.—Stem a foot or more high, slender, decumbent at base. Leaves scabrous beneath. Flowers dull white. Toothed Wall-cress.

6. *A. heterophylla* Nutt.: nearly smooth; radical leaves spatulate, toothed; upper ones linear, sessile, entire; pod long and spreading; petals linear-oblong, exceeding the calyx.

Maine or N. H. Nutt. ②.—Radical leaves somewhat hairy. Pod about 3 inches long. Heterophyllous Wall-cress.


14. CARDAMINE. Linn.—Bitter-cress.

(From the Greek *kakous, the heart, and deyews, to fortify; on account of its supposed strengthening qualities.)

Pod linear; valves flat, nerveless, often opening elastically. Seeds ovate, not margined; funicle of the hilum slender.

* Leaves undivided.


Low grounds. From Hudson’s Bay to Geor. W. to the Rocky Mountains. May, June. ④.—Stem 9—18 inches high, erect, smooth, simple. Flowers in terminal racemes, large, white. Spring-cress.

2. *C. rotundifolia* Mich.: root fibrous; stem weak, procumbent; leaves suborbicular, subdeterminate, smooth, petioled; pod spreading, slender, with a long style. *C. rhomboidea var. Torr. ⑥ Gr.
Wet grounds near springs, Can. to Car. July. **Stem 6—15 inches high, decumbent. Flowers in terminal racemes, white, or yellowish, half the size of the preceding. The taste of the root is rather bitter than acrid, as in that of C. rhomboida. Quite distinct. Round-leaved Cardamine.

3. C. bellidifolia Linn.: leaves glabrous, somewhat fleshy; radical ones petioled, ovate, entire; cauline few, entire, or somewhat 3-lobed; pod erect; stigma subsessile. C. rotundifolia Big.


** Leaves divided.

4. C. pratensis Linn.: leaves pinnate; leaflets of the radical ones roundish; of the cauline, linear or lanceolate, entire; flowers large, in a terminal corymb; style very short, nearly as thick as the pod; stigma capitate.

Swamps. Arct. and N. W. America to Western N. Y. June. **Stem 12—13 inches high. Flowers purplish, large. Pod linear, an inch long. This species can be readily distinguished by its large flowers and thick style. Common Bitter Cress.

5. C. hirsuta Linn.: leaves pinnate; leaflets of the radical ones petioled, mostly rounded; of the cauline ovate or linear, toothed or entire; petals small, oblong-cuneate; stigma minute, subsessile. C. Pennsylvanica Muhl. D. C. C. Virginica Mich.


6. C. teres Mich.: leaves sublyrate-pinnatifid; segments oval-oblong, the terminal one somewhat 3-lobed; pod short, erect, terete.

Low grounds. N. Eng. to N. J. Pursh. June, July. **Stem slender, erect, branching. Pod on a short pedicel. De Candolle thinks this may belong to his genus Nasturtium; while Torrey and Gray place it, with a mark of doubt, in the genus Sisymbrium. Terete Cardamine.

15. NASTURTIIUM. Brown.—Cress.

(From Nasus torus, a convulsed nose, an effect supposed to be produced by the acrid and pungent quality of this plant.)


1. N. officinale Brown: leaves pinnate; leaflets ovate, subcordate, sinuate-dentate; upper ones pinnatifid. Sisymbrium Nasturtium Linn.


2. N. palustris D. C.: root fibrous; leaves lyrate-pinnatifid; lobes confluent, unequally toothed, smooth; petals as long as the calyx; pod obtuse at both ends, turgid. Sisymbrium palustris Willd.

Wet places, throughout the U. S. and to the shores of the Arctic sea. July. **Stem 18 inches high, mostly erect, branched. Leaves glabrous, all more or less pinnatifid. Flowers numerous, minute, yellow. Pod short, turgid. Marsh Cress.


5. *N. hispidum* D. C.: leaves pinnatifidly lobed or runcinate-pinnatifid; lobes rather obtusely toothed; pod ovoid, tumid, pointed with the distinct style, about half as long as the pedicel, petals rather shorter than the calyx. *Sisymbrium hispidum* Poir. Wet places. Conn. N. Y. Penn. July, Aug. 21.—Stem 2—4 feet high, much branched above. Leaves more or less pinnatifid. Flowers yellow, in numerous panicled racemes. Hairy Cress.

6. *N. nutans* D. C.: emerged leaves oblong-linear, entire; immersed ones cut into many capillary segments; petals scarcely longer than the calyx; pod obovate, globose. In water. Montreal to New Orleans; rare. July. 21.—Stem long, submerged. Lower leaves finely divided; middle ones often pinnatifid; emerged ones lanceolate, undivided, serrate. Flowers pale yellow, small. According to Torrey and Gray the American plant is a variety of the foreign one. Floating Cress.

16. **TURRITIS. Dill.**—Tower Mustard.

(From the Latin *turris*, a tower; on account of the pyramidal form of the plant.)

Pod linear; the valves plane. Seeds in a double row in each cell. Flowers white or rose-color.

*T. stricta* Graham: smooth; stem straight and erect; cauline leaves linear-lanceolate clasping and sagittate, sparingly toothed; radical petioled, narrow-spatulate, remotely denticate; pods linear, elongated and (like the flowers) strictly erect.


17. **CHEIRANTHUS. R. Brown.**—Wall Flower.

(Said to be derived from the Arabic *kheyry*, not however originally applied to this genus.)

Pod terete or compressed. Stigma 2-lobed or capitate. Inner sepals saccate at the base. Seeds in a single series, ovate, compressed.

*C. hesperidoides* Torr. & Gr.: smooth; lower leaves lyrate-pinnatifid; upper ovate-lanceolate, unequally and sharply serrate; pedicels as long as the calyx; limb of the petals obovate, entire. *Hesperis pinnatifida* Mich.
Banks of streams. Western Penn. to Ken. and Arkansas. May—July. 2.—Stem 1—3 feet high, simple or branched. Flowers in racemes, pale purple, small. Pods about an inch and a half long. Rocket-like Wall Flower.

18. SISYMBRUM. All.—Sisymbrium.

(From the Greek σισιμβριον, a name given by the ancients to some plant allied to this.)

Pod roundish, sessile upon the disk. Stigmas 2, somewhat distinct, or connate in a head. Calyx equal at base. Stamens without teeth. Seeds ovate or oblong.

1. S. officinale D. C.: leaves runcinate and with the stem hairy; flowers in a long raceme; pod subulate, pressed to the rachis. Erysimum officinale Linn.


2. S. Sophia Linn.: leaves bipinnate, smooth or pubescent; segments oblong-linear, cut; petals shorter than the calyx; calyx thrice as short as the pedicel; pod linear, erect.


3. S. canescens Nutt.: leaves bipinnatifid; lobes oblong or lanceolate, somewhat toothed; petals scarcely exceeding the calyx; pods in elongated racemes, oblong or oblong-linear, shorter (or rarely longer) than the pedicels.

Arct. Amer. to Flor. W. to the Rocky Mountains.—Stem 1—2 feet high. Flowers very small. Pedicels spreading, with the pod often erect. A very variable species. Canescent Sisymbrium.


19. ERYSIMUM. Linn.—Hedge Mustard.

(From the Greek ερυσιμος, to cure; on account of the supposed virtues of the plant.)

Pod four-sided. Calyx closed. Cotyledons flat, oblong.

E. cheiranthoides Linn.: leaves lanceolate, somewhat toothed and scabrous; pod erect, spreading, twice as long as the pedicel; stigma small, nearly sessile.

CAPPARIDACEÆ. 33

20. SINAPIS. Linn.—Mustard.

(From the Greek σινάνη, derived again by Theis from the Celtic nap, a turnip or cabbage.)

Pod roundish; valves bearing nerves. Style small, short, acute. Seeds in one series, subglobose. Calyx spreading.

1. S. nigra Linn.: lower leaves lyrate; upper lanceolate, entire, petiolate; pod smooth and even, somewhat 4-sided, appressed to the peduncle.


2. S. alba Linn.: leaves lyrate, nearly smooth, the terminal lobes large; pod mostly hispid, spreading, shorter than the broad sword-form beak; seeds large, pale.


3. S. arvensis Linn.: leaves lyrate-pinnatifid, rough; pod smooth, many-angled, turgid and knotty, longer than the two-edged beak.


21. RAPHANUS. Linn.—Radish.

(From the Greek ῥα, quickly, and φαυνομαι, to appear; in allusion to its rapid germination.)

Pod transversely many-celled or dividing into several joints. Seeds in one row, globose, pendulous.

R. Raphanistrum Linn.: leaves simply lyrate; pod jointed, 1-celled, striate, 3—8-seeded, longer than the style.

Fields and waste places. N. S. July. ①.—Stem 1—2 feet high, hispid. Flowers yellow, about as large as those of the common radish. Wild Radish.

ORDER XIII. CAPPARIDACEÆ.—Capparids.

Sepals 4. Petals 4, or even 8, imbricated, or none, cruciate, usually unguiculate and unequal. Stamens 6—12, (rarely 4,) or numerous, usually some multiple of 4. Disk hemispherical or elongated. Fruit either pod-shaped and dehiscent, or fleshy and indehiscent, rarely 1-seeded, most frequently with polyspermous placentae. Seeds generally reniform, without albumen; embryo curved, cotyledons foliaceous.—Herbaceous plants or shrubs without a true stipule, but sometimes with spines in their place. Leaves alternate, petioled, undivided or palmate.


(From three Greek words, in allusion to the situation of the stamens.)

CISTACEÆ.

Stamens 6, united around the torus, free at the apex. Pod stiped.

G. pentaphylla D. C.: smoothish; leaves quinate; the lower and floral ones ternate; leaflets entire and sub serrulate. Cleome pentaphylla Linn.


2. POLANISIA. Raf.—Polanisia.

(From the Greek πολυ, much, and αυγους, unequal; in allusion to the inequality of the stamens.)


P. graveolens Raf.: viscidly pubescent; leaves ternate; leaflets elliptical-oblong; stamens 8—12; pod oblong, attenuate at base, muricate with a glandular pubescence. Cleome dodecandra, var. Canadensis Linn.


ORDER XIV. CISTACEÆ.—Rock Roses.

Sepals 5, persistent, unequal, the three inner often with a twisted aestivation. Petals 5, (very rarely 3,) very fugitive, crumpled in aestivation and twisted in a direction contrary to that of the sepals. Stamens definite or indefinite; ovary 1 or many-celled; style and stigma simple, hypogynous; style single. Fruit capsular, either 1-celled with parietal placetæ in the axis of the valves, or imperfectly 5—10-celled. Seeds few or numerous. Embryo inverted, either spiral or curved in the midst of mealy albumen.—Shrubs or herbaceous plants. Leaves usually entire, opposite or alternate. Flowers very fugacious.

1. HELIANTHEMUM. Tourn.—Rock Rose.

(From the Greek ἡλιος, the sun, and αυγους, a flower; the flowers opening only in sunshine.)

Calyx with 3 equal sepals, or 5 disposed in two rows, the two outer ones often smaller, rarely larger. Petals 5, (sometimes wanting,) often irregularly denticulate at the apex. Stigma capitate. Ovary triquetrous. Capsule 3-valved, with the dissepiment in the middle of the valves. Seeds angled, smooth.

1. H. Canadense Mich.: stem at first simple, erect or ascending; leaves oblong or somewhat lanceolate, with revolute margins, (when dry,) and with
the sepals and often the branches and peduncles canescently tomentose: the primary or terminal flowers large, few or solitary, on peduncles about as long as the flower; secondary flowers axillary, very small, nearly sessile, solitary or somewhat clustered on short leafy branches, the petals very small or none, the outer sepals usually wanting. (Torr.) *H. ramuliflorum* Mich. *H. corymbosum* Pursh. *H. rosmarinifolium* Pursh. *Cistus Canadensis* Linn.

Sandy woods. Can. to Flor. W. to Miss. June—Aug. 2. — **Stem** about a foot high, at length branching. **Primary flowers** an inch in diameter, yellow; **secondary ones** often very numerous, with very minute capsules, in which stage it has probably been mistaken for *Lechea*. I follow Torrey, Gray, and Darling-ton, in uniting the several supposed distinct species above named.

**Rock Rose. Frost Weed.**

2. *H. corymbosum* Mich: stem branching from the base, canescent; flowers in terminal fastigiate cymes; the primary ones on filiform peduncles much longer than the flower, the petals nearly twice the length of the calyx; the secondary flowers in glomerate cymes, mostly apetalous, 3—10 androus; sepals tomentose villous; the inner ones oblong-ovate, acute, the outer linear and obtuse; leaves oblong-lanceolate, softly canescent beneath. (Torr. & Gr.)

Sandy fields. N. J. to Flor. April—May. 2. — **Stem** about a foot high. **Flowers** about as large as those of *H. Canadensis*, from which it is quite distinct.

**Corymbose Rock Rose.**

2. **LECHEA. Linn.**—**Pin Weed.**

(In honor of John Leche, a Swedish botanist.)

Calyx 3-sepalled, with two outer bracts or sepals, persistent. Petals 3, inconspicuous, lanceolate. Stamens 3—12, and often thrice the number. Ovary 1, 3-sided. Stigmas 3, scarcely distinct. Capsule 3-celled, 3-valved, with as many inner valves opposite the others. Seeds affixed to the dissepiment or nerve, very few, often 8.

1. *L. villosa* Ell.: radical branches prostrate, villose; leaves oblong lanceolate, mucronate, pilose; panicle short, leafy; flowers fasciculate-racemose, secund, on very short pedicels. *L. major* Mich.

Dry woods. Can. to Flor. July. 2. — **Stem** 1—2 feet high, erect. **Leaves** on the radical branches opposite or verticillate; those on the stem alternate. **Flowers** small, brown, in racemose clusters. **Larger Pin Weed.**

2. *L. minor* Pursh: nearly smooth; stem assurgent; leaves linear-lanceolate and linear, acute; panicle leafy; branches elongated; flowers on short pedicels.

Dry hills. Can. and N. S. July—Sept. 2. — **Stem** 8—12 inches high. **Flowers** brown. **Fruit** larger than in the former. **Smaller Pin Weed.**

3. *L. racemulosa* Mich.: whole plant covered with appressed pubescence; stem erect; leaves linear, acute, ciliate; panicle slender and very branching; raceme naked; flowers small, alternate, pedicellate.

Sandy grounds. N. J. to Car. July. 2. — **Pursh.** Perhaps only a variety of the preceding.

**Bunch flowered Pin Weed.**
4. *L. thymifolia* Pursh.: whole plant whitish-villos; stem erect; leaves linear, acute; panicle leafy, elongated; branches very short; flowers minute, in lateral and terminal fascicles; pedicels very short.


_Thyme-leaved Lechea._

3. **Hudsonia** Linn.—Hudsonia.


1. *H. ericoides* Linn.: canescently pubescent; stem suffruticose, sub-erect; branches elongated; leaves filiform, subulate, subimbricate; peduncles exserted, longer than the flowers; sepals acutish; capsules oblanceolate, slightly pubescent, 1—3-seeded.


2. *H. tomentosa* Nutt.: cespitose, hoary-pubescent; leaves minute, closely imbricate, ovate, acute; flowers aggregated, subsessile; calyx sub-cylindric, with obtuse segments; capsule 1-seeded; valves ovate, smooth.


_Heath-like Hudsonia._

**Order XV. VIOLACEÆ.—VIOLETS.**

Sepals 5, persistent, with an imbricate aestivation. Petals 5, equal or unequal, with a convolute aestivation. *Stamens* 5, inserted in a hypogynous disk, often unequal; anthers either separate or cohering, and lying close upon the ovary; filaments dilated, elongated beyond the anthers; two of them, in the irregular flowers, generally furnished with an appendage or gland at the base. Style usually declined, with a thickened or hooded stigma. Capsule 1-celled, 3-valved. Seeds often with a tumor at their base; albumen fleshy.—Herbaceous plants or shrubs. Leaves simple, usually alternate, furnished with stipules.

1. **VIOLA**. Tourn.—Violet.

(Origin of the name doubtful.)

Sepals 5, auricled at their base. Petals unequal, the lower one spurred. *Stamens* 5, approximated; filaments distinct;
anthers connate, the two lower ones with processes at their back. Capsules 1-celled, 3-valved, opening elastically.

* Stemless.
† Flowers blue.

1. *V. pedata* Linn.: leaves pedate, often nearly smooth, from 5—7 parted; segments linear-lanceolate, entire or somewhat toothed; stipules radical, pectinately lacerate; petals beardless, entire, rounded at the extremity; stigma large, compressed, obliquely truncate and perforate at the apex. *V. digitata* Pursh.

Rocky hills. From lat. 53° N. to Flor. W. to Miss. May, June. 2L.—Scapes 3—5 inches high, several from the same root. Flowers large, pale blue, rarely almost white. Pedate Violet.

2. *V. palmata* Linn.: leaves more or less pubescent, reniform-cordate, palmate, or hastate-lobed; lobes very various, the intermediate one always larger; stipules lanceolate, subciliate; lateral petals densely bearded towards the base; stigma capitate, recurved, margined, rostrate. *V. heterophylla* Le Conte.

Swamps and low grounds. Can. to Flor. W. to the River Platte. May. 2L.—Scapes about as long as the leaves. Flowers middle-sized, bright blue. This species varies greatly in the form of the leaves, and sometimes closely resembles *V. cucullata*, of which it is perhaps only a variety. Palmate Violet.

3. *V. cucullata* Ait.: smoothish; leaves cordate, cucullate at base, dentate-serrate, veined; stipules small, linear, ciliate; flower oblique; lower and lateral petals rigidly bearded; upper one smooth; spur very short, rounded. *V. popilionacea* Pursh. *V. affinis* Le Conte. *V. obliqua* Pursh.

Wet meadows. Common throughout Can. and the U. S. April, May. 2L.—This species varies considerably in the form of its leaves, and in the degree of pubescence. The same individual, indeed, undergoes changes during the season. Hood-leaved Violet.

4. *V. Selkirkii* Goldie: leaves cordate, crenately serrate, minutely hairy above, smooth beneath, the sinus deep and nearly closed; stigma triangular, margined, with a distinct beak; spur nearly as long as the lamina, thick, very obtuse.


5. *V. sagittata* Ait.: leaves pubescent on the upper surface, oblong, acute, cordate, sagittate, often hastate at base, serrate or crenate-dentate; petals oblong, ovate, all except the lower one bearded; stigma depressed, margined. *V. dentata* Pursh.

var. *emarginata* Nutt.: leaves almost triangular, lacerately toothed at the base; petals emarginate or bi-dentate. *V. emarginata* Le Conte.


6. *V. ovata* Nutt.: leaves oblong-ovate, rather acute, subcordate, crenate,
often lacerately toothed at base, decurrent on the petiole, pubescent on both sides; stipules broad-lanceolate, ciliate; sepals oblong-lanceolate; petals obovate, entire; lateral ones densely bearded. *V. sagittata*, var. *ovata* Torr. & Gr. *V. primulcefolia* Pursh.

Dry hills. Can. to Geor. April, May. **2**.—Whole plant pubescent. *Leaves* much narrower and more downy than in *C. cucullata*. *Flowers* larger than those of *V. primulcefolia*.

*V. primulcefolia* Pursh.

7. *V. villosa* Wall.: leaves reniform-cordate or reniform, obtuse, crenate, flat, very pubescent; sepals oblong, auriculate at base; lateral and lower petals bearded; stigma deflexed; capsule smoothish. *V. barbata* Muhl. var. *cordifolia* Nutt.: leaves smooth beneath, rather acute; sepals narrow, short, smooth and scarcely produced at base. *V. cordifolia* Schkuhr. *V. sororia* Darling.

Rocky hills. Penn. to Car. May. **2**.—*Leaves* rather thick, mostly incumbent on the ground, often purplish on the under side. *Scape* longer than the leaves. *Bearded Violet*.

++ *Flowers* yellow.

8. *V. rotundifolia* Mich.: leaves broad-ovate or orbicular, cordate, with the sinus at length closed, slightly crenate, smooth beneath; sepals lanceolate-subulate; sepals oblong, narrow, obtuse; lateral petals bearded; lower ones smaller, smooth; spur very short; stigma recurved.


++ *Flowers* somewhat regular, small, white.

9. *V. lanceolata* Linn.: leaves very smooth, narrow lanceolate, attenuated at each end, sub-serrate; sepals lanceolate, acute, smooth; petals beardless, nearly equal; spur very short; stigma recurved, rostrate.

Swamps. Can. to Flor. W. to Texas. April, May. **2**.—*Scape* about as long as the leaves. *Flowers* small, white, inodorous. The long narrow leaves will sufficiently distinguish this species. One of the finest localities that I have met with, is a swamp about a mile west of Albany, N.Y. *Lance-leaved Violet*.

10. *V. acuta* Big.: leaves ovate, smooth, crenate, rather obtuse; stipules linear-subulate; scape angular; bracts nearly as long as the petals; sepals lanceolate, acute, smooth; petals ovate, acute, mostly smooth, lower ones veined; stigma capitate, rostrate.

Moist grounds. Cambridge, Mass. Big. **2**.—A small species. Distinguished by its even and always acute petals and by its long linear bracts. *Acute Violet*.

11. *V. primulcefolia* Linn.: leaves smooth, oblong-ovate or lanceolate, subcordate, rather obtuse, sparingly crenate; nerves beneath and scapes somewhat pubescent; sepals lanceolate; petals obtuse; the two lateral ones a little bearded and striate; stigma capitate, rostrate.

Wet grounds. Mass. to Flor. W. to Ken.; rare. April, May. **2**.—*Leaves* 2—3 inches long, and an inch or more wide, about as long as the *scape*. *Flowers* white, odoriferous, about the size of those of *V. lanceolata*. *Bracts* long. This species varies in the form of its leaves from broad-cordate to lanceolate. Near New Brunswick, where what I consider the *V. primulcefolia* is very abundant, it certainly passes into *V. lanceolata*, with which species I think it will eventually prove identical. Dr. Bigelow suggests that *V. blanda* and *V. lance-
olata may be the same. This seems also to be the opinion of Dr. Darlington; but so far as my observation extends the former is much more constant in its characters than V. primulefolia. *Primrose-leaved Violet.*

12. V. blanda Willd. : leaves broad-cordate, remotely serrate or crenate, nearly smooth; sinus rounded; sepals ovate, acuminate; petals ovate, obtuse, nearly beardless; stigma depressed, acutely margined.

Wet meadows. From lat. 66° N. to Car. W. to Miss. April, May. **Leaves 1—2 inches in diameter, flat and thin. Flowers small, white, streaked with purple, odorous. This species very closely resembles the foreign V. palustris.** *White Violet.*

13. *V. clandestina Pursh* : cespitose; leaves large, suborbicular, obtuse, thin, nearly smooth, crenate-serrate; sinus closed, cordate; stipules ovate, short; stolons floriferous; petals narrow, ovate, beardless, scarcely longer than the calyx; flowers often apetalous; stigma straight, capitate.

Shady woods, on mountains. Can. and N. S. June—Sept. **Flowers often apetalous, generally concealed in the earth. More nearly allied to V. rotundifolia than to V. blanda; but, in my opinion, distinct from both.** *Hidden-flowered Violet.*

**Caulescent.**

14. *V. Canadensis Linn.* : stem erect; leaves broad-cordate, acuminate, serrate, slightly pubescent on the nerves, lower ones on long petioles; stipules broad-lanceolate, membranaceous, entire; sepals subulate, lanceolate; spur very short; stigma short, pubescent; capsule somewhat globose, pubescent.


15. *V. ochroleuca Schw. : stem assurgent; leaves alternate, lower ones round-cordate, crenate-serrate, obtuse, upper ones acuminate; stipules large, oblong-lanceolate, dentate-ciliate; sepals subulate-lanceolate; petals obtuse, the lateral ones and often the lowest profusely bearded; spur produced, obtuse; stigma recurved, subpubescent. V. striata Ait. Le Conte. V. Tarr. & Gr.*


16. *V. Muhlenbergii Torr.* : stem weak, subprostrate, branched, smooth; lower leaves reniform-cordate; upper ones a little acuminate, crenate-serrate, nearly smooth; stipules large, oblong-lanceolate, serrate-ciliate; sepals linear-lanceolate; petals obovate, obtuse, the lateral ones bearded; spur nearly one-third the length of the corolla; stigma rostrate. *V. uliginosa and asarifolia Muhl.*


17. *V. rostrata Muhl.* : stem diffuse, erect; leaves smooth, cordate, acute, serrate; sinus open; stipules large, lanceolate, serrate-ciliate; pedicels filiform, longer than the leaves; petals obovate, all beardless; spur longer than the corolla.

Rocky hills. Can. to Virg. W. to Ken. May. **Stem 6—8 inches high,**
smooth. Flowers large, pale blue, with a very long horn or spur, by which this species can be easily recognized.

18. *V. pubescens* Ait.: villous-pubescent; stem elongated, erect, naked below; leaves broad-ovate, cordate, dentate, more or less acuminate; stipules large, ovate, somewhat toothed; lateral petals bearded; spur short, acuminate. *V. Pennsylvanica* Mich.


var. 2. *scabriuscula* Torr. & Gr.: stems several, often decumbent, nearly smooth, or with a pubescent line on one side; leaves somewhat scabrous, but hardly pubescent; capsule smooth or villous. *V. scabriuscula* Schw.

Dry woods. Can. to Geor. W. to Council Bluffs. May. 4.—Stem 6—8 inches high. Flowers middle-sized, yellow. Var. 2 is found near Albany and in Oneida county, N. Y. Yellow *Violet.*

19. *V. hastata* Mich.: smooth; stem erect, simple, leafy above; leaves on long petioles, cordate-lanceolate or hastate, acuminate; lobes obtuse, dentate; stipules minute, ciliate-dentate; lower petal dilated, sub-3-lobed; lateral ones slightly bearded; spur short; stigma truncate, hairy on the sides.

Mountains. Penn. to Flor. May. 4.—Stem 6—12 inches high. Flowers yellow, smaller than in the preceding.

20. *V. tricolor* Linn.: root somewhat fusiform; stem branching, diffuse; lowest leaves ovate, cordate; stipules runcinately pinnatifid, the middle lobe crenate; petals with short claws; spur thick, obtuse, not produced; appendages short; seeds oblong-ovate.

var. *arvensis* D. C. Torr. & Gr.: annual; stems assurgent; upper leaves spatulate-ovate; petals scarcely longer than the calyx, yellowish, blue, or spotted with purple. *V. bicolor* Pursh. *V. arvensis* Ell. *V. tenella* Muhl.

Dry hills. N. Y. to Geor. W. to Miss. May. 1.—Stem slender, 3—8 inches high. Leaves less than an inch long. Flowers small, pale blue. I follow Hooker, Torrey and Gray, in uniting our plant with *V. tricolor,* although not without some hesitation.

Pansey. Heart’s Ease.

2. SOLEA. Ging. D. C.—Solea.

(In honor of W. Sole, author of an Essay on the genus *Mentha.*)

Sepals scarcely equal, carinate? not auricled at base, decurrent into a pedicel, at length reflexed. Petals unequal, the lowest one 2-lobed and somewhat gibbous at base. Stamens cohering, the lowest two bearing a gland above the middle. Capsule somewhat 3-sided. Seeds 6—8, very large.


Shady woods. N. Y. to Car. W. to Miss.; rare. April, May. 4.—Stem 2—4 feet high, simple, erect. Leaves cuneate-lanceolate, sessile, irregularly toothed above. Peduncles short, 2—3-flowered. Flowers small, greenish. Calyx nearly as long as the petals. Spur none. I possess fine specimens of this plant, which were gathered near Lebanon, N. Y. It is also found in the western part of that state, and in Delaware county, Penn. Green-flowered Solea.
Order XVI. Droseraceæ.—Sundews.

Sepals 5, persistent, equal, with an imbricate aestivation. Corolla of 5 nearly equal petals. Stamens distinct, either equal in number to the petals and alternate with them, or 2 or 3 or 4 times as many. Styles 3—5, either wholly distinct or slightly connected at the base, bifid or branched. Capsule of 3 or 5 valves. Seeds either naked or furnished with an arillus; embryo minute, in the base of fleshy albumen.—Delicate herbs, often covered with glandular hairs. Leaves alternate, with stipulary ciliae and a circinate vernation.

1. Drosera. Linn.—Sundew.

(From the Greek δοσσος, dew; the glands exuding a fluid which makes the plant appear as if covered with dew.)


1. D. rotundifolia Linn.: leaves all radical, orbicular, spreading, fringed with purple cilia, pilose above, abruptly tapering into the long hairy petiole; scape erect, bearing a terminal and mostly simple raceme; seeds arillate.


2. D. longifolia Linn.; leaves spatulate-oblong, erect-spreading, tapering below into the long and slender naked petiole; scape declined at base; seeds not arillate. D. Americana Muhl. D. foliosa Ell.


3. D. filiformis Raf.: leaves filiform, very long, nearly erect, glandular the whole length; scape longer than the leaves, many-flowered, simple or bifid. D. ternifolia Willd.


(From Mount Parnassus; on account of the beauty of this plant.)


1. P. Caroliniana Mich.: radical leaves cordate, orbicular-ovate, on long petioles; cauline one sessile; flowers solitary, terminal; scales 3-bristled. P. Americana and P. ovata Muhl.
POLYGALACEÆ.


*Carolina Parnassus Grass.*

2. *P. palustris* Linn.: *leaves* all cordate; cauline one sessile; scales smooth, many bristled.

Bog meadows. Labrador to N. Y.? W. to the Rocky Mountains. *Flowers* white, with veins of green or purple. Distinguished by the numerous, slender, white, pellucid hairs of its scales from all the other species of the genus.

*Marsh Parnassus Grass.*

**Order XVII. POLYGALACEÆ.—Milkworts.**

Sepals 5, very irregular, distinct, 3 exterior, of which 1 is superior and 2 inferior; 2 inner ones (the *wings*) usually petaloid. Petals hypogynous, mostly 3, of which the anterior (*keel*) is larger than the rest, and usually crested or lobed. Stamens 8, usually in a tube; anthers mostly 1-celled, and opening by a terminal pore. Ovary superior, 2-celled; style and stigma simple. Fruit usually a capsule, sometimes indehiscent. Seeds with abundant albumen.—Shrubs or herbaceous plants, with simple entire leaves destitute of stipules. *Flowers* mostly in racemes or spikes.

*POLYGALA* Tourn.—*Milkwort.*

*(From the Greek πολύν, much, and γάλα, milk; from its supposed power of increasing the secretion of milk.)*

Calyx of 5 sepals, 2 of them wing-shaped and colored. Petals 3—5, united to the stamens, the lower one keel-shaped. Capsule compressed, elliptic, obovate or obcordate. Seeds pubescent.

*Flowers* in racemes or spikes.

1. *P. incarnata* Linn.: glaucous; stem erect, slender, nearly simple; leaves scattered, few, subulate; racemes spiky, oblong, without glands; corolla with a long tube.

N. J. to Flor. W. to Ark. Near Niagara Falls. *Hook.* June, July. ①—*Stem* 12—18 inches high, somewhat angled, with few remote subulate leaves. *Flowers* flesh-colored, in a somewhat loose terminal spike. *Petals* united into a long slender tube. A specimen of this plant, received from Dr. Charles Pickering, and gathered by him in New Jersey, has only 4 or 5 subulate leaves on the stem, which is more than a foot high. *Flesh-colored Milkwort.*

2. *P. cruciata* Linn.: stem fastigiate, winged at the angles; leaves whorled in fours, linear and linear-oblong, punctate; spikes ovate, dense, sessile or on short peduncles; flowers subulate; wings deltoid-cordate, acute or cuspidate. *P. brevifolia* and *P. fastigiata* Nutt.


*Cross-leaved Milkwort.*
3. *P. purpurea Nutt.* : stem fastigially branched; leaves alternate, linear and oblong-linear; flowers beardless, imbricated in obtuse cylindrical spikes; rachis squarrose; wings of the calyx cordate-ovate, erect, twice as long as the capsule. *P. sanguinea Mich. Pursh.*


4. *P. sanguinea Linn.* : stem fastigially branched; leaves alternate, narrow-linear; flowers beardless, in long and crowded spikes; rachis squarrose; wings of the calyx obovate, as long as the capsule.

Dry soils. N. J. to Geor. W. to Ken. July—Oct. (1)—Stem 8—12 inches high. *Flowers* dark red. Allied to the former, but a much smaller plant, the leaves shorter and narrower, and with a longer and more loose spike; the rachis also is much more squarrose.

5. *P. ambiguua Nutt.* : stem erect, virgately branched; leaves linear; the lower ones sometimes whorled, the rest scattered; spikes rather obtuse, dense, on very long peduncles; flowers cristate; wings of the calyx round and veined, as long as the fruit; bracts deciduous.


6. *P. verticillata Linn.* : stem erect, branched; leaves whorled, linear, and lance-linear; racemes spiked, acute, on rather short peduncles; bracts deciduous; flowers cristate; wings of the calyx roundish, shorter than the capsule.


7. *P. Senega Linn.* : stems numerous, erect, smooth, simple; leaves alternate, lanceolate, tapering at each end, scabrous on the margin; spikes rather dense, somewhat acute; wings of the calyx orbicular; capsule elliptic, emarginate.

Woods. Can. to Geor. June, July. (1)—Stem a foot high, with ovate, scale-like leaves at the base. Leaves smooth, finely serrulate and fringed under a lens. *Flowers* greenish-white, in a terminal spike, which is 1—2 inches long. The root is hard, firm and branching, and is much used in medicine. **Big. Med. Bot.** ii. 97.

7. *P. polygama Walt.* : stems numerous, simple, erect and procumbent; leaves linear-lanceolate, attenuate downwards; racemes filiform, terminal and lateral, elongated; lower ones procumbent, without petals; flowers sessile. *P. rubella Willd. Pursh.*


** *Flowers capitale*, (yellow.)**

9. *P. lutea Linn.* : stem simple or branched; lower leaves spatulate; upper ones lanceolate; flowers in globular heads, yellow; wings of the calyx ovate, mucronate; bracts shorter than the flowers.

Bogs, in pine barrens. N. J. to Flor. June—Oct. (2)—Stem 8—12 inches
high, mostly simple. Leaves fleshy. Flowers bright orange yellow. Abundant in a peat bog four miles south of New Brunswick, N. J. Yellow Milkwort.

*** Flowers in corymb.


*** Flowers axillary, (large.)

11. *P. panciflora* Willd.: stem simple, erect, naked below; leaves ovate, acute, smooth; flowers mostly terminal and by threes, large, cristate, sometimes axillary. *P. uniflora* Mich.

var. *alba* Eights: flower solitary, smaller, white; stem somewhat leafy at base.

Woods. Arct. Amer. to Geor. June. 2d.—Stem 3—4 inches high. Flowers large, purple, with the summit of the keel densely crested. Var. *alba* was found by Dr. James Eights in the sandy plains near Albany. It has the stem rather lower and more leafy than in the former; the flower also is solitary, smaller, white, and the keel less densely crested. Fringed Milkwort.

Order XVIII. Caryophyllaceae. —Cloveworts.

Sepals 4—5, either distinct or cohering in a tube, persistent. Petals 4—5, unguiculate, inserted upon the pedicel of the ovary; occasionally wanting. Stamens as many or more commonly twice as many as the petals, and inserted with them; anthers fixed by the middle. Ovary often stipitate; stigmas 2—5, sessile, filiform, papilllose on the inner surface. Capsule 2—5-valved, either 1-celled or 2—5-celled, in the latter case with a loculicidal dehiscence; placenta in the axis. Seeds numerous, rarely few; the embryo curved round mealy albumen.—Herbaceous plants. Stems with tumid joints. Leaves opposite, entire, without stipules.

1. DIANTHUS. Linn. —Pink.

(From the Greek *Δι-*, a flower; the high value set upon the plants of this genus being such as to render them worthy of being dedicated to Deity itself.)


*D. Armeria* Linn.: flowers in terminal crowded clusters; scales of the calyx lanceolate, villous, as long as the tube. *D. armerioides* Raf.
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2. SILENE. Linn.—Catchfly.

(Supposed to be derived from the Greek σιλέν, saliva; in allusion to the viscid secretion on the stem.)

Calyx tubular, 5-toothed, naked. Petals 5, unguiculate, mostly crowned at the orifice; limb bifid. Stamens 10. Styles 3. Capsule 3-celled at base, dehiscent at the top into 6 teeth.

* Caulescent. Flowers solitary or panicked. Calyx inflated.

1. S. stellata Ait.: stem erect, branching, pubescent; leaves verticillate in fours, oval-lanceolate, long-acuminate, smooth; flowers in panicles; calyx bladder-like, pubescent; limb of the petals fringed. Cucubalus stellatus Linn.

Dry woods. Can. to Car. W. to Miss. July, Aug. 2.—Stem 2—4 feet high, slender, somewhat 4-sided. Leaves with a long tapering point, sessile. Flowers white, the petals fringed at the apex. Four-leaved Campion.

2. S. inflata Smith: stem erect, branching; leaves ovate-lanceolate, acute; flowers numerous, panicked; petals deeply cleft, with narrow segments, scarcely crowned; calyx inflated, reticulated. Cucubalus Behen Linn.


3. S. nivea Muhl.: stem divaricate and dichotomous above; leaves oblong-lanceolate, minutely and puberulently pubescent, the uppermost ovate; calyx obtuse, bell-shaped, inflated, subpilose; petals small, reflexed, bifid at the extremity; claws exserted beyond the calyx, nearly naked; flowers solitary, dichotomous, terminal. Cucubalus niveus Nutt. Silene alba Muhl.


** Caulescent. Flowers in axillary spikes, alternate. Calyx 10-striate.

4. S. nocturna Linn.: stem branched, pilose below; leaves pubescent, long ciliate at base; lower ones spatulate, upper ones linear-lanceolate; spike secund, dense; flowers sessile, alternate; calyx cylindric, nearly smooth; petals 2-parted, narrow.


5. S. Antirrhina Linn.: almost smooth; stem erect, simple or branching above, somewhat leafy; leaves lanceolate, acute, subciliate, upper ones
linear; flowers small, panicled; calyx ovoid, glabrous; petals small, obcordate, slightly crowned.

Dry hills. Can. to Flor. W. to Oregon. June, July. 1.—Stem 1—2 feet high, nearly glabrous, with some of the upper internodes viscid. Petals white or pale purple, only expanding towards evening. Calyx broad-ovate or obovate, shining. **Snapdragon Catchfly.**


6. *S. noctiflora* Linn.: viscid-pubescent; stem erect, branching; lower leaves spatulate, the upper ones linear; calyx cylindrical-ventricose, the alternate striæ veined; teeth very long, subulate; petals 2-parted.

In cultivated places. N. S. Torr. July. 1.—Stem a foot or more high. Flowers rather large, pale reddish or white, expanding only in cloudy weather or in the evening. **Night-flowering Catchfly.**

7. *S. Catesbaei* Walt.: branching; leaves broad-lanceolate; flowers in panicles; calyx clavate, colored; petals with long claws; limb bifid, with two lateral teeth; lobes acute. *S. Virginica Mich. Pursh.* not of Linn. Penn. to Miss. Muhl. June. 2—Stem a foot high. Flowers crimson. Both De Candolle and Hooker concur in supposing the present plant distinct from *S. Virginica.* **Catesby’s Catchfly.**

8. *S. Virginica* Linn.: viscid-pubescent; stem mostly erect, branching; leaves lanceolate; lower ones on long petioles, with long cilia at base; flowers large, in panicles; petals with long claws, broad, bifid, crowned.

Can. to Geor. W. to Miss. May, June. 2—Stem 1—2 feet high. Flowers larger than in the next species, purple. **Virginia Catchfly.**

9. *S. Pennsylvanica* Mich.: viscidly-pubescent; radical leaves somewhat cuneate; those of the stem long-linear; flowers in panicles, somewhat trichotonous; calyx long, tubular; petals slightly emarginate, subcrenate. *S. Caroliniana* Walt.

Sandy woods. Can. to Geor. May, June. 2—Stems numerous, caespitose, 8—12 inches high. Petals bright purple, sometimes almost white. **Wild Pink.**


10. *S. acaulis* Linn.: stems very densely caespitose, low; leaves linear, ciliate at base; peduncles solitary, short, 1-flowered; calyx campanulate; petals obcordate, crowned.


3. SAPONARIA. Linn.—Soapwort.

(From the Latin *saps*, *soap*; the plant yielding a mucilaginous juice, which has been used as a substitute for that article.)


2. *S. officinalis Linn.*: leaves ovate-lanceolate, ribbed, acute or obtuse; flowers large, in a fasciculate panicle; calyx cylindrical; appendages of the petals linear. Road sides. N. Y. to Geor. June—Sept. (4)—Stem 12—18 inches high. Leaves opposite and connate. Flowers large, rose-colored. It is said to make a father with water, and hence its common name. Introduced from Europe. *Common Soapwort.*

4. AGROSTEMMA Linn.—Rose Campion.

(From the Greek *αγρός στέμμα*, crown of the field, quite applicable to this species.)

Calyx tubular, 5-sided, coriaceous. Petals 5, unguiculate, not crowned; limb entire. Capsule 1-celled, opening with 5 teeth.

A. *Githago Linn.*: hairy; leaves opposite, linear-lanceolate; segments of the calyx much longer than the corolla; flower solitary, terminal, large; petals entire, destitute of a crown. *Lychnis Githago* D. C. Torr. & Gr.

Cultivated grounds. June, July. (1)—Stem 18—20 inches high. Flowers large, purple, not crowned, on long peduncles. Introduced from Europe. *Corn Cockle.*

5. SAGINA Linn.—Pearlwort.

(The name signifying meat which fattens, is applicable to any of the minute plants of this genus.)


1. *S. procumbens Linn.*: perennial; stems procumbent, smooth, branched; leaves linear-mucronate; petals much shorter than the calyx.


2. *S. apetala Linn.*: annual; stems erect or procumbent only at base, subpubescent; leaves subulate; flowers alternate; petals 1, very minute or none.

Sandy fields. N. Y. to Md. May, June. (1)—Stems numerous, erect, filiform. Leaves narrower and more bristle-pointed than in the preceding. Flowers on long slender peduncles. Petals, according to Mr. Wilson, (Hook. Br. Fl.) always present, but if so, they must be exceedingly minute. *Annual Pearlwort.*

6. MOLLUGO Linn.—Indian Chickweed.

(Supposed to be from *Galium Mollugo*, to which this plant bears some resemblance.)

M. verticillata Linn.: stem decumbent, dichotomous; leaves verticillate, obovate-lanceolate, acute; peduncles 1-flowered, verticillate.


7. STELLARIA. Linn.—Stitchwort.

(From the Latin stella, a star; because the corolla is spread in a star-shaped manner.)


1. S. media Smith: stem procumbent, with an alternate pubescent lateral line; leaves ovate or lanceolate, very smooth; upper ones sessile; petals oblong, deeply divided, shorter than the sepals; stamens 3—10. Alsine media Linn.


2. S. pubera Mich.: pubescent; stem decumbent; leaves ovate-oblong, sessile, acute, ciliate; pedicels filiform dichotomous, recurved or deflexed; petals longer than the calyx.


3. S. longifolia Mich.: smooth; stem erect, square, weak; leaves linear-acute, spreading, with the margins often scabrous; panicle terminal, divaricate, very long, bracteate; petals broad-obovate, 2-parted, about as long as the 3-nerved calyx. Spargulastrum graminum Mich. Micropetalon graminum Pers.


4. S. borealis Big.: stem spreading, angular, dichotomous; leaves oval-lanceolate, acute, veinless; peduncles axillary, elongated, 1-flowered; petals deeply cleft, about equal to the calyx; capsule ovate, oblong, nearly twice as long as the calyx. Micropetalon lanceolatum Pers.


5. S. aquatica D. C.: weak and decumbent, nearly smooth; leaves oblong, acute, veined; petals 2-cleft, rather shorter than the lanceolate very acute sepals; capsule ovoid, about as long as the calyx. (Torr. & Gr.) S. borealis Darlingt.

6. *S. longipes* Goldie.: weak, very smooth, glaucous; leaves linear, subulate, spreading; peduncles terminal, dichotomously branched; bracts membraneous; pedicels much elongated; petals broad-ovate, deeply bifid, a little longer than the obtuse and obscurely 3-nerved calyx.

Shores—Lake Ontario to Subarct. Amer. W. to Oregon.—Stem 2—6 inches high, nearly simple or branched. Very variable.

*Sharp-leaved Stitchwort.*

8. **ARENARIA. Linn.—Sandwort.**

(From the Latin arena, sand; because the species generally grow in sandy soils.)


* Leaves linear, with scarious stipules at base.

1. *A. rubra* Linn.: stem prostrate, pilose; leaves filiform, somewhat fleshy, acute or mucronate, shorter than the internodes; sepals lanceolate, somewhat obtuse, scarious on the margin; peduncles axillary, at length deflexed; seeds compressed, angular, roughish, not margined. *A. Canadensis* Pers. *A. marina* Big. *Spergula rubra* Torr. & Gr.

Sandy fields. Can. to Flor. W. to California. April—Nov. (1)—Stem 3—10 inches long, at first erect, at length diffuse, smooth or pubescent. Leaves variable in length and form. Flowers small, red, axillary and solitary, and in terminal leafy cymes or racemes. A very variable species.

*Common Sandwort.*

** Leaves linear, lanceolate, or rounded, without stipules.

2. *A. squarrosa* Mich.: densely cespitose; stem simple, few-leaved; lower leaves, densely squarrose, imbricate, channelled, smooth; flowers in dichotomous panicles, erect; sepals roundish-ovate, smooth; petals obovate, much longer than the calyx; capsule oval, 3-valved, exceeding the calyx. *A. Caroliniana* Walt.


*Squarrose Sandwort.*

3. *A. stricta* Mich.: stems numerous, erect, smooth, filiform; leaves subulate-linear, erect, subfasciculate, spreading; panicle few-flowered; sepals ovate, very acute, 3-ribbed, half as long as the petals; capsule ovate.

Rocks and barren ground. Can. to Car. May, June. (1)—Stems 6—12 inches high. Leaves more linear than in the preceding, and not so much crowded near the base.

*Upright Sandwort.*

4. *A. Glaucénnica* Spreng.: densely cespitose, smooth; stems low, decumbent at base, 1—5-flowered; leaves narrow-linear, obtuse; pedicels filiform, nearly erect; petals obovate wedge-form, entire or with a slight notch, twice the length of the oblong, obtuse, membranaceous, margined, nerveless sepals. (Torr. & Gr.)

Rocks. Greenland; Labrador; White Mountains, N. H.; Whiteface and Shawangunk Mountains, N. Y. June—Aug. (1)—Stems numerous, 2—4 inches high, slender. Leaves erect or spreading. Flowers 3 or 4 lines in diameter. *A. glabra* of Michaux is said to be confined to the more or less mountainous portions of the southern states.

*Greenland Sandwort.*
5. *A. serpyllifolia* Linn.: stem dichotomous, diffuse; leaves ovate, acute, sessile, somewhat rugose, smooth, ciliate; sepals lanceolate, acute, 3-nerved, larger than the corolla; capsule ovate, 6-valved, equalling the calyx; seeds exactly reniform, rugose.


9. **MOHRINGIA.** Linn.—Mähringia.

(In honor of Mahring, a German physician and botanist of the last century.)

Sepals 4—5. Petals 4—5, somewhat perigynous. Stamens 8—10. Styles usually 3, sometimes 2 or 4. Capsule splitting into twice as many (half) valves as there are stigmas. Seeds few, smooth.

*M. lateriflora* Fenzl.: minutely pubescent; stem erect; leaves oblong or oval, obtuse; peduncles lateral and terminal, 2 (rarely 3—4) flowered, one of the pedicels with 2 bracteoles near the middle; petals twice the length of the sepals. (Torr. N. Y. Fl.) *Arenaria lateriflora* Linn.


10. **HONCKENYA.** Ehrh.—Sea Chickweed.

(In honor of J. G. Honcken, a German botanist.)


*H. peploides* Ehrh.: sepals broadly ovate, mostly obtuse, with scarious margins; petals spatulate-obovate; leaves and stem very fleshy. (Torr. *f. Gr.*) *Arenaria peploides* Linn.

Sea coast. Long Island, N. Y. Mass. N. J. N. to Arctic America and Labrador. May, June. —Stems 6—10 inches high, thrown up from a creeping rhizoma. Leaves ovate or oval, closely sessile or clasping, very acute, or mucronate. Flowers in short pedicels, white. *Common Sea Chickweed.*

11. **CERASTIUM.** Linn.—Mouse-ear Chickweed.

(From the Greek *ceras*, a horn; in allusion to the form of the capsule.)

Calyx 5-sepalled. Petals 5, bifid or emarginate. Styles 5, (rarely 4.) Capsule membranaceous, cylindrical or oblong, opening at the summit by 10 teeth.

1. *C. vulgatum* Linn.: viscidly pubescent, pale green; stems numerous, cespitose, suberect; leaves ovate or obovate, obtuse, hirsute; flowers dichotomous, subumbellled, longer than the peduncles; petals oblong, emarginate, scarcely larger than the calyx; capsule oblong, tapering, as long again as


2.  *C. viscosum* Linn.: hairy and somewhat viscid, deep green; stems numerous, erect; leaves lanceolate-oblong; flowers subpaniculate, shorter than their pedicels; capsule somewhat incurved, terete, as long again as the calyx.  *C. semidecandrum* Linn.


3.  *C. arvense* Linn.: stems ascending; leaves linear-lanceolate, obtuse; more or less hairy, especially at base; flowers few, terminal; peduncles deflexed, pubescent; petals twice as long as the calyx; capsule oblong-cylindric, scarcely longer than the calyx.  *C. tenuifolium* Pursh.  *C. Pennsylvanicum* Horn.


4.  *C. oblongifolium* Torr.: stems erect or declined, villous; leaves oblong-lanceolate, mostly obtuse; flowers numerous; peduncles viscid; petals obovate, 2-cleft, twice the length of the oblong obtuse sepals; capsule cylindrical, about twice as long as the calyx.  *C. pubescens* Goldie.  *C. villosum* Muhl.


5.  *C. nutans* Raf.: viscid and pubescent; stem erect, straight, deeply striate; leaves elongated, distant, lanceolate-linear; panicle much elongated, divaricate, many-flowered, with long filiform pedicels; petals oblong, bifid at the tip, longer than the calyx; capsule nodding, twice as long as the calyx.  *C. glutinosum* Nutt.  *C. longepedunculatum* Muhl.


**Order XIX. ILLECEBRACEÆ.—KNOTWORTS.**

Sepals 5, seldom 3 or 4, distinct or more or less cohering. Petals minute, inserted upon the calyx between the lobes, occasionally wanting. Stamens as many as the sepals and opposite to them, or fewer by abortion. Ovary superior; styles 2—5, distinct or partially combined. Fruit small, dry, 1-celled, either indehiscent or opening with 3 valves. Seeds solitary or numerous, with mealy albumen.—Herbaceous or half shrubby plants,
with opposite or alternate, entire leaves, and scarios stipules. Flowers minute, with scarios bracts.

1. ANYCHIA. Mich.—Forked Chickweed.

(From the Greek ovvξ; ovvξes, a finger-nail; on account of its reputed virtue in curing whitlows.)


1. A. dichotoma Mich.: stem erect or spreading, dichotomously branched, pubescent, leaves opposite, lanceolate, smooth; flowers solitary, terminal and axillary, very minute, on very short pedicels, about as long as the stipules. A. Canadensis Ell. Queria Canadensis Linn.


2. A. capillacea D. C.: stem very smooth and slender; leaves ovate; stipules shorter than the flowers; flowers remote. A. dichotoma Torr. & Gr. Queria capillacea Nutt.

Pine barrens. N. J. Aug. (1).—Perhaps only a variety of the preceding. Capillary Forked Chickweed.

2. SPERGULA. Linn.—Spurrey.

(From the Latin spargere, to scatter; from the seeds being so widely dispersed.)


1. S. arvensis Linn.: leaves whorled, with minute stipules at the base; panicle dichotomous; flowers decandrous; peduncles of the fruit reflexed; seeds spherical, somewhat hispid, black, with a narrow margin.


2. S. saginoides Linn.: stems creeping; leaves opposite linear, smooth, awnless; peduncles solitary, very long; petals oblong, obtuse, as long as the calyx; seeds kidney-form, punctate. S. decumbens Ell. Sagina decumbens Torr. & Gr.


Order XX. ELATINACEÆ.—Waterworts.

Sepals 2—5, distinct, or slightly connate at the base. Petals hypogynous, alternate with the sepals. Stamens as many or
twice as many as the petals. Styles 2—5, very short, or none; stigmas capitate. Capsule 2—5-celled, 2—5-valved. Seeds numerous, without albumen; embryo straight.—Small annual plants, found in marshes. Stems fistulous, rooting. Leaves opposite, with minute stipules.

ELATINE. Linn.—Waterwort.

(From the Greek élãt, a fir; its minute leaves somewhat resembling those of the fir tree.)


E. Americana Arnott: stems diffuse, rooting and creeping; leaves cuneate-ovate, obtuse; flowers minute, sessile; sepals, petals, stamens and sessile stigmas 2, sometimes 3; seeds 6—8. (Torr. N.Y. Fl.) Crypta minima Nutt. Peplis Americana Pursh.


ORDER XXI. LINACEÆ.—Flaxworts.

Sepals 3—5, persistent, with an imbricated aestivation. Petals as many as the sepals, unguiculate, with a twisted aestivation. Stamens as many as the petals, and alternate with them, often with intermediate teeth or abortive stamens. Ovaries of 3—5 united carpels; styles filiform. Capsule globose, 3—5-celled; each cell partially divided in two by an imperfect spurious dissepiment, and opening by 2 valves at the apex. Seeds solitary, with thin albumen and a straight embryo.—Herbaceous plants or small shrubs. Leaves entire, opposite or alternate, without stipules. Flowers terminal.

LINUM. Linn.—Flax.

(From the Celtic lin, thread.)


1. L. usita tissimum Linn.: stem mostly solitary, round, smooth, simple, branched above; leaves lanceolate, alternate; flowers large, on peduncles; segments of the calyx ovate, acute; petals crenate; capsule roundish, acuminate.

2. *L. Virginianum Linn.*: stem erect, slender, smooth; radical leaves ovate and spatulate; those of the stem linear-lanceolate, alternate; panicle lax, corymbose; sepals acute; capsule globose, awoless. 

3. *S. rigidum Pursh.*: stem rigid, angular, grooved; leaves subsetaceous, short and erect; margin of the calyx glandulously ciliate; petals cuneate-oblong; seeds pale brown. 

**ORDER XXII. MALVACEÆ.**—**MALLOWWORTS.**

Sepals 5, very seldom 3 or 4, more or less united at the base, often bearing external bracts forming an involucre. Petals equal in number to the sepals. Stamens indefinite, monadelphous; anthers 1-celled, reniform. Ovary formed by the union of several carpels round a common axis, either distinct or cohering; styles as many as the carpels. Fruit capsular or baccate. Seeds without albumen.—Herbaceous plants or shrubs. Leaves alternate, more or less divided, stipulate. Flowers showy.

1. **MALVA. Linn.**—Mallow.

(Name altered from μαλάχη, soft; in allusion to the emollient nature of the species. *Hook. Br. Fl.*)

Calyx 5-cleft, surrounded by an involucre usually of 3, sometimes 1—2, or 5—6 setaceous bracts; rarely naked. Capsules dry, numerous, 1-seeded, circularly arranged.

1. *M. sylvestris Linn.*: stem erect, herbaceous, branched hairy; leaves large, roundish, with 7 somewhat acute lobes; flowers large, axillary; peduncles and petioles hairy; petals obsolete, thrice as long as the calyx. 
Fields. N. Y. July, Aug. Stem 2—3 feet high, branched. Flowers large, 3 or 4 together, purplish rose-color, with darker veins. Whole plant mucilaginous and emollient. Introduced from Europe. **High Mallow.**

2. *M. rotundifolia Linn.*: stem somewhat prostrate; leaves roundish, cordate, obtusely 5—7-lobed; peduncles bent downwards, and with the petioles pubescent; flowers axillary; corolla twice the length of the calyx.

2. ALTH.ÉA. Linn.—Marsh Mallow.

(From the Greek αλθα, to cure; on account of its healing properties.)

Calyx surrounded by a 6—9-cleft involucre. Capsules numerous, 1-seeded, arranged circularly.

A. officinalis Linn.: leaves soft tomentose on both sides, cordate and ovate, dentate or 3-lobed; peduncles axillary, many-flowered, much shorter than the leaves.


3. HIBISCUS. Linn.—Hibiscus.

(From an ancient Greek name of some plant of this tribe.)

Calyx 5-cleft or 5-toothed, surrounded by an involucre which is often many-leaved. Stigmas 5. Carpels united in a 5 or 10-celled capsule; valves septiferous in the middle; cells many-seeded, rarely 1-seeded.

1. H. Virginicus Linn.: roughish tomentose; leaves cordate-ovate, acuminate, unequally serrate-toothed; upper ones undivided; lower 3-lobed; pedicels longer than the petioles; flowers cuneatus; capsule hispid. H. elypeatus Wall.


2. H. Moschatus Linn.: leaves ovate, acuminate, serrate, often 3-lobed, whitish-tomentose beneath, somewhat scabrous pubescent above; pedicels and petioles often united; calyx tomentose. H. palustris Linn.

Swamps, especially near salt water. Can. to Car. Aug., Sept. \( \varphi \).—Stem 3—5 feet high. Leaves 5 inches long and 3 broad, usually obtuse at base. Flowers white or pale purple, sometimes with a crimson centre, about as large as the common Hollyhock. Swamp Hibiscus.

3. H. militaris Willd.: leaves 3-lobed, hastate, acuminate, serrate, smooth; pedicels articulate in the middle; corolla subcampanulate; capsule ovate, acuminate, smooth; seeds silky. H. Virginicus Wall. H. hastatus Mich.


4. H. Trionum Linn.: leaves toothed; lower ones scarcely divided; upper 3-parted; lobes lanceolate, middle one very long; calyx inflated, membranaceous, nerved. H. pallidus Raf.

Near gardens and cultivated grounds. N. Y. July. \( \varphi \).—Stem 2 feet high, somewhat hispid. Flowers yellowish white, with the lower part purple. Introduced from Europe. Bladder Ketmia.

4. SIDA. Linn.—Sida.

(An ancient Greek name applied to some plant of this tribe.)

Calyx 5-cleft, often angled, naked, or rarely with 1—2 se-
taceous bracts. Style many-cleft at the top. Carpels numerous, arranged circularly, 1-celled, 1—3-seeded.

1. *S. spinosa* Linn.: leaves ovate-lanceolate, toothed, with the tubercles at the base spiny; pedicels axillary, solitary, shorter than the stipules and petals; carpels 5, bi-rostrate.


2. *S. Napaea* Willd.: leaves palmately 5-lobed, smooth; lobes oblong, acuminate, toothed; peduncles many-flowered; capsules 10, awnless, acuminate. *Napaea latvis Linn.*


3. *S. dioica* Willd.: leaves palmately 7-lobed, rough; lobes lanceolate, incisely toothed; peduncles many-flowered, bracteate, subcorymbed; flowers dioicous; capsules 10, awnless. *Napaea dioica* and *N. scabra* Linn.


Order XXIII. TILIACEÆ.—LINDENS.

Sepals 4—5, distinct or united, with a valvate aestivation. Petals 4—5, entire, rarely wanting. Stamens generally indefinite, hypogynous, distinct; anthers 2-celled. Disk often with 4—5 glands at the base of the petals. Ovary of 2—10 united carpels; style 1; stigmas as many as the carpels. Fruit dry, of several cells. Seeds solitary or numerous, with fleshy albumen.—Trees or shrubs, with simple, stipulate, alternate leaves and axillary flowers.

TILIA. *Linn.*—Linden or Lime Tree.

(A name of uncertain origin.)

Calyx 5-parted, deciduous. Petals 5, naked, or with a small scale within. Stamens many; filaments free, or somewhat in sets. Ovary globose, villous, 5-celled; cells 2-seeded, (*Fruit.*) coriaceous, by abortion 1-celled, 1—2-seeded.

Woods. Can. to Car. W. to Miss. June. A tree often 60 or 70 feet high, with yellowish-white flowers. The wood is white and soft, and much used by cabinet and coach-makers. The bark is grayish, and so strong and flexible as to make tolerable ropes. Big. Basswood. Whitewood.

2. *T. laxiflora* Mich.: leaves cordate, gradually acuminate, serrate, membranaceous, smooth; flowers in loose panicles; petals emarginate; styles longer than the petals; fruit globose.

Near the sea coast. Penn. to Geor. May. 72.—A very distinct species, though generally confounded with the former. Pursh. Loose-flowered Linden.

3. *T. pubescens* Ait.: leaves truncate at the base, subcordate, oblique, dentilicate-serrate, pubescent beneath; petals emarginate; styles longer than the petals; fruit globose, smooth. *T. Americana* Wall.


**Order XXIV. Hypericaceae.—Tutsans.**

Sepals 4—5, distinct or cohering, unequal. Petals 4—5, with a twisted aestivation and oblique veins. Stamens usually numerous and cohering at base in three or more parcels. Ovary single, superior; styles several, rarely connate; stigmas simple, occasionally capitate. Fruit a capsule or berry, of many valves and many cells. Seeds very numerous, minute, without albumen; embryo straight.—Herbaceous plants or shrubs, with a resinous juice, and dotted with pellucid or black glands. Leaves opposite, entire, without stipules. Flowers mostly yellow.

1. **Hypericum. Linn.—St. John's Wort.**

(A name of uncertain origin.)

Sepals 5, more or less united at the base, mostly equal. Petals 5, oblique, and often inequilateral. Stamens numerous, or sometimes few, united at the base into 3—5 parcels, sometimes distinct. Styles 3—5, distinct or more or less united. Capsule membranaceous.

* Stamens numerous. Styles 5. Flowers mostly terminal, large, yellow.


River banks. Can. to Penn. and Ohio. July. 72.—Stem 2—4 feet high, with two of the angles strongest. Flowers few or solitary, at the ends of the branches, more than an inch in diameter. Capsule ovoid-conical, as large as a nutmeg. Giant St. John's Wort.

2. *Kalmianum* Willd.: frutescent, much branched; branches square;
leaves crowded, narrow-ob lanceolate, obtuse; cymes fastigiate, 3—7-flow ered; sepals ovate lanceolate, about half as long as the petals.

Banks of streams and in swamps. Can. and around the great lakes. Falls of Niagara. N. J. July, Aug. A shrub about 2 feet high. Flowers smaller than in the preceding. The var. elongatum of Macnab occurs in a swamp about 8 miles S. of New Brunswick, N. J. The branches are more elongated, the leaves more obtuse, and the flowers smaller than in the specimens from Niagara Falls.

** Stamens numerous. Styles mostly 3. Flowers yellow.**


Cedar swamps. N. J. to Flor. June, July. **—Stem 12—18 inches high, branched towards the summit. Flowers scattered in the panicle and alternate, orange-colored. Styles 3, often united.** Angular *St. John's Wort.*

4. *H. adpressum* Bart.: stem 2-winged above; leaves linear-lanceolate or linear-oblong, closely sessile, pellucid-punctate; cyme few-flowered, naked; sepals very unequal, oblong and obovate, at length reflexed; petals obovate-oblanceolate, twice as long as the sepals.


5. *H. ellipticum* Hook.: stem square, simple below, somewhat branched above; leaves elliptic, very obtuse, closely sessile, pellucid-punctate; cyme nearly naked; sepals obovate, very unequal, spreading; capsule ovate-globose.


Shady woods. Can. to Penn. W. to Miss. June. **—Stem 2 feet high. Flowers in a compact panicle or corymb. Styles 3; longer than the stamens.** Whole plant, except the filaments and styles, spotted with black dots. **—Corymbed *St. John's Wort.***

7. *H. perforatum* Linn.: stem ancipital; leaves obtuse, ovate-elliptic, and with the lanceolate sepals pellucid-punctate; flowers panicled; anthers with black punctures; styles diverging.

Fields, pastures, &c. Throughout Can. and the U. S. June—Aug. **—Stem 1—2 feet high, branched. Flowers numerous. Stamens mostly in three sets. A pernicious weed, producing, according to Dr. Darlington, troublesome sores upon horses and horned cattle, where it comes in contact with them. It would seem that the dew which collects on the plant, becomes active in this way. Fl. Cest. Introduced from Europe.** Common *St. John's Wort.*

HYPERICACEÆ.


9. *H. Canadense* Linn.: stem erect and straight, 4-winged; leaves linear, attenuate at the base, rather obtuse, panicle elongated, dichotomous; sepals lanceolate, very acute, longer than the petals; stamens 5—10; capsule long, conical, colored.

Gravelly soil. Can. to Geor. June—Aug. 1. —Stem 6—12 inches high. Flowers small, yellow. Capsule much longer than the calyx, and of a reddish color, by which, together with its linear leaves, it can be readily distinguished from the preceding.

Canadian St. John’s Wort.


11. *H. prolificum* Linn.: stem shrubby, terete; branches angled; leaves linear-lanceolate, revolute on the margin, pellucid-punctate; corymbs axillary and terminal, few-flowered, sepals ovate-lanceolate; stamens very numerous. *H. galioides* Pursh.

Banks of streams. N. J. to Flor. W. to Texas. July.—A shrub 2—3 feet high, with much compressed branches. Leaves 2 inches long. Peduncles generally 3-flowered, the intermediate one nearly sessile. Proliferous St. John’s Wort.

2. ASCYRUM. Linn.—St. Peter’s Wort.

(From the Greek ἄνω, privative, and σκόνη, roughness; the plant being smooth to the touch. Torr. N. Y. Fl.)


1. *A. Crucis-Andreae* Linn.: stem much branched at base, assurgent; leaves obovate-oblong, or linear-oblong, obtuse; flowers solitary or cymose, on short pedicels; outer sepals ovate, inner ones very minute; petals linear-oblong; styles 2, at length distinct. (Torr. & Gr.) *A. multicaule* Mich.


2. *A. stans* Mich.: stem apicidal and somewhat winged; straight; leaves closely sessile, ovate-elliptic, obtuse, glaucous; outer sepals cordate- orbicular; inner ones lanceolate, one-third shorter than the others; styles 3, rarely 4. *A. hypericoides* Linn.?

Sandy swamps. N. Y. to Flor. July, Aug. 2. —Stem 1—2 feet high, branched at the summit. Flowers mostly three together, yellow, much larger than in the preceding. Upright St. Peter’s Wort.
3. ELODEA. Adans.—Elodea.

(From the Greek elōdes, growing in marshy places.)

Sepals 5, somewhat united at base. Petals 5, deciduous, equilateral. Stamens 9, (rarely 12—15,) united into three parcels which alternate with 3 hypogynous glands. Styles 3, distinct. Capsule oblong, membranaceous, 3-celled.

E. Virginica Nutt.: leaves sessile, clasping; stamens united below the middle. E. campanulata Pursh. Hypericum Virginicum Linn.


Order XXV. ACERACEÆ.—Maples.

Calyx 5, or rarely 4—9-parted, with an imbricate aestivation. Petals as many as the lobes of the calyx and alternate with them, inserted round a hypogynous disk. Stamens usually 8, sometimes 3—12, distinct. Ovary 2-lobed, 2-celled; style 1; stigmas 2. Fruit of 2 indehiscent winged carpels, (samaræ,) each 1-celled, 1—2-seeded. Seeds with little or no albumen.—Trees, with opposite, palmately lobed, rarely pinnate, leaves. Flowers small, often polygamous, in racemes, corymbs or fascicles.

1. ACER. Linn.—Maple.

(From the Latin acer, sharp; the wood having been used for pikes, or lances.)

Flowers mostly polygamous. Calyx 5-lobed, sometimes 5-parted. Stamens rarely 5, often 7—10. Samaræ 3, winged, united at base, by abortion 1-seeded.

* Flowers in corymbs or fascicles.

1. A. rubrum Linn.: leaves 3—5-lobed, cordate at the base, unequally and incisely toothed, glaucous beneath; the sinuses acute, the lobes acute or acuminate; flowers aggregated in about fives, on rather long pedicels; fruit smooth; the wings slightly falcate, at length spreading.

Moist woods. Can. to Flor. April.—A tree from 20—50 feet high. Leaves pubescent when young. Flowers appearing before the leaves, in sessile fascicles, red or yellowish. Pedicels of the flowers, half an inch long, of the fruit 2—3 inches. Red Maple.

2. A. eriocarpum Mich.: leaves palmately 5-lobed, truncate at the base, smooth and whitish-glaucous beneath; sinuses obtuse; lobes acuminate, incisely toothed; flowers aggregated, on short pedicels; fruit woolly when young, nearly smooth when old, with large dilated wings. A. dasycarpum Wild.
Banks of streams. Can. to Geor. April, May.—A tree 30—50 feet high, affording a sweet sap. **Leaves** on long petioles, nearly smooth when old. **Flowers** greenish-yellow or purplish, usually about 5 together. **Pedicels** of the fruit about an inch long.

Silver-leaved Maple. White Maple.

3. *A. barbatum* Mich.: leaves ovate-cordate, with 3 short lobes, unequally serrate, glaucous beneath and pubescent on the nerves; corymbbs sessile; peduncles hairy; those of the sterile flowers branched, of the fertile simple; calyx bearded within; fruit smooth; wings erect. **A. Carolinianum Wall.**

Cedar swamps. N. J. to Car. Pursh. April.—A small tree. **Leaves** small. **Flowers** pale green. **Calyx** densely bearded within. **Hairy Maple.**

4. *A. saccharinum* Linn.: leaves palmately 3—5-lobed, subcordate at base, petioled, glaucous beneath; sinuses obtuse; lobes acuminate; peduncles corymbose, loose, nodding, hairy; fruit glabrous; wings divergent.

Woods. Can. to Geor. W. to Miss. April.—A tree 50—80 feet high. **Leaves** deep green and smooth above. **Flowers** yellowish, on long filiform peduncles. **Pedicels** smooth. Valuable for its timber and for the sugar obtained from its sap. **Common Sugar Maple. Hard Maple.**

5. *A. nigrum* Mich.: leaves palmately 5-lobed, cordate, with the sinus closed, pubescent beneath; lobes divaricate, sinuate-dentate; flowers on long slender peduncles, corymbed; fruit glabrous, turgid at base; wings diverging. *A. saccharinum* var. *nigrum* Torr. & Gr.

Woods, on hill-sides. Ver. to Car. April.—A large tree. **Flowers** yellowish. **Pedicels** pubescent. **Black Sugar Maple.**

**Flowers in racemes.**

6. *A. striatum* Mich.: leaves with 3 acuminate lobes, rounded at the base, acutely dentate, somewhat pubescent; racemes simple, pendulous; petals oval; fruit smooth; wings large, somewhat diverging. **A. Pennsylvanicum Linn.**

Shady rocks. Can. to Geor. (Not south of the Highlands in N. Y. Torr.) May.—A shrub or small tree 10—15 feet high; trunk beautifully striate. **Leaves** rarely undivided. **Flowers** large, greenish-yellow, 10—12 in a raceme. **Striped Maple. Moose Wood.**

7. *A. spicatum* Linn.: leaves small, 3—5-lobed, acute, dentate, cordate, pubescent beneath; racemes spikeform, erect; petals linear; fruit smooth; wings somewhat diverging. **A. montanum** Ait.

Rocky hills. Can. to Geor. May.—Shrub 8—12 feet high. **Flowers** greenish, small, in racemes 2 or 3 inches long. **Mountain Maple.**

2. NEGUNDO. D. C. Box Elder.

**Flowers** dioecious. **Calyx** minute, unequally 4—5-toothed. **Petals** none. **Anthers** 4—5, linear, sessile.

**N. fraxinifolium** Nutt.: leaves ternate, or pinnate by fives; leaflets rhomboid-oval or oval-lanceolate, acuminate, unequally and coarsely dentate; flowers dioecious, in simple pendulous racemes. **Acer Negundo Linna. Mich.**

Low wet grounds. Can. to Geor. W. to the Rocky Mountains. April.—A tree 15—20 feet high, with a smooth yellowish-green bark. **Leaves** mostly ternate. **Flowers** yellowish-green, pendulous. **Ash-leaved Maple. Box Elder.**
Order XXVI. HIPPOCASTANACEÆ.—Horse Chestnuts.

Calyx campanulate, 5-lobed. Petals 4 or 5, unequal. Stamens 7—8 distinct, unequal, inserted upon a hypogynous disk. Ovary 3-celled; style filiform, acute. Fruit coriaceous, 1—2 or 3-valved, 1—2 or 3-celled. Seeds 1—3, large, roundish, with a smooth shining coat, and a broad hilum; albumen none; embryo curved, germinating under ground.—Trees or shrubs. Leaves opposite, compound. Flowers in racemes or panicles.

ÆSCULUS. Linn.—Horse Chestnut.

(A Latin name said to have been originally applied to an oak.)

Calyx campanulate, 5-toothed. Petals 4—5, more or less unequal. Filaments recurved backward.

1. Æ. glabra Willd.: leaflets 5, ovate, acuminate, very smooth; corolla 4-petalled, spreading, with the claws as long as the calyx; stamens longer than the corolla; fruit echinate. Æ. echinata Muhl. Pavia Ohiensis Mich.f.

Banks of streams. Penn. to Virg. W. to Miss. May.—A large shrub or small tree. Flowers yellowish-white, in terminal racemose panicles. Buck-eye.

2. Æ. Hippocastanum Linn.: leaflets 7, obovate-cuneate, acute, dentate; flowers with 5 petals and 7 stamens; fruit echinate.

About houses. May.—A tree with a smooth bark, very branching towards the top. Flowers large, white, spotted with purple and yellow. A native of India.

Order XXVII. VITACEÆ.—Vines.

Calyx small, nearly entire. Petals 4 or 5, sometimes cohering above and calyptriform, with a valvate aestivation. Stamens as many as the petals, inserted upon the disk, sometimes sterile by abortion. Ovary 2-celled; style 1, very short; stigma simple. Fruit a globose pulpy berry, 2—(or by abortion 1-) celled. Seeds 1—5, bony, with hard albumen.—Climbing shrubs, with simple or compound leaves, and small green flowers.

1. AMPELOPSIS. Mich.—Ampelopsis.

(From the Greek ἀμπελός vine, and ὁπείς, aspect; on account of its resemblance to the vine.)


1. A. cordata Mich.: stem climbing, with slender branches; leaves cor-
date, acuminate, toothed and angular; nerves beneath pubescent; racemes dichotomous, few-flowered. Cissus Amelopsis Pers. Vitis indivisa Willd.

Banks of streams. Penn. to Car. W. to Ark. June, July. 12.—Leaves cor-

date, often straight at base as if truncate. Panicles opposite the leaves. Berries

pale red. Heart-leaved Amelopsis.

2. A. quinquefolia Mich.: stem climbing and rooting; leaves digitate, by fives, on long petioles, glabrous; leaflets connected at base, lanceolate, acuminate, dentate towards the apex; racemes somewhat dichotomously cymose. A. hederacea D. C. Cissus hederacea Pursh. Hedera quinquefolia Linn.

var. hirsuta Torr. & Gr.: leaves pubescent on both sides; leaflets ovate.

A. hirsuta Muhl. Cissus hederacea, var. hirsuta Pursh.


June, July. 12.—Stem climbing. Flowers small, yellowish-green. Berries dark blue or nearly black. Virginia Creeper.

2. VITIS. Linn.—Vine.

(An ancient Latin name, the derivation of which is unknown.)

Calyx somewhat 4—5-toothed. Petals 4—5, cohering at their apex, deciduous. Stamens 5. Style none. Berry 2-celled, 1—4-seeded; cells and seeds often abortive.

1. V. Labrusca Linn.: leaves very large, broad-cordate, sub-3-lobed, acutely toothed, glabrous above, and with the peduncles grayish-tomentose beneath; racemes small, panicked; berries large.


2. V. aestivalis Mich.: stem long and slender; leaves broad-cordate, 3—5-lobed, younger ones ferruginous-tomentose beneath; when old nearly smooth; sinuses rounded; racemes opposite the leaves, rather crowded, oblong; berries small. V. intermedia Muhl.


3. V. vulpina Linn.: leaves cordate, abruptly acuminate, somewhat equally and rather coarsely toothed, smooth above; racemes loose, many-

flowered; berries small. V. cordifolia Mich. Pursh.


4. V. riparia Mich.: leaves cordate, unequally and incisely toothed; shortly 3-lobed, pubescent on the margin, nerves and petiole; racemes loose; berries small. V. odoratissima Donn.


ORDER XXVIII. GERANIACEÆ.—Crane's-bills.

Sepals 5, persistent, more or less unequal, with an imbricated aestivation. Petals 5, (or by abortion 4, rarely none.) unguicu-
late. Stamens usually monadelphous, hypogynous, twice or thrice as many as the petals. Fruit formed of 5 carpels cohering round the axis, having a membranous pericarp and terminated by an indurated style, which finally twists and carries the pericarp along with it. Seeds solitary, without albumen. Cotyledons convolute and plaited.—Herbaceous or shrubby plants usually strong-scented. Leaves opposite and alternate, mostly lobed. Flowers regular or irregular.

1. GERANIUM. *Linn.*—Crane’s-bill.

(From the Greek γέρανος, a crane; the fruit resembling the ‘bill of that bird.’)

Sepals 5, equal. Petals 5, equal. Stamens 10, all fertile; alternate ones longer, and with nectariferous scales at the base. Carpels with long awns, at length separating elastically from the summit to the base; awns smooth internally.

* Perennial.

1. *G. maculatum* Linn.: stem somewhat angular, erect, dichotomous, retrorsely pubescent; leaves 3—5-parted, incised; radical on long petioles; upper opposite, sessile; petals entire; filaments slightly ciliate at the base.


**Spotted Geranium, or Crane’s-bill.**

2. *G. pusillum* Linn.: stem procumbent; leaves reniform or nearly orbicular, deeply 5—7-lobed; lobes of the lower leaves 3-cleft, of the upper entire; peduncles short, 2-flowered; petals emarginate, scarcely longer than the awnless calyx; carpels keeled, pubescent.

Sandy soils. N.Y. & Penn. May—July. 1.—Stem 1—2 feet long, very slender. Leaves slightly pubescent. Flowers pale purple, much smaller than in the preceding. Introduced! *Small-flowered Crane’s-bill.*

3. *G. Carolinianum* Linn.: diffusely branched, pubescent; leaves 5-lobed beyond the middle; lobes incised, 3—5-cleft; peduncles crowded towards the top; petals notched, as long as the awned calyx; carpels hairy. *G. dissectum* Pursh.


4. *G. Robertianum* Linn.: leaves ternate or quinate; leaflets somewhat pinnatifid, segments mucronate; peduncles long, 2-flowered; calyx, angular, hairy, with longish awns, shorter than the entire petals; carpels small, wrinkled.

2. ERODIUM. L'Herit.—Heron's-bill.
(From the Greek ἐροδίως, a heron; the fruit resembling the head and beak of that bird.)

Sepals 5, equal, regular. Petals 5, mostly equal. Stamens 10, the 5 outer ones (opposite the petals) shorter and sterile; the perfect ones with a nectariferous gland at the base. Styles persistent, bearded on the inside, at length spirally twisted.

*E. cicutarium* Smith: stem prostrate or diffuse, hairy; leaves pinnately divided; segments sessile, pinnatifid, incised or acute; peduncles several flowered; petals unequal. *Geranium cicutarium* Linn. Gravelly shore of Oneida Lake, N. Y.; abundant. W. to Oregon and California. May, June.

—Leaves 2—4 inches long, oblong, with numerous pinnatifid lobes. Flowers as large as those of *Geranium pusillum*. Introduced?

Hemlock-leaved Heron's-bill.

Order XXIX. BALSAMINACEÆ.—Balsams.

Sepals 5, irregular, deciduous; the two upper commonly united into one, the lower spurred. Petals 4, hypogynous, united in pairs, so that apparently there are only 2 petals. Stamens 5; filaments subulate. Ovary 5-celled; stigma sessile, more or less 5-lobed. Fruit capsular, with 5 elastic valves and 5 cells. Seeds solitary or numerous, without albumen.—Succulent herbaceous plants. Leaves simple, without stipules.

IMPATIENS. Linn.—Balsam.
(In allusion to the bursting of the seed-vessels by the slightest touch.)

Sepals 5, the lower one spurred. Corolla 4-petalled, irregular; the two inner petals unequally bilobed. Stigmas 5, united. Capsule prismatic-terete, elongated, 5-valved, opening elastically.

1. *I. pallida* Nutt.: peduncles solitary 2—5-flowered; leaves oblong-ovate, on short petioles, coarsely and obtusely serrate, the teeth mucronate; lower sepal dilated, obtusely conic, shorter than the petals, with a very short recurved spur; flowers sparingly punctate. *I. noli-tangere* Pursh. *I. aurea* Muhl.


Wet grounds. Can. to Geor. W. to Miss. Aug., Sept. 1. Stem 2—4 feet high. Leaves on petioles an inch or more long. Flowers deep orange with reddish brown spots, smaller and less numerous than the former.

Balsam Weed. Jewel Weed.

**Order XXX. TROPAEOLACEÆ.—Indian Cresses.**

Sepals 3—5, upper one with a long distinct spur. Petals 1—5, equal or unequal. Stamens 6—10, distinct. Ovary 1, 3-corned; style 1; stigmas 3—5, acute. Fruit indehiscent, the pieces separable from a common axis, sometimes winged. Seeds large, without albumen.—Herbaceous plants with an acrid taste. Leaves alternate, without stipules.

**FLÆRKIA. Willd.**—False Mermaid.

(In honor of Florke, a German botanist.)


**False Mermaid.**

**Order XXXI. OXALIDACEÆ.—Wood Sorrels.**

Sepals 5, persistent, equal. Petals 5, equal, unguiculate, with a twisted aestivation. Stamens 10, usually more or less monadelphous. Styles 5, filiform; stigmas capitate. Fruit capsular, membranous, with 5 cells, and from 5 to 10 valves. Seeds few, with a fleshy integument, which bursts elastically. Albumen between cartilaginous and fleshy.—Herbaceous plants, rarely shrubs or trees. Leaves mostly alternate and compound.

**OXALIS. Linn.**—Wood Sorrel.

(From the Greek ὀξυς, sharp or acid; in allusion to the sour taste of the plant.)

Sepals 5, free or united at base. Petals 5. Stamens 10, often monadelphous at base, 5 outer ones shorter. Styles 5. Capsule pentangular, oblong or cylindrical, 5-celled.

* Stemless.

1. *O. Acetosella* Linn.: root creeping, scaly; scape 1-flowered, longer than the leaves, with two small bracts above the middle; leaves ternate; leaflets obcordate, hairy; petals oval, obtuse; styles as long as the inner stamens.
ZANTHOXYLACEÆ.


Common Wood Sorrel.

2. O. violacea Linn.: bulb scaly; scape umbelliferous, 3—9-flowered; flowers nodding; leaves ternate; leaflets obcordate, smooth; styles shorter than the outer stamens.


Violet Wood Sorrel.

** Cavulescent.

3. O. corniculata Linn.: pubescent; stem rooting, decumbent, branched; peduncles 2-flowered, shorter than the leaves; leaves ternate; leaflets obcordate; petals obovate, emarginate; styles as long as the inner stamens. O. corniculata var. Mich.

Woods. Can. to Car. W. to Miss. May—Aug. 4.—Stem 6—10 inches long. Flowers small, yellow. It is distinguished chiefly by its habit; but the plant of American authors may after all be only a variety of the next.

Decumbent Wood Sorrel.

4. O. stricta Linn.: hairy; stem erect, sometimes procumbent, branched; peduncles 2—6-flowered, longer than the leaves; leaves ternate; leaflets obcordate; petals obovate, entire; styles as long as the inner stamens.


Upright Wood Sorrel.

ORDER XXXII. ZANTHOXYLACEÆ.—ZANTHOXYLS.

Flowers diclinous, regular. Calyx in 3, 4, or 5 divisions. Petals as many as the sepals, rarely none, convolute. Stamens as many or twice as many as the petals. Ovaries as many as the petals, sometimes fewer; styles more or less combined. Fruit either baccate or membranous, sometimes consisting of several drupes or 2-valved capsules. Seeds solitary or in pairs, with fleshy albumen.—Trees or shrubs. Leaves without stipules, usually marked with pellucid dots.

1. ZANTHOXYLUM. Linn.—Prickly Ash.

(From the Greek ξανθός, yellow, and ξυλόν, wood.)

Polygamo-dioecious. Sepals 3—5, small. Petals longer than the sepals, or none. Stamens and carpels as many as the lobes of the calyx, 1—2-seeded.

Z. Americanum Mill.: prickly; leaves pinnate; leaflets in 4—5 pairs, ovate, obtusely serrate, equal at base; pétioles terete, unarmed; prickles stipular; flowers in short axillary sessile umbels. Z. fraxineum Willd, Z. ramiflorum Mich.
Rocky woods. Can. to Car. (Not below the Highlands in N.Y. Torr.) W. to Ark. April.—Shrub, 3—5 feet high, covered with sharp strong prickles. Leaves pinnate, sometimes prickly on the back. Flowers in umbels, small, greenish, appearing before the leaves. The bark of this shrub is pungent, and is employed medicinally. 


2. PTELEA. Linn.—Shrubby Trefoil.

(The Greek name of the elm, from a root which alludes to the winged seed vessels.)

Polygamo-dioecious. Sepals 3—6, (usually 4,) small. Petals much longer than the sepals. Stamens alternating with the petals. Torus tumid, pentagonal. Ovary 1; style short; stigmas 2. Samarae membranaceous, margined, 2-celled; cells 2- or by abortion 1-seeded.

Pt. trifoliata Linn.: leaves on long petioles, ternate; leaflets sessile, ovate, acuminate, odd one much attenuated at base; flowers in panicles, polygamous, mostly with 4 stamens.


Subclass II.—CALCYFLORALS.

Calyx with the sepals more or less united at base, (gamosepalous, D. C.—monophyllous, Linn.) Petals and stamens inserted into the calyx.

Order XXXIII. CELASTRACEÆ.—Spindle Trees.

Sepals 4 or 5, imbricated, inserted into the margin of a large expanded disk. Petals 4—5, imbricate. Stamens alternate, with the petals, inserted upon the margin or upper surface of the disk. Ovary free, 2—5-celled. Fruit capsular or drupaceous. Seeds often with an aril; albumen fleshy.—Small trees or shrubs, with simple leaves and small caducous stipules.

1. EVONYMUS. Linn.—Spindle Tree.

(From Evonyme, mother to the Furies, in allusion to the injurious effects produced by the fruit of this plant. Hook. Br. Fl.)

Calyx 4—5-cleft, having a peltate disk within. Petals 4—5. Stamens inserted upon glands at the margin of the disk. Capsule with 3—5 angles and as many cells and valves. Seeds covered with a colored fleshy aril.

1. E. Americanus Linn.: branches opposite, smooth, square; leaves opposite, subsessile, varying from elliptic-lanceolate to oval-obovate; smooth,
acute, serrate; peduncles 1—3-flowered, terete; calyx small, with acute segments; corolla 5-petalled; fruit roughened, warty.


Strawberry Tree.

2. *E. atropurpureus* Jacq.: stem with smooth, opposite, square branches; leaves petiolate, oblong-lanceolate, acuminate, serrate, pubescent beneath; peduncles divaricate, many-flowered; flowers 4-cleft; fruit smooth.


Burning Bush.

2. **CELASTRUS.** Linn.—Staff Tree.

(A Greek name of uncertain application.)

Dioeciously polygamous. Calyx minute, 5-lobed. Petals 5, small, unguiculate. Ovary small, with 10 striae, immersed in the disk; style short and thick; stigma 3-lobed. Capsule 2—3-valved; valves septiferous in the centre. Seeds 1—2 in each cell, inclosed in a pulpy aril.

*C. scandens* Linn.: stem climbing, unarmed; leaves petioled, oval, acuminate, serrate; stipules minute; racemes terminal.

Rocky woods. Can. to Virg. W. to Miss. May, June.—A woody vine or low shrub. Leaves alternate. Flowers greenish-yellow, in small terminal racemes. Fruit scarlet. *C. scandens* is a woody vine or low shrub.

Climbing Staff Tree.

**ORDER XXXIV. STAPHYLEACEÆ.—BLADDER-NUTS.**

Sepals 5, colored, imbricated. Petals 5, imbricated. Stamens 5, alternate with the petals, perigynous. Disk large, urceolate. Ovary 2—3-celled, superior; styles 2—3, cohering at base. Fruit membranous or fleshy. Seeds roundish, with a bony testa; hilum large; albumen none.—Shrubs, with opposite pinnate leaves. Flowers in terminal racemes.

**STAPHYLEA.** Linn.—Bladder-Nut.

(From the Greek σταφύλια, a bunch of grapes; in allusion to its mode of flowering.)


*S. trifolia* Linn.: leaves ternate, on long petioles; leaflets ovate, acuminate, serrulate, pubescent, the terminal one petioled; styles glabrous; capsule bladder-like.

Moist places. Can. to Car. W. to Miss. April—June. ½.—Stem 6—10 feet high, with straight and smooth slender branches. Flowers white, in axillary and terminal pendulous panicles. *S. trifolia* is a bladder-nut.
Order XXXV. RHAMNACEÆ.—Buckthorns.

Calyx 4—5-cleft, valvate. Petals distinct, inserted into the orifice of the calyx, occasionally wanting. Stamens definite, opposite the petals. Disk fleshy. Ovary superior or half superior, 2—3—4-celled. Fruit fleshy and indehiscent, or dry and separating in 3 parts. Seeds erect, mostly with fleshy albumen; embryo with large flat cotyledons.—Trees or shrubs, often thorny. Leaves mostly alternate, simple, usually with minute stipules.

1. RHAMNUS. Linn.—Buckthorn.

(From the Greek papyos, white-thorn; probably from its resemblance to some of the thorn tribe.)

Calyx 4—5-cleft, urceolate. Petals alternating with the lobes of the calyx, sometimes very minute or wanting. Stamens 4—5, inserted above the petals. Style 2—4-cleft. Fruit drupaceous, roundish, containing 2—4 cartilaginous nuts.

1. R. alnifolius L'Herit: unarmed; leaves alternate, oval, acuminate, serrulate, pubescent on the veins beneath; flowers dioecious; peduncles 1-flowered, aggregate; calyx acute; fruit turbinate. R. franguloides Mich.

Sphagnous swamps. Hudson’s Bay to Penn.; rare. May, June. 2—4 feet high, branching. Flowers small, greenish, in axillary fascicles. Berries black, the size of a small pea. R. alnifolius of Pursh is described by De Candolle as a distinct species, under the name of R. Purshianus.

Alder-leaved Buckthorn.

2. R. catharticus Linn.: branches thorny at the top; leaves opposite, ovate, erosely denticulate; flowers mostly 4-cleft, polygamo-dioecious; berries 4-seeded, subglobose.


2. CEANOTHUS. Linn.—Ceanothus.

(An ancient Greek name applied to this genus.)

Calyx 5-cleft, campanulate, persistent and somewhat adhering with the fruit. Petals 5, small, saccate and arched, with long claws. Stamens exsert. Styles 2—3, united to the middle. Fruit dry and coriaceous, 3-celled, 3-seeded, 3-parted, opening on the inner side.

1. C. Americanus Linn.: stem shrubby; branches terete, and somewhat pubescent; leaves ovate-oblong, alternate, serrate, 3-nerved, tomentose, pubescent beneath; common peduncles axillary, elongated, almost leafless. C. herbaceus Raf.
ANACARDIACEÆ.

Woods. Can. to Flor. to Miss. May—July. ½.—Stem 2—3 feet high. Leaves on petioles, sometimes slightly cordate at base. Flowers small, white, in an oblong terminal thyrse. Root very large, dark red. The leaves were used as a substitute for tea during the American Revolution. A variable plant. C. herbaceus Raf. is a variety with oval nearly smooth leaves.

New Jersey Tea. Red Root.

2. C. ovalis Big.: leaves narrow, oblong, or elliptic-lanceolate, 3-nerved from the base, serrulate, nearly smooth; thyrse umbel-like, the pedicel elongated and closely approximate. H. intermedius Hook. not of Pursh.


ORDER XXXVI. ANACARDIACEÆ.—ANACARDS.

Flowers usually diclinous. Calyx usually small, persistent, 5- (sometimes 3—7) divided. Petals as many as the segments of the calyx, perigynous, imbricate. Stamens as many as the petals, and alternate, or twice as many or more; filaments distinct or cohering at the base. Disk fleshy, hypogynous. Ovary single (or rarely 5—6 ;) stigmas usually 3. Fruit indehiscent, usually drupaceous. Seed without albumen.—Trees or shrubs, with a resinous, gummy, caustic, or milky juice. Leaves alternate, simple, ternate or pinnate, not dotted.

RHUS. Linn.—Sumach.

(From the Celtic rhudd, red ; in allusion to the color of the fruit.)


* Leaves ternate.

1. R. Toxicodendron Linn.: stem erect, pubescent near the summit; leaves ternate; leaflets broad-oval or rhomboid, entire, sinuate or lobed, subpubescent beneath; flowers dioecious, in sessile axillary racemes. R. Toxicodendron, var. quercifolium Mich.


Poison Oak or Ivy.

2. R. radicans Linn.: stem climbing; leaves ternate; leaflets petiolate, ovate, acuminate, smooth, generally entire; flowers in axillary racemes, towards the top of the stem, dioecious; fruit smooth. R. Toxicodendron, var. vulgaris Mich. Pursh. R. Toxicodendron var. radicans Torr.


Climbing Poison Oak,
3. *R. aromatica* Ait: branches slender, nearly smooth; leaves ternate; leaflets sessile, ovate-rhomboid, deeply toothed, tomentose beneath; flowers in dense axillary racemes or catkins, dioecious; fruit pilose.—*Lobadimum aromaticum* Raf.

Rocky places. Arct. Amer. to Geor. W. to Miss. April, May. \( \varphi_{2} \).—Stem 2–6 feet high. **Flowers** yellow. **Fruit** red, more or less hispid, acid. **Aromatic Sumach.**

**Leaves pinnate, smooth.**

4. *R. glabra* Linn.: stem and branches smooth; leaflets in many pairs; sessile, lanceolate, acuminate, sharply serrate, smooth, whitish glaucous beneath; flowers all perfect, in terminal compound panicles.

Old fields. Can. to Geor. W. to Miss. July. \( \varphi_{2} \).—Stem 6–12 feet high. **Flowers** greenish-yellow. **Fruit** crimson, covered with short hairs, acid. **Smooth Sumach.**

5. *R. Copallina* Linn.: branches terete, downy; leaflets 4–7 pairs, with an odd one, oval-lanceolate, or oblong, very entire, shining on the upper surface; pubescent beneath, unequal at base; petiole winged, appearing as if jointed; flowers in sessile panicles, dioecious.

Dry fields. Can. to Flor. W. to Ark. July, Aug.—A small shrub, with yellowish-green **flowers**. **Fruit** red, small, compressed, hairy, acid, and bitter. **Mountain Sumach.**


Margins of swamps. Can. to Geor. W. to Louis. June, July. \( \varphi_{2} \).—Stem 6–12 feet high. **Flowers** greenish. **Fruit** about as large as a pea. Poisonous. *Big. Mod. Bot.* i. 96. **Poison Sumach.** **Poison Elder.**

**Leaves pinnate, pubescent.**

7. *R. typhina* Linn.: branches and petioles very villous; leaflets in many pairs, lanceolate-oblong, acuminate, acutely serrate, whitish and more or less pubescent beneath; flowers in oblong dense panicles, dioecious.

Rocky hills. Can. to Car. June. \( \varphi_{2} \).—Stem 10–15 feet high. **Flowers** greenish-yellow. **Fruit** in clusters, covered with a purple velvety down, acrid. **Stag-horn Sumach.**

**Order XXXVII. LEGUMINOSÆ.—Leguminous Plants.**

Calyx of 5 sepals, more or less combined. Petals 5, either papilionaceous or regularly spreading. Stamens definite or indefinite, distinct or monadelphous, or diadelphous. Ovary simple, superior. Fruit a legume. Seeds attached to the upper suture, without albumen.—Herbaceous plants, shrubs or trees. Leaves alternate, mostly compound, and with 2 stipules at base.

**Suborder I. PAPILIONACEÆ.**

Petals papilionaceous, imbricated in aestivation, the upper exterior.
1. BAPTISIA. Vent.—Baptisia.

(From the Greek βαπτισία, to dye; in allusion to the coloring properties of some of the species.)


1. B. tinctoria Brown: very smooth, much branched; leaves ternate, petioled, upper ones subsessile; leaflets cuneate-obovate, rounded and often emarginate at the summit; stipules minute, subulate, deciduous; racemes terminal, few-flowered; legume on a long stipe. *Sophora tinctoria* Linn. *Podaicyra tinctoria* Willd.


2. B. australis Brown: smooth; leaves ternate, on short petioles, the upper ones nearly sessile; leaflets oblong-wedgeform, obtuse; stipules linear-lanceolate, longer than the petioles; racemes elongated, erect; legumes oval-oblong, the stipe about as long as the calyx. *B. carrulea* Nutt. *Sophora australis* Linn.


3. B. alba Brown: leaves ternate, petioled, and with the branches smooth; leaflets elliptic-oblong, obtuse; stipules deciduous, subulate, shorter than the petioles; racemes terminal; ovaries smooth. *Sophora alba* Walt.


2. CROTALARIA. Linn.—Rattlebox.

(From the Greek κρόταλον, a rattle; the seeds becoming loose in the ripe pod.)

Calyx 5-lobed, subbilabiate; upper lip 2., lower one 3-cleft. Standard large, cordate. Keel falcate, acuminate. Filaments all united, with the sheath often divided above. Legume turbid, inflated, with ventricose valves, often many-seeded, pedicelled.

C. sagittalis Linn.: hairy, erect, branched; leaves simple, oblong-lanceolate; stipules lanceolate, acuminate, decurrent; racemes opposite the leaves, about 3-flowered; corolla smaller than the calyx. *C. parviflora* Willd.

3. GENISTA. Lann.—Green Weed.

(From the Celtic gen; signifying a shrub. Hook. Br. Fl.)

Calyx bilabiately, upper lip bipartite; lower one 3-toothed, or 5-lobed; 3 lower lobes united almost to the summit. Standard oblong-oval. Keel oblong, straight. Stamens monadelphous. Legume flat-compressed or rarely somewhat turgid, many-seeded, rarely few-seeded.

*G. tinctoria* Linn.: stem unarmed, erect; branches terete, striate; leaves lanceolate, nearly smooth; flowers in spiked racemes; legume smooth.

Hills. Mass. and N. Y. July. 1. Stem a foot high, with numerous branches, shrubby. Leaves rather distant. Flowers on the upper part of the branches, nearly sessile, yellow, with a floral leaf at the base. Said to afford a fine yellow dye. Introduced from Europe. **Dyer’s Green Weed.**

4. MEDICAGO. Linn.—Medick.

(From the Greek *melan*; because it was introduced into Greece by the Medes.)

Calyx subcylindric, 5-cleft. Keel somewhat remote from the standard. Stamens diadelphous. Legume many-seeded, varying in form, always falcate or twisted into a spiral.

1. *M. lupulina* Linn.: stem procumbent; leaflets obovate-cuneate, dentilicate at the apex; stipules lanceolate, acute, somewhat entire; flowers in capitate spikes; legume reniform, 1-seeded.


2. *M. intertexta* Willd.: stem procumbent; leaflets obovate, toothed; stipules ciliate-toothed; peduncles somewhat 2-flowered; legume pilose, cochlolate, membranaceous, obliquely reticulate; spines straight, thick, rigid and acute.


3. *M. sativa* Linn.: erect, smooth; leaflets ovate-oblong, toothed above, mucronate; flowers in oblong racemes; legume spirally twisted.

Fields. N. S. June, July. 2. Stem 1—2 feet high, erect or oblique. Flowers purple. Pods twisted. A native of Europe, which has been occasionally cultivated, and has in some places almost become naturalized. **Lucerne.**

5. MELILOTUS. Tourn.—Melilot.

(From the Latin mel, honey, and lotus, the genus so called.)

Calyx 5-toothed. Standard free, longer than the wings. Keel petals united, free from the stamen-tubes. Legume coriaceous, globose or ovate, longer than the calyx, scarcely dehiscent, 1 or few-seeded.

1. *M. officinalis* Willd.: stem erect, branching; leaflets lanceolate-oblong, obtuse, remotely serrate; spikes axillary, paniculate; legume 2-seeded,
LEGUMINOSÆ.

rugose; style filiform, as long as the legume; seeds unequally cordate. *Trifolium officinale*, var. a. Linn.

Fields. Can. to Geor. Aug. 1.—Stem 2—4 feet high. Flowers in long racemes, yellow. Plant giving out an odor when dry, similar to the vernal grass. Introduced from Europe. **Yellow Melilot.**

2. *M. leucantha D. C.*: stem erect, branched; leaflets ovate-oblong, truncate and mucronate at the apex, remotely serrate; stipules setaceous; teeth of the calyx unequal, as long as the tube; standard longer than the keel and wings; legume 1—2-seeded, ovate, lacunose-rugose, green; seeds exactly ovate. *M. vulgaris* Willd. Enum. *Trifolium officinale*, var. b. Linn.


6. TRIFOLIUM. *Tunr.—Clover Trefoil.*

(From the Latin *tres*, three; and *folium*, a leaf.)

Calyx tubular, persistent, without glands, 5-cleft or 5-toothed. Segments subulate. Keel shorter than the wings and standard. Stamens diadelphous. Legume small, scarcely dehiscent, often ovate, 1—2-seeded, as long as the calyx and covered by it, rarely oblong, 3—4-seeded, and a little exceeding the calyx.

* Legume 1-seeded. Standard of the corolla deciduous. Flowers not yellow.

1. *T. arvense* Linn.: stem erect, simple or branched, pubescent; leaves on short petioles; leaflets obovate-linear or cuneate-oblong, somewhat toothed at the apex; stipules ovate, acuminate; spikes oblong-cylindric, very villous; segments of the calyx pilose, equal, setaceous, longer than the corolla.

Dry pastures. Can. to Flor. May—Sept. 1.—Stem 6—12 inches high. Flowers minute, white or pink. Seeds ovoid, brown. Introduced from Europe. **Stone Clover. Hare’s-foot Trefoil.**

2. *T. pratense* Linn.: stem suberect, branched; leaves on long petioles; leaflets oval or oblong-ovate, often retuse or emarginate, nearly entire; stipules broad-lanceolate, terminating in a subulate point; heads of flowers ovate, dense, nearly sessile; segments of the calyx setaceous, about half as long as the corolla, the lower one longer than the rest.


3. *T. Pennsylvanicum* Willd.: stem ascending, much branched, flexuous; leaflets ovate-elliptic, obtuse, very entire; stipules awned; heads of flowers ovate-cylindric, solitary, dense; lower tooth of the calyx shorter than the corolla.

**Legume 1-seeded. Standard of the corolla persistent, scarious. Flowers yellow.**

4. *T. procumbens* Linn.: stem mostly procumbent; leaves on short petioles; leaflets obovate or obcordate, denticulate, terminal one petioled; stipules lance-ovate, ciliate, shorter than the petiole; heads axillary, ovate; peduncles equal to or longer than the leaves; segments of the calyx unequal, the 2 upper ones very short; seeds elliptic.


5. *T. agrarium* Linn.: stem ascending, with erect branches; leaves nearly sessile; leaflets oblong-ovate, or cuneate-oblong, denticulate, all nearly sessile; stipules leafy, lanceolate, acute, often longer than the petiole; heads on rather long peduncles, oval; standard obcordate; segments of the calyx smooth, elongated, the upper one smaller.


***Legume 3—8-seeded.***

6. *T. repens* Linn.: stem creeping and somewhat rooting; leaflets obovate-roundish, somewhat retuse, serrulate; stipules scarioso, narrow-lanceolate, mucronate; heads axillary, on very long peduncles; flowers pedicelled, and at length reflexed; segments of the calyx unequal, shorter than the corolla; legume 4-seeded.


7. *T. reflexum* Linn.: stem ascending; leaflets ovate or obovate, serrulate; stipules leafy, lanceolate-acuminate; heads globose, axillary; flowers on long pedicels, at length reflexed; segments of the calyx hairy, nearly equal, very narrow, one-nerved, nearly twice as long as the tube, but shorter than the standard; legume 4-seeded. *T. stoloniferum* Mühl.


7. **CLITORIA.** Linn.—Clitoria.

(From an anatomical term.)

Calyx tubular, 5-toothed; the teeth much shorter than the tube. Standard very large, emarginate or bifid. Keel small, shorter than the wings, incurved, acute, on very long claws. Style dilated at the apex, longitudinally bearded. Legume stipitate, linear or linear-oblong, twisted.

1. *C. Mariana* Linn.: stem climbing, glabrous; leaves ternate; leaflets ovate-lanceolate; peduncles solitary, 1—3-flowered; calyx tubular-campanulate, glabrous, much longer than the lanceolate bracts; teeth nearly equal; legume 4—8-seeded, smooth.
Sandy soil. N. Y. to Flor. and Ala. July, Aug. 4.—Stem 2 or more feet long, climbing, sometimes erect. Flowers large, pale blue, usually 1—2 on the peduncles. **Maryland Ciloria.**

2. *C. Virginiana* Linn.: stem twining, and with the ovate leaflets glabrous or subpubescent; peduncle 1—4-flowered; calyx 5-parted, about as long as the lanceolate bracts; legume linear, compressed. **Centrosema Virginiana** Benth. Torr. & Gr.

Dry soils. Penn. to Flor. Aug. 4.—Flowers purple or violet, larger than that of any of our North American Papilionaceæ. De Candolle describes three varieties of this species, which differ only in the shape of the leaves. **Butterfly Weed.**

8. **GALACTIA.** Browne.—Milk Pea.

(From the Greek γάλα, milk; some of the species yielding a milky juice.)

Calyx bibracteate, 4-cleft; segments acute, of nearly equal length; the upper one broadest. Standard incumbent, broad. Keel petals slightly cohering towards the apex. Legume compressed, linear, many-seeded.

1. *G. mollis* Mich.: stem twining, softly villous; leaves ternate; leaflets ovate-oblong, obtuse, pale beneath; racemes axillary, a little longer than the leaves, pedunculate; flowers pedicelled; calyx acuminate, villous; legume compressed, villous.

Pine barrens. N. J. to Flor. July, Aug. 4.—Stem prostrate or climbing. Flowers reddish-purple, about half as large as the next. **Soft Milk Pea.**

2. *G. glabella* Mich.: stem prostrate, somewhat twining, smooth; leaves ternate; leaflets elliptic-oblong, obtuse, emarginate at each end, shining above; racemes axillary, simple, few-flowered, on peduncles as long as the leaves; calyx smooth; legume pubescent.

Sandy soils. N. Y. to Flor. Aug. 4.—Root fusiform. Stem 2—4 feet long, spreading on the ground or twining. Flowers reddish-purple and white, large and handsome. **Smooth Milk Pea.**

9. **TEPHROSIA.** Pers.—Tephrosia.

(From the Greek τεφρός, ash-colored; in allusion to the color of the foliage.)

Calyx without bracts, nearly equal, 5-toothed. Standard of the corolla large, roundish, pubescent or sericeous without, reflexed-spreading; wings adhering to the obtuse keel. Stamens monadelphous, or diadelphous. Legume compressed-flat, linear, many-seeded.

*T. Virginiana* Pers.: villous pubescent; stem erect; leaflets 8—14 pairs, oval or linear-oblong, mucronate, white villous beneath; raceme terminal, subsessile; segments of the calyx very villous, acuminate-cuspidate; legume falcate, villous. **Galega Virginiana** Linn.

Sandy soil. Can. to Flor. W. to Miss. June, July. 4.—Root long and tough. Stem about a foot high, usually several from one root. Flowers in a dense terminal raceme, showy, yellow, tinged with purple. **Goat's Rue.**
10. AMORPHA. Linn.—False Indigo.

(From the Greek α, privative, and μορφή, shape; on account of the absence of the wings and keel of the corolla.)

Calyx 5-toothed, obconic-campanulate. Standard of the corolla ovate, concave; wings and keel none. Style filiform, straight, glabrous. Stamens exerted, monadelphous at base. Legume compressed, ovate or lumulate, 1-celled, 1—2-seeded.

*A. fruticosa* Linn.: subarborescent, pubescent, or nearly smooth; leaves pinnate, petiolate; oval or elliptic-oblong; spikes aggregated; calyx somewhat pubescent, 4 teeth obtuse, the other one acuminate; legume few-seeded.


Shrubby False Indigo.

11. ROBINIA. D. C.—Locust.

(In honor of John and Vespasian Robin, French botanists.)


*R. Pseudacacia* Linn.: leaves pinnate; leaflets ovate and oblong-ovate; stipules prickly; racemes pendulous, and with the legume smooth; teeth of the calyx unarmed.

Near cultivated grounds, but apparently native. N. Y. to Car. W. to Miss. May.—A large tree, the wood of which is much esteemed in ship-building. Leaflets 4—9 pairs, with an odd one. Flowers white, odoruous, in racemes which are 2—5 inches long.

Common Locust Tree.

12. ASTRAGALUS. Linn.—Milk Vetch.

(A name given by the Greeks to a leguminous plant.)

Calyx 5-toothed. Corolla with the keel obtuse. Stamens diadelphous. Legume 2-, or half 2-celled; lower suture inflexed.

*A. Canadensis* Linn.: erect, canescent; leaflets 10—14 pairs with an odd one, elliptic-oblong, rather obtuse, smoothish; stipules broad-lanceolate, acuminate; peduncles about as long as the leaves; flowers in oblong or elongated spikes; bracts subulate, nearly as long as the calyx; legume ovate-oblong, terete, erect, smooth, 2-celled, many-seeded. *A. Carolinianus* Linn.

Banks of streams. Can. as far N. as lat. 58°, to Louis. and W. to Oregon. June—Aug. 74. — Stem 1—3 feet high. Leaflets usually smooth above, sparsely pubescent beneath. Flowers pale yellow, in spikes 1—4 inches long.

Canadian Milk Vetch.
13. PHACA. Linn.—Bastard Vetch.

(From the Greek φακός, lentils.)

Calyx 5-toothed or 5-cleft; the two upper teeth a little distant from each other. Keel obtuse. Legume usually turgid or inflated, 1-celled, the upper suture somewhat tumid.

P. neglecta Torr. & Gr.: nearly smooth; leaflets 6—10 pairs, elliptic, smooth above, pubescent with appressed hairs beneath; stipules triangular ovate; peduncles about as long as the leaves; spikes oblong, many-flowered; calyx campanulate; legume sessile, globose, ovate, pointed.


14. STYLOSANTHES. Swartz.—Pencil Flower.

(From the Greek στῦλος, a column, and αὐδος, a flower; the flowers appearing stipitate.)

Tube of the calyx very long, slender; limb 5-parted, lobes unequal. Corolla inserted in the throat of the calyx. Keel minute, bifid at the apex. Stamens monadelphous. Style filiform, very long, straight. Stigma capitate, hispid. Legume with 1—2 joints; joints 1-seeded; the apex subuncinate, acuminated into the base of the style.

S. elatior Swartz: stem erect, herbaceous, pubescent on one side; leaves ternate; leaflets lanceolate, smooth, acute; bracts lanceolate, hispid-ciliate; spikes few-flowered; legume 2-jointed, the lower joint sterile and stipitate.


15. ESCHYNOMENE. Linn.—Eschynomene.

(From the Greek ἐσχύνομαι, to be bashful; in allusion to its sensibility.)

Calyx 5-cleft, bilabiate; upper lip 2-cleft or 2-toothed; lower one 3-cleft, or 3-toothed. Corolla papilionaceous. Stamens 10, in two equal sets. Legume compressed, transversely jointed, erect, exsert; joints 1-seeded.

Æ. hispida Willd.: stem herbaceous, erect, and with the petioles and peduncles hispid; leaves in many pairs; leaflets linear, obtuse; racemes simple, 3—5-flowered; legume distinctly stipitate, with 6—9 hispid joints. Hedysarum Virginicum Linn.

16. DESMODIUM. D. C.—Desmodium.

(From the Greek ἐςφός, a chain, and ἱτός, form; the articulated pods resembling a chain.)

Calyx with two bracts at base, obscurely bilabiate to the middle; upper lip bifid; lower one 3-parted. Corolla papilionaceous. Standard roundish; keel obtuse, not truncate; wings longer than the keel. Stamens diadelphous (9 and 1); filaments subpersistent. Legume with many joints; joints compressed, 1-seeded, membranaceous or coriaceous, scarcely dehiscent.

1. D. Canadense D. C.: stem erect, hairy, striate; leaflets oblong-lanceolate, much longer than the petioles, nearly smooth above; stipules lanceolate; racemes terminal and in the axils of the uppermost leaves; joints of the legume 3—4, ovate-triangular, truncate at both ends, hispid. *Hedysarum Canadense* Linn.


Dry woods. Can. to Flor. July, Aug. 14.—Stem 3—5 feet high, more or less hairy. Leaflets 2—4 inches long, hairy on both sides, the shorter hairs uncinate. Flowers violet-purple. *Hoary Desmodium.*

3. D. Marylandicum Boott: stem erect, simple, slender, nearly smooth; leaflets (small) ovate, very obtuse, often subcordate, thin; petiole as long as the lateral leaflets, smooth; stipules lanceolate-subulate, caduous; panicle elongated; legume with 2—3 hispid somewhat semiorbicular joints. *D. obtusum* D. C. *Hedysarum Marylandicum* Linn. and *H. obtusum* Pursh.


4. D. Dillenii Darlingt.: stem erect, branching, pilose; leaflets oblong or ovate-oblong, somewhat glaucous and villous beneath; stipules subulate; racemes slender, forming a loose terminal panicle; legume with 3—4 rhomboid reticulated hispid joints. *D. Marylandicum* D.C. *Hedysarum Marylandicum* Pursh.


5. D. viridiflorum Beck: stem erect; leaves ternate; leaflets ovate, obtuse, scabrous on the upper surface, villous and very soft beneath; panicle
terminal, very long, naked; legume with 3—4 roundish triangular very hispid joints. \textit{Hedysarum viridisflorum} Linn. Ell. not of Pursh.


\textit{Villosus-leaved Desmodium}.

6. \textit{D. ciliare} D. C.: stem erect, rather slender, hairy; leaves crowded, on short hairy petioles; leaflets small, ovate or oval, obtuse, subcoriaceous, ciliate; stipules subulate-linear; racemes paniculate, terminal; legume with 2 or 3 semiobicular hispid joints. \textit{Hedysarum ciliare} Willd.


7. \textit{D. rigidum} D. C.: stem erect, branching, rough-pubescent; leaflets ovate-oblong, rather obtuse, reticulate, ciliate, scabrous above, hairy beneath; stipules ovate-lanceolate, acuminate; racemes paniculate, erect, very long; legumes with 2—3 semiobicular or oval hispid joints. \textit{Hedysarum rigidum} Ell.


8. \textit{D. levigatum} D. C.: stem simple, erect, smooth, somewhat glaucous; leaves ternate, on long petioles; leaflets ovate, acute; panicle terminal; flowers in pairs, on long pedicels; bracts ovate, acute, shorter than the flower buds; lower segment of the calyx elongated; joints of the legume triangular. \textit{Hedysarum levigatum} Nutt.


10. \textit{D. paniculatum} D. C.: stem erect, smooth; leaves ternate; leaflets oblong-lanceolate, rather obtuse, smoothish; stipules subulate; panicle terminal; legumes with 3 or 4 rhomboidal pubescent joints. \textit{Hedysarum paniculatum} Linn.


11. \textit{D. strictum} D. C.: stem stiffly erect, simple, subpubescent; leaves ternate; leaflets sublinear, smooth, reticulate, glaucous beneath; stipules subulate; panicles terminal, pedunculate, few-flowered; legume incurved, with subulate-triangular hispid joints. \textit{Hedysarum hirtum} Pursh.

erect. Leaflets narrow. Flowers small, purple, in long axillary and terminal panicles.

12. *D. acuminatum* D. C.: stem erect, simple, pubescent, leafy at the summit; leaves ternate, on very long petioles; leaflets ovate, conspicuously acuminate, somewhat hairy, the terminal one broader and orbicular-ovate; panicle terminal, on a very long peduncle; joints of the legume 2—3, semi-oval, pubescent. *Hedysarum acuminatum* Mich.


13. *D. nudiflorum* D. C.: stem erect, simple, leafy at the summit; leaves ternate; leaflets broad-ovate, acuminate; scape paniculate, smooth, radical; legume on a very long stipe, with 3—4 obtuse triangular joints. *Hedysarum nudiflorum* Linn.


14. *D. pauciflorum* D. C.: stem decumbent or suberect, low and slender, mostly simple, pilose; leaves alternate and distant, lateral, on rather long petioles; leaflets obliquely ovate, subacuminate and pubescent ciliate; the terminal one dilated, rhomboid-ovate; stipules obsolete; raceme slender, few-flowered, on a terminal peduncle; legume stipitate, with 2—3 semi-oval pubescent joints. *Hedysarum pauciflorum* Nutt.


16. *D. humifusum* Beck: stem procumbent, smooth; leaves ternate; leaflets ovate, slightly hairy; racemes terminal, elongated; joints of the legume subrhomboidal. *Hedysarum humifusum* Muhl. Big.

Woods. Mass. Penn. to Car. Muhl. Aug. 4. — Resembles the last, but is smoother, and has the leaflets oval or ovate and subacute. Perhaps only a variety. *Procumbent Desmodium*.


(Etymology uncertain.)

Calyx 5-cleft; segments linear-subulate, nearly equal. Standard large. Keel obliquely truncate; wings much shorter than the keel. Stamens diadelphous (9 and 1). Legume with many joints; joints compressed, roundish, 1-seeded.

*H. boreale* Nutt.: stem subdecumbent; leaves pinnate; leaflets (7 or 8 pairs) oblong-ovate, partly villous; stipules sheathing, subulate; racemes


18. **LESPEDEZA.** Mich.—Lespedeza.

(Dedicated by Michaux to Lespedez, a Spanish governor of Florida.)

Calyx with 2 bracts at base, 5-parted; segments nearly equal. Corolla papilionaceous. Keel transversely obtuse. Stamens diadelphous (9 and 1). Legume lenticular, compressed-flat, not opening, 1-seeded, unarmed.


2. **L. sessiliflora** Nutt.: stem erect, somewhat branched; leaves on short petioles; leaflets oblong-oval, obtuse; fascicles of flowers subsessile; axillary ones partly racemose; legume ovate, acute or acuminate, much longer than the minute calyx. **Hedysarum sessiliflorum** Lam. *L. violacea* Torr. & Gr.


3. **L. Stueyi** Nutt.: stem, simple, erect, softly and seriously villous; leaves on very short petioles; leaflets elliptic-oval, mucronate; racemes pedunculate, scarcely longer than the leaves; legume pubescent, naked, longer than the calyx.


4. **L. capitata** Mich.: stem erect, simple; leaves on very short petioles; leaflets varying from elliptic to linear, with close-pressed hairs beneath; spikes capitulate, on short peduncles; calyx villous, as long as the corolla, with the oval legume much longer. *L. frutescens* and *L. angustifolia* Ell.

Dry woods. Can. to Car. W. to Miss. July, Aug. **24.**—Stem 2—4 feet high, straight. *Leafets* an inch or an inch and a half long, and 2—6 lines wide. Flowers in oblong or subglobose heads, white or very pale yellow. **Round-headed Lespedeza.**

5. **L. polystachia** Mich.: stem erect, branched, very villous; leaves on very short petioles; leaflets round-oval, obtuse; spikes oblong-cylindric, the peduncles at length much longer than the leaves; corolla and legume about as long as the calyx. *L. hirta* Ell. Torr. & Gr. **Hedysarum hirtum** Linn.

Dry woods. Can. to Flor. Aug., Sept. **24.**—Stem 2—4 feet high. *Leafets* about an inch long. Flowers reddish-white, in dense spikes which are about an inch in length. **Hairy Lespedeza.**
6. *L. violacea* Pers.: diffuse, much branched, somewhat pubescent; leaves on long petioles; leaflets elliptic-obtuse, somewhat hairy; racemes subumbellated, about as long as the leaves; flowers in pairs, distinctly pedicellate; legume rhomboidal, reticulate and smooth. *Hedysarum violaceum* Linn.

Dry woods. Can. to Flor. W. to Miss. July. *2.—Stem* long, slender. *Flowers* violet.—*Lespedeza divergens* of Pursh, is probably only a variety of the above, although Mr. Elliott considers it very distinct. "It is," he says, distinguished by much larger leaves on much longer petioles, its stem is much more diffusely branched, the peduncles long, with the flowers scattered and distinctly racemose." Torrey and Gray include under this species *L. divergens* Pursh. *L. frustescens* Linn. (not of Ell.) *L. sessiliflora* Mich., and *L. reticulata* Pers. *Violet-flowered Lespedeza*.

7. *L. procumbens* Mich.: slender, procumbent, with the branches assurgent, everywhere pubescent; leaves on long petioles; leaflets oval, obtuse, mucronate; racemes short, subumbellate, on long erect axillary peduncles, few-flowered; legume orbicular-ovate, pubescent. *Hedysarum Lespedeza* Lam.


8. *L. repens* Torr. & Gr.: minutely pubescent or nearly smooth, diffusely procumbent; leaflets oval or ovate-elliptical, the uppermost ones emarginate; petioles mostly very short; peduncles axillary, elongated, few-flowered; legume nearly orbicular. *L. repens* Bart. *L. prostrata* Pursh. *Hedysarum repens* Linn.


(A name derived from a Celtic term, signifying Vetch.)

Calyx tubular, 5-cleft or 5-toothed; two upper teeth shorter. Corolla papilionaceous. Stamens diadelphous. Style filiform, bent at a right angle with the ovary, bearded beneath the stigma. Legume oblong, many-seeded.

*Flowers on peduncles.*

1. *V. Caroliniana* Wall.: smoothish; leaflets 8—10, elliptical-lanceolate, subalternate, obtuse, mucronate; stipules ovate-lanceolate, entire; peduncles many-flowered, as long as or longer than the leaves; flowers distant; teeth of the calyx short; style villous at the top; legume lanceolate, smooth, obliquely veined. *V. parviflora* Mich.


2. *V. Americana* Muhl.: leaflets 8—12, elliptic-lanceolate, obtuse, smooth, mucronate; stipules semiagglutinate, deeply toothed; peduncles 4—8-flowered, shorter than the leaves.

3. *V. Cracca* Linn.: stem branching; leaflets numerous, oblong, alternate and opposite, mucronate, pubescent; stipules semisagittate; linear, nearly entire; peduncles many-flowered, as long as or longer than the leaves; racemes crowded, secund; teeth of the calyx unequal; upper ones very short; lower ones shorter than the tube; styles hairy at the top; legume oblong, coriaceous, compressed, smooth.  

**Tufted Vetch.**

Fields, &c. Can. to Penn. May, June. 1.—Stem 1—2 feet long, very slender, 4angled. Leaflets half an inch long, rather obtuse, with a fine point. Flowers white or bluish-white, very small, sometimes 3 or 4 together.  

**Slender Vetch.**

5. *V. sativa* Linn.: leaflets 6—12, ovate-oblong or linear-oblong, retuse, mucronate, more or less pilose beneath; stipules semisagittate, toothed, with a dark spot beneath; flowers mostly in pairs, sub sessile; calyx cylindric; segments linear-lanceolate, nearly equal; style bearded at the top; legume compressed.  
Fields. Can. to Car. June. 1.—Stem 1—2 feet high, erect or decumbent. Flowers half an inch long, pale purple. A very variable species. Introduced from Europe.  

**Common Vetch.**

20. ERVUM. Linn.—Tare.  
(From the Celtic *erw*, a ploughed field, of which it is the pest. Hook. Br. Fl.)  

Calyx 5-cleft; segments linear, acute, nearly equalling the corolla. Stigma glabrous. Legume oblong, 2—4-seeded.  

*E. hirsutum* Linn.: leaflets linear or linear-oblong, truncate or retuse, mucronate; stipules semisagittate, narrow; peduncles 3—6-flowered, about as long as the leaves; segments of the calyx linear-lanceolate, equal, longer than the tube; legume oblong, compressed, hairy, finely reticulate; seeds globose, variegated. *Vicia Mitchellii* Raf.  
Fields. N. Y. to Car. May, June. 1.—Stem 2—3 feet long, much branched, and diffuse. Leaflets 8—20, about half an inch long and a line or two wide. Flowers very small, bluish-white. Introduced?  

**Hairy Tare.**

21. LATHYRUS. Linn.—Vetchling.  
(From *havoros*; a leguminous plant of Theophrastus.)  

Calyx campanulate, 5-cleft; two upper lobes shorter. Corolla papilionaceous. Stamens diadelphous. Style flat, bent at a right angle with the ovary, dilated at the summit, villous or pubescent on the upper side. Legume oblong, many-seeded, 2-valved, 1-celled. Seeds globose or angled.  

1. *L. maritimus* Big.: smooth; stem stout, at length decumbent; leaflets 4—6 pairs, oval or slightly obovate; stipules cordate-hastate, nearly as
large as the leaflets; peduncles 6—10-flowered, shorter than the leaves; legume oblong, somewhat falcate. *L. pisiformis* Hook. *Pisum maritimum* Linn.


2. *L. venosus* Muhl.: stem square, naked; leaves pinnate; leaflets 5—7 pairs, ovate-oblong, obtuse, subopposite, mucronate, smooth, veined; stipules small, semisagittate, ovate; peduncles many-flowered, shorter than the leaves.


3. *L. palustris* Linn.: stem smooth, winged, weak; leaflets in 3 pairs, oblong, somewhat coriaceous, mucronate; stipules semisagittate, acute; peduncles 3—5-flowered, a little longer than the leaves; segments of the calyx unequal, sublinear, as long as the tube; legume compressed.


4. *L. myrtifolius* Muhl.: stem weak, flexuous, square; leaflets 2—3 pairs, oblong-lanceolate, somewhat obtuse, mucronate, rigid, smooth, veined; stipules semisagittate, lanceolate, acuminate, scabrous on the margin; peduncles 3—6-flowered, longer than the leaves.

Salt marshes. N.Y. and Penn. July, Aug. 24.—Resembles the former, but usually has a more slender stem, and broader leaflets and stipules. Flowers smaller, purple, and rose-colored. *Myrtle-leaved Vetchling.*

5. *L. ochroleucus* Hook.: plant smooth, pale, and somewhat glaucous; leaflets in 3—4 pairs, ovate, obtuse, mucronate, reticulate beneath; stipules large, broad-ovate, acuminate; peduncles 4—10-flowered, shorter than the leaves; legume compressed, smooth. *L. glaucifolius* Beck Bot. 1st. Ed.

Banks of streams. Arct. Amer. to N.Y. and N.J. May, June. 24.—Stem slender, 1—2 feet long, often nearly erect. Leaflets one and a half to two inches long, and an inch wide. Flowers large, pale yellow. When I introduced this plant as a new species into the former edition of this work, I was not aware that it had already been described under another name by Dr. Hooker. *Cream-colored Vetchling.*

22. AMPHICARPÆA. Ell.—Hog-Nut.

(From the Greek αὐφίς, both, and καρπος, fruit; producing fruit both above and under ground.)

Flowers of two kinds; the one perfect and petaliferous, but often sterile; the other imperfect, but usually fertile. Perfect Fl.—Calyx tubular-campanulate, 4-toothed, without bracts at the base. Standard incumbent and partly folded round the other petals. Style smooth. Stigma small, capitate. Legume linear-oblong, stipitate, compressed, 3—4-seeded. Imperfect Fl.—Corolla none or with the rudiment of a standard. Stamens either wanting, or 5—10. Legume obovate, 1—2-seeded, usually maturing below the surface of the ground.
A. monoica Torr. & Gr.: racemes of the petaliferous flowers nodding; teeth of the calyx short and broad, somewhat triangular; bracts shorter than the pedicels. A. monoica and A. sarmentosa Ell. Glycine monoica, comosa and bracteata Linn.

Woods. Can. to Flor. W. to Louis. July, Aug. 4.—Stem slender, twining, 3—8 feet long, more or less hairy. Leaves ternate; leaflets rhombic or oblong-ovate. Flowers pale purple, in shortly peduncled racemes, some of them under ground and imperfect.

Common Hog-nut.

23. APIOS. Boerh.—Ground-Nut.

(From the Greek απιος, a pear; in allusion to the form of its tuberous roots.)

Calyx campanulate, obscurely 2-lipped; the upper lip of 2 short rounded teeth. Standard very broad, with a longitudinal fold in the centre, reflexed. Keel long, falcate, and with the stamens and style at length spirally twisted. Legume somewhat terete, slightly falcate, many-seeded.

A. tuberosa Mæch. Glycine APIsinn.


Ground-nut. Wild Bean.

24. PHASEOLUS. Linn.—Kidney Bean.

(From the Latin phaselus, a little boat; on account of the form of the legume.)

Calyx campanulate, 5-cleft or 5-toothed; the two upper teeth more or less united. Keel, stamens and style, spirally twisted, or rarely incurved. Legume linear or falcate, more or less compressed, many-seeded.

1. P. perennis WAll.: stem twining, pubescent; leaflets ovate, acuminate, 3-nerved; racemes solitary or somewhat clustered, simple or somewhat branched, longer than the leaves; legume pendulous. P. paniculatus Mich. Dolichos polystachys Linn.

Dry woods. Can. to Flor. W. to Miss. July. 4.—Stem 4—10 feet long, climbing. Leaflets 2—3 inches long. Flowers purple, in numerous racemes which are from 4—10 inches long.

Wild Kidney Bean.


Woods. Can. to Flor. Aug. 11.—Stem prostrate and a little scabrous, 2—6 feet long. Leaflets more or less distinctly 3-lobed. Flowers 4—8, purple, on peduncles 4—6 inches long.

Various-leaved Kidney Bean.

3. P. kelvolus Linn.: stem slender, hairy backwards; leaflets ovate, oblong, usually entire, about the length of the petiole; stipules lanceolate; peduncles slender, 3—6 times as long as the leaves; flowers few, in heads;
legume narrow-linear, 7—10-seeded, slightly pubescent; seeds pubescent. *P. vescillatus* and *P. helvolus* Pursh. *Strophostyles helvola* and *S. peduncularis* Ell.


(From the Latin *lupus*, a wolf; because it was supposed to destroy the fertility of the soil.)

Calyx deeply bilabiate; the upper lip 2-cleft; the lower entire, or 3-toothed. Standard with the sides reflexed. Wings united at the top. Keel acuminate. Anthers 5 roundish and 5 oblong. Style filiform. Stigma small, capitate, bearded. Legume oblong or linear, torulose, coriaceous, many-seeded.

*L. perennis* *Linn.*: perennial, somewhat hairy; leaves digitate; leaflets 7—11, obovate-oblong or oblanceolate, rather obtuse, mucronate, smoothish above, a little hairy beneath; flowers scattered in a long loose raceme; bracts shorter than the pedicels; upper lip of the calyx emarginate, lower one nearly entire; legume linear-oblong, very hairy.

Sandy woods. Can. to Flor. N. to Arct. Amer. W. to Miss. May, June. 2½—3½ feet high, erect or somewhat decumbent. Leaflets usually 8 or 9, digitately arranged. Flowers purplish-blue, large, in a terminal spike or raceme which is 6—10 inches long.

**Suborder II. CÆSALPINEÆ.**

Petals imbricated in aestivation, the uppermost interior.


(In honor of Gleditsch, a German botanist of the last century.)

Flowers by abortion imperfect or perfect. Sepals 3—4—5, equal. Petals as many as the sepals, arising from the tube of the calyx. Stamens as many as the sepals and opposite them, or by abortion fewer; style short; stigma pubescent above. Legume compressed, 1- or many-seeded. Seeds oval, compressed.

*G. triacanthos* *Linn.*: branches spiny; spines thick, simple or triple and compound; leaves equally pinnate; leaflets linear-oblong; legume compressed-flat, falcate, many-seeded. *G. triacanthos* and *brachycarpa* Pursh.

Woods. N. Y. to Geor. W. to Miss. July.—A tree sometimes attaining the height of 40 or 50 feet, with very long spines. Leaflets three-fourths of an inch long, nearly smooth. Flowers in axillary racemes, greenish. Legume 10—15 inches long, many-seeded, the intervals between the cells of the seeds filled with a saccharine pulp. The tree is sometimes unarmed, when it forms the var. *incorrect* of De Candolle.

*Three-thorned Honey Locust.*
27. GYMNOCladus. Lam.—Coffee Tree.
(From the Greek γυμνός, naked, and κλάδος, a branch; in allusion to the naked appearance of this tree in winter.)

Flowers by abortion dioecious. Calyx tubular, 5-cleft. Petals 5, equal, oblong, exserted from the tube. Stamens 10, included. Legume oblong, very large and thick, pulpy inside.

G. Canadensis Mich.

28. CASSIA. Linn.—Cassia.
(Said to have been derived from a Hebrew term Latinized by Cassia.)

Sepals 5, scarcely united at base, somewhat unequal. Petals 5, unequal. Stamens 10, free, unequal; 3 lower ones longer; 4 middle ones short and straight; 3 upper ones usually abortive. Anthers opening at the apex. Legume terete or compressed, many-seeded.

1. C. Marylandica Linn. : stem erect; leaflets in 6—9 pairs, ovate-oblong, mucronate, equal; gland at the base of the petiole ovate; racemes axillary, many-flowered, shorter than the leaves; legume compressed, linear, hispid, at length smooth.


2. C. fasciculata Mich. : nearly smooth; leaflets in 8 or 9 pairs, oblong-linear, mucronate; gland near the middle of the petiole sessile; fascicles lateral, many-flowered; petals and stamens of the same color; legume smooth, curved, ascending.


3. C. nictitans Linn. : stem erect or decumbent, branched; leaflets in 10—20 pairs, oblong-linear, obtuse, mucronate; gland on the petiole cup-shaped, on a slender foot-stalk; racemes lateral, above the axils of the leaves, short, few-flowered; stamens 5; legume pubescent.

Sandy banks of streams. N. Y. to Flor. June, July. 1. —Stem a foot high. Flowers small, yellow, 2—3 in a raceme. The leaves are somewhat irritating, like the Mimosa or sensitive plant. Wild Sensitive Plant.

4. C. Chamacciata Linn. : erect or decumbent; leaflets in 10—15 pairs, linear-oblong, oblique at base, obtuse, mucronate; gland on the petiole cup-shaped; fascicles of flowers above the axils of the leaves; legume sparingly hispid.

Sandy places. N. Y. to Car. W. to Miss. June—Aug. 1. —Stem a foot or more high. Flowers yellow, larger than in the preceding; sometimes the base of all the petals are spotted. Partridge Pea.
29. CERCIS. Linn.—Red Bud.

(From the Greek *karpis,* a weaver’s shuttle; being the form of the legume.)


C. Canadensis Linn.: leaves roundish-cordate, acuminate, villous in the axils of the nerves; legume on short foot-stalks; flowers in small fascicles.

Banks of streams. N. J. to Flor. W. to Miss. April.—A small tree with grayish-brown bark. Flowers appearing before the leaves, of a dark rose-color. Legume about 3 inches long, acute at each end. *Judas Tree. Red Bud.*

Order XXXVIII. DRUPACEÆ.—ALMONDS.

Calyx 5-toothed, deciduous, the odd lobe superior. Petals 5. Stamens about 20, arising from the throat of the calyx. Ovary superior, solitary; styles terminal, with a reniform stigma. Fruit a drupe. Seeds mostly solitary, without albumen.—Trees or shrubs, with alternate simple leaves. Stipules simple, mostly glandular. Flowers white or pink.

1. PRUNUS. Linn.—Plum.

(The Latin name for a plum.)

Calyx urceolate, hemispherical; limb 5-parted, deciduous. Petals spreading. Stamens numerous. Drupe ovate or oblong, fleshy, very smooth, covered with grayish dust; stone compressed, acute at both ends, subsulcate at the margin, elsewhere smooth.

1. *P. maritima* Wang: low; branches seldom thorny; leaves oval, ovate or obovate, acuminate, sharply serrate; petioles usually with 2 glands; flowers few, on short pedicels, umbellate; drupe subglobose. *P. acuminata* Mich. *P. littoralis* Big. *Cerasus pubescens* and *C. pygmaea* D. C.

Sandy sea-coast. Mass. and N. Y. to Ala. April, May. ½.—Stem 2—5 feet high. Drupe often as large as the common garden-plum and eatable, but sometimes smaller and astringent; the two kinds being sometimes on the same stem. *Beach Plum. Sand Plum.*


Banks of streams. Arct. Amer. to Geor. Louis. and Texas. April, May. ½.——
DRUACEÆ.

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Stem 8—15 feet high, much branched. Leaves rather coarsely serrate. Flowers white, preceding the leaves. Drupe an inch or a little less in diameter, with a yellow pulp, and thick tough skin. Red Plum. Yellow Plum.

3. P. spinosa Linn.: branches thorny; peduncles solitary; calyx campanulate; lobes obtuse, longer than the tube; leaves obovate-elliptic or ovate, pubescent beneath, coarsely and doubly dentate; drupe globose.


2. CERASUS. Juss.—Cherry.

(The name of an Asiatic town, whence the cherry is said to have been derived.)

Flowers as in the preceding. Drupe globose or umbilicate at base, fleshy, very smooth, destitute of gray powder; nucleus subglobose, smooth.

* Flowers umbellet: pedicels 1-flowered, arising from the buds.

1. C. pumila Mich.: depressed or prostrate; leaves obovate-lanceolate, or oval, acute or obtuse, serrulate, smooth, glaucous beneath; umbels sessile, few-flowered; drupe ovoid. C. depressa D. C. Prunus pumila Willd.

Banks of streams. Hudson’s Bay to Virg. W. to Miss. May. ½.—Stem trailing, the branches 3—20 inches high. Drupe dark-red, eatable. Sand Cherry.


** Flowers racemose, arising from the branches.

3. C. Virginiana D. C.: leaves broad-oval or somewhat obvate, abruptly acuminate, often subcordate, toothed, smoothish; petioles with 2—4 glands; racemes short, erect or spreading; drupe subglobose. C. obovata Beck Bot. 1st. Ed. Prunus Virginiana Linn. P. obovata Big. P. serotina Pursh.

Woods. Hudson’s Bay to Flor. April, May.—A small tree or low shrub, with gray branches. Fruit a quarter of an inch in diameter, dark-red when ripe, very astringent. Choke Cherry.

4. C. serotina D. C.: leaves oval-oblong or lance-oblong, acuminate, smooth and shining above, bearded along the midrib beneath, finely serrate; petiole mostly with 2 or more glands; drupe globose. C. Virginiana Mich. Prunus serotina Willd.

Woods. Can. to Flor. May, June.—A tree 30—60 feet high; branches spreading. Flowers in long racemes, which are at length pendulous. Drupe dark purple, about as large as in the preceding, slightly bitter. The wood is close-grained, and very valuable for cabinet work. Wild Cherry.
Order XXXIX. **ROSACEÆ.**—Roseworts.

Calyx 4 or 5-lobed, with a disk either lining the tube or surrounding the orifice. Petals 5, equal, or none. Stamens usually indefinite. Ovaries superior, solitary or several, 1-celled; styles lateral. Fruit 1-seeded nuts, achenia, or follicles containing several seeds; albumen none.—Herbaceous plants or shrubs, with simple or compound leaves.

1. **SPIRÆA.** Linn.—Spiraæ.

(Supposed to be from the Greek σπειρα, a cord; in allusion to its flexible branches.)


* Shrubby. Leaves lobed and toothed.

1. *S. opulifolia* Linn.: leaves ovate, often subcordate, 3-lobed, doubly toothed and crenate, petioled, smoothish; corymb umbel-like, hemispherical, peduncled; pedicels filiform; carpels 3—5, at length spreading, much longer than the calyx.

Banks of streams. Can. to Geor. W. to Oregon. May, June. h₂.—Stem 3—6 feet high, much branched. Flowers numerous, white, in corymb which are about two inches in diameter. Calyx and pedicels pubescent. Nine-bark.

** Shrubby. Leaves entire or toothed.

2. *S. corymbosa* Raf.: leaves oval or ovate, on short petioles, whitish beneath, incisely serrate toward the apex; corymb terminal, pedunculate, compound, fastigate, somewhat leafy; carpels 3—5, smooth. *S. chamædrifolia* Pursh.

Mountains of Penn. S. to Geor. W. to Ken. May, June. h₂.—Stem 18 inches high, slightly pubescent. Leaves nearly smooth above, pale beneath. Flowers pale rose-color, in a compound pedunculate corymb.

*Corymbose Spiræa.*

3. *S. salicifolia* Linn.: stem and peduncles glabrous; leaves lanceolate or obovate, simply or doubly serrate, smooth; racemes in dense terminal compound panicles; carpels 5, distinct, not inflated, scarcely twice as long as the calyx. *S. alba* Ehrh. *S. hypericifolia* Muhl. according to Torr. & Gr.

Meadows. Arct. Amer. to Geor. June, July. h₂.—Stem 3—5 feet high, the branches purple and brittle. Leaves varying in form, usually acute, but sometimes obtuse. Flowers white or reddish-white. Meadow Sweet.

4. *S. tomentosa* Linn.: stem and peduncles reddish tomentose; leaves ovate-lanceolate, unequally serrate, densely tomentose beneath; racemes terminal, compound, crowded; carpels 5, woolly.

In low grounds. Can. to Geor. July, Aug. h₂.—Stem 2—3 feet high, cov-
ered with a loose wool. Flowers small, pale purple, in a very dense elongated conical raceme.

*** Herbaceous. Leaves pinnate.

5. *S. Aruncus* Linn.: leaves twice or thrice pinnate, shining; leaflets lanceolate-oblong, acuminate; the terminal ones ovate-lanceolate, sharply and incisely doubly serrate; flowers very numerous; carpels 3—5, smooth. *S. Aruncus* var. *Americana* Pursh.

Mountains. N. Y. to Geor. W. to Miss. June. 2ft.—*Stem* 4—6 feet high. Leaves very large. Flowers white, small, in slender terminal spikes. **Goat's Beard.**

6. *S. lobata* Jacq.: leaves palmate-pinnate, smooth, lower ones bipinnate; terminal leaflet much larger and 7-lobed; lateral leaflets 3-lobed; the lobes all serrate, mostly incised or toothed; flowers in a compound cymose panicle; sepals reflexed; carpels 6—8, smooth.

Moist grounds. Penn. to Car. W. to Mich. and Ken. June, July. 2ft.—*Stem* 5—8 feet high, angled. Flowers in an imperfect cyme, deep rose-color, large. **Lobe-leaved Spirea.**

2. **GILLENIA. Mænch.—Indian Physic.**

(Etymology uncertain.)

Calyx tubular-campanulate, contracted at the mouth, 5-cleft. Petals 5, linear-lanceolate, somewhat unequal, coarctate at the claws. Stamens 10—20, mostly included. Styles filiform. Carpels 5, distinct, 2-valved.

1. *G. trifoliata* Mænch.: leaves ternate; leaflets lanceolate or obovate-lanceolate, acuminate, serrate; stipules small, subulate-linear, entire. **Spirea trifoliata** Linn.


2. *G. stipulacea* Nutt.: radical leaves pinnatifid; cauline ternate; leaflets incisely serrate; stipules foliaceous, ovate, incisely toothed and clasping. **Spirea stipulata** Muhl.

Western part of N. Y. D. Thomas. S. to Car. and Louis. W. to Miss. June. 2ft.—*Stem* 2—3 feet high, branching. It resembles the former, but can readily be distinguished by its large clasping stipules. It possesses nearly the same medicinal properties. **American Ipecacuanha.**

3. **DRYAS. Linn.—Dryas.**

(Said to be derived from the Greek ὅψης, the oak; on account of a distant similarity between their leaves.)


*D. integrifolia* Vahl.: leaves oblong-ovate, broader at base, entire or very slightly toothed at the base; sepals linear. **D. tenella** Pursh.
ROSAECEÆ.

White Hills, N. H. N. to Labrador. July. 94.—Flower white, on a terminal peduncle. Scarcely distinct from D. octopetala Linn.

Entire-leaved Dryas.

4. GEUM. Linn.—Avens.

(From the Greek γεύο, to yield an agreeable flavor; the root of one species being aromatic.)

Calyx concave; limb 5-cleft, with 5 small external bracts alternating with the segments. Petals 5. Stamens numerous, inserted into the disk that lines the base of the calyx. Carpels in a head, awned by the persistent styles.

1. G. strictum Ait.: hairy; radical and lower leaves interruptedly pinnate; upper cauleine ones 3—5-foliate; the leaflets rhombic-ovate, acute, sharply toothed and incised; stipules large, incised; petals roundish, longer than the calyx. C. Canadense Willd.


Yellow Avens.

2. G. Virginianum Linn.: pubescent; radical leaves pseudo-pinnate or ternate; upper simple, lanceolate, incisely serrate; stipules subovate, entire or incised; petals cuneate-ovovate, shorter than the calyx. G. album Willd.

Woods. Can. to Geor. W. to Miss. June, July. 94.—Stem 2—3 feet high, smooth, or pubescent. Radical leaves on long petioles. Flowers white or pale yellow, on peduncles 1—3 inches long terminating the branches, at first somewhat nodding, at length erect.

Virginian Avens.

3. G. macrophyllum Willd.: hispid; radical leaves lyrately and interruptedly pinnate; cauleine with 2—4 minute lateral leaflets, the terminal one large roundish and 3-parted; stipules nearly entire; petals obovate, a little longer than the calyx.


Long-leaved Avens.

4. G. rivale Linn.: pubescent; stem simple, 1—4 flowered; radical leaves interruptedly pinnate; cauleine ternate or 3-lobed; petals broad obcordate-spatulate, emarginate, about as long as the calyx; carpels in a stiped head, very hairy; upper joint of the style plumose.

Moist places. Can. to Penn. W. to the Rocky Mountains. May, June. 94.—Stem 18 inches or 2 feet high, nearly simple, somewhat pilose. Radical leaves on very long petioles. Flowers large, purple, nodding.

Water Avens.

5. G. triflorum Pursh.: stem nearly naked, softly pubescent, about 3-flowered at the summit; radical leaves interruptedly pinnate, the petioles hairy; leaflets cuneiform-oblong, deeply incised and toothed; bracts longer than the segments of the calyx; styles very long and filiform in fruit, plumose. Sieversia triflora R. Brown.

On rocks. Watertown, Jefferson county, N. Y.; very rare. Dr. CRAVE. White Mountains, N. H. W. to the Rocky Mountains. N. to Labrador. May, June. 94.—Stem 4—6 inches, in fruit 13—15 inches high, with two opposite

6. G. Peckii: somewhat hairy; stem paniculately branched above, several-flowered, scarcely leafy; radical leaves lyrate-pinnate; the terminal leaflet very large, roundish reniform, somewhat truncate at base; lateral ones minute; petals obviate-roundish, twice as long as the ovate-triangular segments of the calyx. Sieversia Peckii. R. Brown.

White Mountains. N. H. Prof. Peck. July, Aug. 24.—Stem a foot or more high, with 3 or 4 small sessile incised leaves. Flowers terminal and solitary at the end of each branch or peduncle, yellow, middle-sized. Peck’s Avena.

5. COMAROPSIS. Rich.—Dry Strawberry.
(From the Greek, kouapos, the ancient name of a strawberry, and opos, appearance; on account of its resemblance to the strawberry.)

Calyx with the tube turbinate, the limb 5-cleft, not bracted. Petals 5, without claws. Stamens numerous. Capsule small, with an elongated filiform style at the apex. Achenia 2—6, dry, not united at base.

C. fragarioides D. C.: leaves radical, ternate; leaflets broad wedgeform, toothed and incised; scapes 3—5-flowered; petals much larger than the segments of the calyx; carpels hairy. Dalibarda fragarioides Mich. Pursh. Waldsteinia fragarioides Torr. & Gr.


6. RUBUS. Linn.—Raspberry and Blackberry.
(Said to be from the Latin ruber, red.)

Calyx concave or flattish at base, naked, 5-parted. Petals 5, deciduous. Stamens numerous, inserted into the border of the disk. Berry composed of many pulpy carpels aggregated on a spongy receptacle, persistent or deciduous.

§ 1. Berry concave beneath and falling away from the dry receptacle when ripe. (Raspberry.)

* Leaves simple.

1. R. odoratus Linn.: hispid with glandular hairs; stem erect, branched; leaves large, 3—5-lobed; the lobes acute or acuminate, unequally serrate; peduncles many-flowered, compound; sepals long, acuminate, shorter than the obovate-roundish petals.

Rocky places. Can. to Geor. June. 12.—Stem 3—4 feet high. Flowers large, purple. Fruit broad and flat, yellowish or red when ripe, scanty, but well-flavored. It is often abortive. Flowering Raspberry.

2. R. Chamæcarmorus Linn.: dioecious; stem creeping at base, simple, 1-flowered, somewhat pubescent, unarmed; leaves cordate-reniform, plicate, 5-lobed, serrate, the lobes rounded; sepals ovate, obtuse, shorter than the spreading obovate petals.
Sphagnous swamps. Lubeck, Maine. White Mountains, N. H. Oakes. N to Arctic Amer., from Greenland to Behring's Straits. June, July. **Flower large, white. Fruit red, well-flavored, composed of few and large carpels.**

**Cloud Berry.**

3. _R. triflorus_ Richardson: unarmed; stem suffrutescent at base, ascending; leaves ternate or pedate-quinate, on slender petioles; leaflets membranaceous, rhombic-ovate or ovate-lanceolate, acute at both ends, coarsely serrate or incised, the terminal one petiolate; peduncle terminal, 1—3-flowered; sepals lanceolate, reflexed, shorter than the spatulate-oblong petals. _R. saxatilis_ var. _Canadensis._ **R. saxatilis Big.**

Moist woods and hills. Hudson's Bay to Penn. June. 12. —Stem a foot or more high, and with the branches often rooting at the extremity, minutely pubescent. Flowers white. Fruit small, reddish-purple, usually sour. **Dwarf Raspberry.**

4. _R. strigosus_ Mich.: stem erect, suffruticos, strongly hispid; leaves ternate or quinate; leaflets oblong-ovate, acuminate, incisely serrate, white tomentose beneath, the terminal one often subcordate; peduncles 4—6-flowered; sepals spreading, nearly as long as the petals. _R. Pennsylvanicus._

Rocky places. Subarct. Amer. to Virg. W. to Oregon. May. 12. —Stem reddish-brown, shining. Flowers white. Fruit red, richly flavored. This species has probably been confounded with _R. Ideus_, which is not a native. **Red Raspberry.**

5. _R. occidentalis_ Linn.: somewhat smooth, armed with strong hooked prickles; leaves ternate, rarely quinate; leaflets ovate, acuminate, coarsely or incisely serrate, hoary tomentose beneath; terminal peduncles several-flowered; petals obovate-wedgeform, shorter than the reflexed sepals.


§ 2. **Fruit persistent on the somewhat juicy receptacle.** (Blackberry.)

6. _R. villosus_ Ait.: prickly; stem angular, and with the branches, peduncles and lower surface of the leaves tomentose-villous and glandular; leaves ternate and pedate-quinate; leaflets ovate or oblong-ovate, mostly acuminate, doubly or unequally serrate, the terminal one petiolate and subcordate; flowers in elongated terminal racemes; sepals acuminate, much shorter than the obovate spreading petals.

var. _frondosus_ Torr.: much less glandular, smoother; flowers fewer, corymbose, with leafy bracts. _R. frondosus Big._

Fields and woods. Can. and throughout the U. S. May, June. 12. —Stem erect, (4—8 feet high,) or reclined. Flowers white, numerous. Fruit ovoid-oblong, sometimes acute, half an inch to an inch in length, purple or nearly black when ripe, sweet and well-flavored. **High Blackberry.**

7. _R. Canadensis_ Linn.: stem procumbent or trailing, somewhat prickly; leaves ternate or pedate-quinate, smooth or pubescent; leaflets oval, rhombic-ovate or lanceolate, sharply and unequally serrate, often incised; flowers in racemes or somewhat corymbed, with leafy bracts; sepals mucronate,

Rocky woods. Can. to Virg. May, June. 12. — Stem trailing or procumbent, ascending at base. *Flowers* white, smaller than in the preceding. *Fruit* roundish or oblong, half an inch to an inch in diameter, black, sweet and juicy.

Low Blackberry. Dewberry.

8. *R. hispidus* Linn.: stem slender, prostrate, and with the petioles and peduncles armed with retrorse bristles or weak prickles; leaves ternate or pedate-quinate; leaflets somewhat coriaceous, obovate, coarsely and unequally serrate, entire towards the base, smoothish; flowers in corymb or racemes, without bracts; sepals spreading, half the length of the obovate or oblong-obovent petals. *R. obovalis* Mich. *R. sempervirens* Big.


Trailng Swamp Blackberry.

9. *R. setosus* Big.: stem reclining, armed with weak prickles; branches setose at the apex; leaves ternate or quinate, on long petioles; leaflets obovate-wedgeform, simply serrate, smooth; flowers in racemes, with bristly pedicels; petals obovate-wedgeform, longer than the sepals. *R. hispidus* var. *setosus* Torr. & Gr.


Bristly Raspberry.

10. *R. trivialis* Mich.: sarmentose procumbent, bristly, at length prickly; leaves ternate or pedate-quinate; leaflets ovate-oblong or lanceolate, mostly acute, sharply serrate, nearly smooth; peduncles 1—3-flowered; petals broad-obovent, more than twice as long as the reflexed sepals. *R. hispidus* Willd.

Dry woods. Penn. to Flor. W. to Texas. March—May. 12. — The leaves are more coriaceous and often smaller than in any other N. American species, the young stems very hispid as well as prickly, the *flowers* large in proportion, on long-hispid or prickly peduncles. Torr. & Gr. Stem sometimes with erect branches. *Fruit* large, black.

Low Bush Blackberry.

11. *R. cuneifolius* Pursh.: low, armed with stout recurved prickles; leaves ternate and pedate-quinate; leaflets wedgeform-obovent, somewhat coriaceous, entire at base, subplicate, pubescent-tomentose beneath, terminal one petiolet; peduncles few-flowered; petals obovate, much longer than the tomentose oblong mucronate sepals. *R. parviflorus* Walt.


Sand Blackberry.

7. DALIBARDA. Linn.—Dalibarda.

(In honor of Dalibard, a French botanist of the last century.)

Calyx with the tube short, concave; limb 5—6-cleft, naked without; lobes dentate. Petals 5, sessile, deciduous. Stamens many. Ovaries 5—10, with short terminal styles. Achenia few, dry, adhering to the calyx.

*D. repens* Linn.: stem creeping; leaves simple, cordate, crenate-dentate;


8. FRAGARIA. *Tourn.*—Strawberry.

(From the Latin *fragrans*; on account of its fragrant fruit.)

Calyx with the tube concave, 5-cleft, and with 5 bracts without, (or 10-cleft.) Petals 5. Stamens many. Carpels naked, fixed on a long pulpy deciduous receptacle. Style lateral.

1. *F. Virginiana Linn.*: leaflets broad-oval, smoothish above, the lateral ones distinctly petioloed; peduncles usually shorter than the leaves; fruit ovoid; achenia imbedded in the receptacle. *F. Canadensis* Mich.

Fields and meadows. Throughout the U. S. Can. and Arct. Amer. to lat. 64°. May. 2. — *Flowers* white. *F. Canadensis* Mich. is the larger form of this species, and appears in some situations to be quite constant. This is the case at Little Falls, N. Y. — *Wild Strawberry.*

2. *F. vesca Linn.*: lobes of the leaves plicate, thin, pilose beneath; peduncles usually longer than the leaves; fruit conical or hemispherical; achenia superficial.

Fields. N. S. Subarct. Amer. and N. W. Coast. April, May. 2. — More stoloniferous than the former, and the carpels not imbedded in the receptacle. There are several cultivated varieties. — *Common Strawberry.*

9. POTENTILLA. *Linn.*— Cinquefoil.

(From the Latin *potens*, powerful; in allusion to its supposed medicinal virtues.)

Calyx with the tube concave; limb 4—5-cleft, 4—5-bracted without (or 8—10-cleft). Petals 4—5, obtuse or obcordate. Stamens many. Carpels many, roundish, rugose, naked, fixed to a small dry receptacle.

* Leaves ternate or quinque-palmate:

1. *P. Norvegica Linn.*: hirsute; stem erect, dichotomous above; leaves ternate-palmate; leaflets lanceolate or obovate, simply and doubly serrate; stipules lanceolate; flowers numerous, subcorimb and axillary; petals obovate, slightly emarginate, shorter than the calyx. *P. hirsuta* Mich.

Old fields and pastures. Can. to Car. N. to Arct. Amer. June—Aug. 1. — Stem 1—2 feet high, hirsute, at length more or less branched. Lower leaves on petioles 1—4 inches long. *Flowers* yellow, in leafy corymbs at the top, and on long solitary peduncles below. — *Norway Cinquefoil.*

2. *P. tridentata Ait.*: stems ascending, woody and creeping at base; leaves ternate-palmate; leaflets obovate-wedgeform, coriaceous, 3-toothed at the end, pale pubescent beneath; stipules lanceolate, acuminate; corymb loose, few-flowered; petals oblong-ovate, longer than the calyx.

3. *P. Canadensis* Linn.: silky-villous; stem procumbent and ascending, somewhat branched; leaves quinate-palmate; leaflets obovate-wedgeform, acutely dentate; stipules lanceolate, somewhat obtuse; peduncles solitary, elongated; lobes of the calyx linear-lanceolate, acute, nearly equalling the obovate or obcordate petals. *P. simplex* Mich. *P. sarcastos* Wild.  


4. *P. minima* Haller: stem ascending, pubescent, mostly 1-flowered; leaves ternate; leaflets obovate, very obtuse, smooth except on the margin and veins beneath, incisely serrate towards the apex; petals obcordate, longer than the calyx.  

Near the summit of the White Mountains, N. H. June, July. 24.—Root fusiform  Stems 1—3 inches high. Leaves crowded. Flowers small.  

Small Cinquefoil.  

5. *P. argentea* Linn.: stem ascending or erect, tomentose; leaves quinate-palmate; leaflets obovate-wedgeform, deeply incised, revolute on the margin, smooth above, tomentose beneath; flowers numerous, corymbed; lobes of the calyx lanceolate, shorter than the obovate petals.  


**Leaves pinnate.**  

6. *P. fruticosa* Linn.: stem fruticose; leaves pinnate, hirsute or silky; leaflets oblong-lanceolate, very entire, approximate; stipules lanceolate, membranaceous, acute; flowers in corymbs, large; petals longer than the calyx. *P. fruticosa* and *P. floribunda* Pursh.  


Shrubby Cinquefoil.  

7. *P. supina* Linn.: stem decumbent, herbaceous, dichotomous; leaves pinnate; leaflets obovate or oblong, somewhat glabrous, more or less toothed; peduncles axillary, solitary, 1-flowered; segments of the calyx triangular-lanceolate; petals as long as the calyx. *P. paradoxa* Nutt. in Torr. & Gr.  


Decumbent Cinquefoil.  

8. *P. Auserina* Linn.: stem filiform, rooting; leaves interruptedly pinnate; leaflets ovate-oblong, incised, and acutely serrate, smooth above, silvery canescent beneath; stipules many-cleft; peduncles scape-like, as long as the leaves, axillary, solitary; lobes of the calyx lanceolate, entire, half as long as the obovate petals.  

Wet meadows. N. S. N. to Arct. Amer. W. to Oregon. June. 24.—Stems long, reddish, with a tuft of leaves and one or more pedicels at each joint. Leaves sometimes white and silky on both sides. Flowers bright yellow.  

Silver-weed. Wild Tansey.  

9. *P. Pennsylvanica* Linn.: whole plant white tomentose; stem herbaceous, erect; leaves interruptedly pinnate; leaflets oblong, obtuse, pinnatifid
or pinnately incised; stipules lanceolate, somewhat laciniate; flowers in corymbose panicles; segments of the calyx somewhat acute, as long or a little longer than the corolla; petals obovate. *P. argula* Lehman, not of Pursh.

N. S. I Can. and throughout British America. W. to the Rocky Mountains. June. 4.—Stem 1–2 feet high. Flowers pale yellow. According to Torrey and Gray this species is not found within the limits of the U. S. east of the Mississippi. They represent it as being very variable. *Northern Cinquefoil*.

10. *P. argula Pursh.* erect, simple, pubescent; leaves unequally pinnate; leaflets roundish, ovate or somewhat rhomboid, incised or doubly serrate, outer ones larger; stipules rhomboidal, toothed or entire; flowers terminal, in a crowded corymb. *P. confertiflora* Lehman. Geum agrimoniae Pursh. *Bootia zylocladis* Big.

Banks of streams. Can. to Penn. W. to the Rocky Mountains. June, July. 4.—Stem 1–3 feet high, erect, nearly simple, branched above and with the petioles peduncled and calyx covered with a brownish and glandular pubescence. Flowers erect, at first in dense coryms, at length paniculate. Calyx with the five alternate segments smaller. Petals ochroleucous or white. *Close-flowered Cinquefoil*.

11. *P. Comarum D. C.*; root creeping; stem ascending; leaves pinnate, upper ones ternate; leaflets lanceolate, acutely serrate; petals lanceolate, acuminate, much shorter than the calyx. *P. palustris* Lehman. *Comarum palustre* Linn. Torrey & Gr.

In swamps. N. S. N. to Arct. Amer. June, July. 4.—Stem 18 inches high, nearly simple. Leaves petioled, with 5–6 leaflets. Flowers large, purple, on the upper part of the stem. *Marsh Cinquefoil*.


(In honor of Robert Sibbald; a writer upon the natural history of Scotland, of the 17th century.)

Calyx 10-cleft, with the alternate segments narrower. Petals 5, minute. Stamens and carpels often 5. Styles 5, proceeding laterally from the germ. Capsules 5, indehiscent, in the bottom of the calyx, 1-seeded.

*S. procumbens* Linn.: leaves ternate; leaflets cuneate, tridentate, smooth above, hairy beneath; flowers corymbed; petals lanceolate, acute, shorter than the calyx.


11. *AGRIMONIA* Linn.

(Corrupted from Argemone, a name given by the Greeks to a plant supposed to cure cataract, called ἀργεμών.)

Calyx turbinate, covered with hooked bristles, 5-cleft, inferior, with 2 bracteoles at the base. Petals 5. Stamens 12–15, inserted with the petals upon the calyx. Achenia 1–2, invested by the hardened calyx.
1. *A. Eupatoria Linn.*: hairy; leaves interruptedly pinnate; leaflets oblong-ovate, crenate-dentate, the terminal one petioled; spike virgate, many-flowered, terminal, long and slender; tube of the calyx bell-shaped, with spreading bristles near the middle; petals twice as long as the calyx; fruit distant, turbinate, hispid, smooth at base.


**Common Agrimony.**

2. *A. parviflora Ait.*: hirsute with brownish hairs; leaves interruptedly pinnate; leaflets numerous, linear-lanceolate, incisedly serrate; spike virgate; flowers on very short pedicels; petals scarcely longer than the calyx; fruit roundish, divaricately hispid. *A Eupatoria var. parviflora Hook.*


**Small-flowered Agrimony.**

12. ROSA. Linn.—Rose.

(From the Celtic *rhos*; signifying red.)

Calyx urceolate, fleshy, contracted at the orifice, terminating in 5 segments. Petals 5. Stamens many. Carpels many, long, hispid, included in and fixed to the fleshy tube of the calyx.

* Styles cohering in a column.

1. *R. setigera Mich.*: stem ascending; branches glabrous; prickles few, falcate; leaves ternate, ovate-lanceolate, serrate, pubescent beneath; stipules narrow, entire; peduncles and calyx hispid; flowers corymbose; lobes of the calyx ovate, short, simple; styles cohering in a tomentose club-shaped column, as long as the stamens; fruit pisiform. *R. rubifolia R. Brown.*

Shores of the Western lakes. W. to Miss. July. ²手脚.—Flowers very numerous, changing from white to different shades of red, sometimes in a large corymb. When cultivated, it may be trained to a great extent.

**Michigan Rose.**

** Styles free.**

2. *R. lucida Ehrh.*: prickles straight or slightly recurved; leaflets 5—9, lancelolate-elliptic, coriaceous, sharply serrate, shining above; stipules dilated, large, smooth, serrulate; peduncles somewhat hispid; segments of the calyx entire, appressed, spreading but not deflexed; flowers mostly in pairs; fruit glbose-depressed, hispid or smooth. *R. parviflora Ehrh.*


3. *R. Carolina Linn.*: prickles recurved, often wanting; leaflets 5—9, coriaceous, lanceolate or obovate, serrulate, approximate, glaucous beneath; stipules long, with an involute margin; flowers mostly in corymbs, rarely solitary; lobes of the calyx very long, appressed, spreading; fruit de-


4. *R. blanda* Ait.: prickles straight, slender, deciduous; leaflets 5—7, oval or oblong, obtuse, equally serrate, pale and mostly pubescent beneath; stipules dilated; flowers 1—3, on short smooth peduncles; lobes of the calyx shorter than the petals; fruit globose. *R. gemella* Willd.

Dry hills and rocks. Hudson's Bay to Penn. May, June. 2. — Stem 1—3 feet high. Flowers rather large, rose-color. Petals obcordate. Distinguished from *R. cinnamomea*, to which it is allied, by its being more slender and nearly unarmed, by the absence of stipular prickles, the smaller bracts and shorter sepals as compared with the petals. *Torr. & Gr.* *R. stricta* is said not to be a native of the U. S.

5. *R. rubiginosa* Linn.: prickles strong, compressed, uncinate, rarely straight; leaflets 5—7, ovate or somewhat rounded, serrate, more or less, especially beneath, glandular and ferrignous; fruit ovoid or obovate and with the peduncles hispid. *R. suaveolens* Pursh.

Hedges and road sides. Throughout the U. S. June, July. 12. — Stem tall and slender. Flowers solitary or two or three together, pale red. Fruit orange red. *Sweet-brier.*

**Order XL. POMACEÆ.—APPLEWORTS.**

Calyx adherent, 5-toothed. Petals 5, unguiculate. Stamens numerous. Disk thin, lining the tube of the calyx, bearing the petals and stamens on its margin. Ovaries 1—5, adhering more or less to the sides of the calyx and each other; styles 1—5; stigmas simple. Fruit a pome, 1—5-celled, seldom spuriously 10-celled. Seeds 1—2 in each carpel; albumen none.—Trees or shrubs, with alternate, simple or compound leaves.

1. **CRATÆGUS.** Linn.—Thorn.

(From the Greek *kratos*, strength; in allusion to the strength or firmness of the wood.)

Calyx with the tube urceolate, and the limb 5-cleft. Petals 5, spreading, orbicular. Stamens many. Styles 1—5, glabrous. Pome fleshy, or baccate, crowned with the teeth of the calyx, containing 1—5 bony 1-seeded carpels, the summit contracted or closed by the disk.

* Leaves serrate or subentire, not lobed.

1. *C. Crus-galli* Ait.: leaves obovate-wedgeform, subsessile, shining, coriaceous, serrate, entire near the base; corymbs smooth; segments of the
calyx lanceolate, smooth, sub serrate; styles 1—3; fruit ovoid-oblong, sometimes pyriform. *C. lucida* Wang. Amer.

Borders of woods. Can. to Flor. W. to Miss. May, June.—A shrub or small tree, much branched, and with long sharp spines. *Flowers* white, in a corymb. *Style* often solitary. *Fruit* red. There are several varieties of this species. Cockspur Thorn.

2. *C. punctata* Jacq.: leaves obovate-cuneate, smooth, somewhat plaited, doubly or incisely serrate; corymbs and calyx villous-pubescent when young; styles 1–3; fruit dotted, globose.


3. *C. parvifolia* Ait.: leaves obovate-cuneate, nearly sessile, crenate-serrate, rarely somewhat incised, pubescent; flowers subsolitary; segments of the calyx foliaceous, incised, as long as the petals, and with the short pedicels and branchlets villous; styles 5; fruit roundish-pyriform. *C. tomentosa* Linn. *Mespilus tomentosa* Walt.

Sandy woods. N. J. to Flor. April, May. H2.—Stem 3 or 4—8 feet high, much branched, with a few long and sharp thorns. *Flowers* white, mostly solitary and terminal. *Fruit* a third to half an inch in diameter, pale greenish-yellow, edible. Small-leaved Thorn.

**Leaves incised and more or less lobed.**

4. *C. tomentosa* Linn.: leaves ovate-elliptic or oval, cuneate and narrowed at base into a short margined petiole, incisely serrate and sublobed towards the apex, smooth above, somewhat tomentose beneath when young; peduncles and calyx villous; segments linear-lanceolate; styles 3—5; fruit obovoid or pyriform. *(Torr. & Gr.) C. pyrifolia* Ait. *C. flavum* Darlington.


5. *C. coccinea* Linn.: leaves roundish-ovate, acutely incised or sublobed, sharply serrate, thin and at length nearly smooth, on long slender petioles, sometimes a little cordate; corymbs and calyx pubescent or smooth; styles 3—5; fruit globose. *C. glandulosa* Willd.


6. *C. cordata* Ait.: leaves deltoid-ovate and subcordate, on long and slender petioles, acuminate, incised and serrate, mostly 3-lobed near the base; petioles and calyx without glands; styles 5; fruit depressed-globose. *P. populifolia* Pursh.

Banks of streams. Washington city to Geor. June. H3.—Stem 15—20 feet high, branching; the branches dark purple and armed with long and very slender thorns. *Leaves* often deeply and equally 3-lobed like those of the red maple. *Flowers* white, numerous, in corymbs terminating the branches. *Fruit* small, bright purple. This species is not known to be a native of our district.
but according to Dr. Darlington it was long since introduced into Chester county, Penn., from the neighborhood of Washington city, and is there extensively used in hedging. It is known by the name of Washington Thorn.

7. _C. Oxycantha Linn._: leaves obovate-cuneate, 3—5-lobed, incised and serrate, smoothish, shining; petioles and calyx destitute of glands; segments of the calyx acute or acuminate; styles 1—3; fruit ovoid.

Road sides, &c. N. S. June. f₁.—Stem 4—10 feet high, much branched; the branches armed with sharp and short tapering thorns. Leaves variously lobed, paler beneath. Flowers white, in corymbcs. Fruit small, purple when mature. Introduced from Europe. English Thorn, Hawthorn.

2. AMELANCHIER. D. C.—June Berry.

(AMELANCIE is said to be the Savoy name for _A. vulgaris._)

Calyx 5-cleft. Petals ovate-oblong or oblanceolate. Stamens many, rather shorter than the calyx. Styles 5, somewhat united at base. Pome, when mature, 3—5-celled.

1. _A. Botryapium D. C._: unarmed; leaves cordate, oval, conspicuously acuminate, pubescent when young, smooth when mature; flowers in loose racemes, appearing before the leaves; petals linear-lanceolate, four times as long as the calyx. _A. Canadensis var. Botryapium_ Torr. & Gr. _Aronia Botryapium_ Pers. _Pyrus Botryapium_ Linn.

Rocky woods. Throughout the U. S. May.—A small tree. Flowers large, white. _Common June-berry._ Shad-bush.

2. _A. ovalis D. C._: leaves roundish-elliptic or oblong-oval, acute or acuminate, serrate, smooth when mature; flowers in compact racemes; petals obovate, oblong. _A. Canadensis var. oblongifolia_ and _rotundifolia_ Torr. & Gr. _Aronia ovalis_ Pers. _Pyrus ovalis_ Linn.

Near swamps. Can. to Car. N. to lat. 62°. May.—A small shrub. Flowers in racemes. Fruit small, nearly black, eatable. Supposed by some botanists to be a variety of the preceding, but I am still inclined to believe it distinct. _Medlar Bush._

3. _A. sanguinea D. C._: leaves oval, obtuse at each end, mucronate, with very slender serratures, subacute at base; racemes few-flowered; calyx smooth; petals linear, obtuse. _Pyrus sanguinea_ Pursh. _Aronia sanguinea_ Nutt.


3. PYRUS. Linn.—Pear. Apple.

(The Latin name for the pear; said to be derived from the Celtic _peren._)

**Petals spreading.** *Styles 5, nearly united at base. Leaves simple, without glands. Malus.*


In woods. N. Y. to Geor. May.—A tree 15—20 feet high. *Flowers* large, fragrant, pale rose-color. *Fruit* an inch and a half in diameter, pale, greenish-yellow, firm and hard, very acid.

**Petals spreading.** *Styles 2—5. Leaves pinnate. Sorbus.*


In woods. Penn. to Geor. and Louis. March—May.—A tree 15—20 feet high. *Leaves* and *fruit* smaller than in the preceding.

*Narrow-leafed Crab Apple.*

**Petals spreading, with claws.** *Styles 2—5. Leaves simple, glandular on the midrib above. Pome turbinate or globose. Adenorachis.*


*Mountain Ash.*

**Petals spreading, with claws.** *Styles 2—5. Leaves simple, glandular on the midrib above. Pome turbinate or globose. Adenorachis.*

4. *P. arbutifolia* Linn.: leaves obovate, oblong or lanceolate, acute or acuminate, crenate-serrate, smooth above, veiny beneath, with two rows of glands on the midrib; flowers in corymbs; fruit nearly globose.

var. 1. *erythrocarpa* Torr. & Gr.: calyx peduncles and lower surface of the leaves tomentose, especially when young; fruit dark-red. *P. arbutifolia* D. C. *Aronia arbutifolia* Nutt.

var. 2. *melanocarpa* Torr. & Gr.: calyx peduncles and leaves smooth or nearly so; fruit purplish-black. *P. melanocarpa* Willd. *Aronia arbutifolia* Pers.

Low woods or bogs. Can. to Geor. May, June.—A shrub 2—5 feet high, branching. *Flowers* numerous, reddish-white, in cymes or compound corymbs. *Fruit* 2 or 3 lines in diameter, dark-red or nearly black, sweetish and astrin gent.

*Choke-berry.*

**Order XLI. Sanguisorbaceae.—Sanguisorbus.**

Calyx 3—5-lobed, with a thickened tube. Petals none. Stamens few or definite. Ovary solitary, simple, enclosed in the tube of the calyx; stigma simple or compound. Nut
solitary. Albumen none.—Herbaceous plants or under-shrubs. Leaves alternate, simple, lobed or compound. Flowers sometimes polygamous or dioecious.

1. ALCHEMILLA. Linn.—Ladies' Mantle.
(From the Arabic alchemy, alchemy; from its pretended alchemical virtues.)

Calyx tubular; tube somewhat contracted at the top; limb 8-parted, the alternate lobes smaller. Petals none. Stamens 1—4. Carpels 1—2, with a filiform capitate style on the side, at length dry and 1-seeded.


2. SANGUISORBA. Linn.—Great Burnet.
(From the Latin sanguis, blood, and sorbeo, to take up or absorb; from the supposed vulnerary properties of the plant.)

Flowers perfect or rarely polygamous. Calyx 4-cleft, with 2—3 scales at base externally. Petals none. Stamens 4, opposite the calyx segments; filaments often dilated upwards. Achenium dry, included in the hardened 4-winged calyx-tube.

1. S. Canadensis Linn.: leaves pinnate; leaflets ovate-oblong subcordate, coarsely serrate; spikes cylindric, long; stamens longer than the corolla. S. Canadensis a Torr. & Gr.

2. S. media Linn.: leaves pinnate and with the bracts smooth; leaflets ovate, subcordate, toothed; spikes ovate-cylindric; stamens scarcely longer than the corolla. S. Canadensis, β Torr. & Gr.

Order XLII. CALYCANTHACEÆ.—CALYCANTHS.

Sepals and petals confounded, indefinite, imbricated, combined in a fleshy tube. Stamens indefinite, inserted into a fleshy rim at the mouth of the tube. Ovaries several, simple. Nuts enclosed in the fleshy tube of the calyx, 1-seeded. Albumen none.—Shrubs with square stems. Leaves opposite, simple. Flowers axillary, solitary.
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CALCYANTHUS. Linn.—Allspice-Shrub.

(From the Greek κάλυξ, a calyx, and αὐθός, a flower; the calyx resembling a corolla.)

Lobes of the calyx in many rows, imbricate, lanceolate, colored, all more or less coriaceous or fleshy. Stamens about 12, unequal, deciduous, the outer ones fertile.

C. leavigatus Willd.: lobes of the calyx lanceolate; leaves oblong or oval, gradually acuminate, somewhat rugose, smooth and green on both sides; branches straight, erect. C. floridus, γ leavigatus. Torr. & Gr. C. ferax Mich.


ORDER XLIII. ONAGRACEÆ.—ONAGRADS.

Calyx tubular; the limb usually 4-lobed. Petals usually 4. Stamens 4 or 8, inserted into the calyx. Ovary mostly 4-celled; style filiform; stigma capitate or 4-lobed. Fruit baccate or capsular, many-seeded. Seeds without albumen.—Herbaceous plants or shrubs. Leaves simple, alternate or opposite. Flowers axillary or terminal, of various colors.

1. EPILOBIUM. Linn.—Willow Herb.

(From the Greek επί, upon, λοβος, a pod; the flower being at the apex of a long pod.)

Calyx with a long 4-sided tube; limb 4-parted, deciduous. Petals 4. Stamens 8, the 4 alternate a little shorter. Stigma clavate, or with 4 spreading or revolute lobes. Capsule linear, obtusely 4-sided, 4-celled, 4-valved, many-seeded. Seeds crowned with a tuft of hairs.

1. E. spicatum Lam.: stem tall, terete, smooth, branched above; leaves scattered, lanceolate or linear-lanceolate, sparingly denticulate, veined; flowers large, pedicelled, in a terminal spike; petals clawed, obovate; stamens unequal, declined. (Torr. & Gr.) E. angustifolium Linn.

Swamps and moist woods. Can. to Penn. N. to Aret. Amer. W. to Oregon. July. ¾. — Stem 3—5 feet high. Flowers purple, in a terminal leafless spike or raceme which is often a foot long. Spiked Willow Herb.

2. E. coloratum Muhl.: stem terete, branched, pubescent; leaves mostly opposite, lanceolate, serrulate, petiolate, smooth, with colored veins, upper ones alternate; flowers small, axillary, near the extremity of the branches; petals 2-cleft at the apex; capsule pedicellate, slightly pubescent. E tetragonum Pursh. not of Linn.

Colored Willow Herb.

3. *E. palustre Linn.*: stem terete, branched, somewhat hirsute; leaves lanceolate, rather acute, attenuate at base, nearly sessile, sparingly toothed or entire, the lower ones opposite; petals about twice the length of the calyx; stigma undivided; capsule pubescent. *E. rosmarifolium Pursh.*

*Sphagnous Null.*

Sphagnous swamps. Labrador to Penn. W. to Oregon. Aug., Sept. 2—Stem 1—2 feet high, slender, at length much branched. Flowers pale purple or white. 

Marsh Willow Herb.

4. *E. tetragonum Linn.*: stem 4-sided, nearly smooth; leaves opposite, lanceolate-oblong, denticulate, lower ones slightly petioloed; petals emarginate; stigma clavate; capsule pedicellate.

Low grounds. Can. to Car. July. 4—Stem 2 feet high, branched, smooth. Flowers small, pale red, in terminal racemes. Perhaps not a native of the Northern States. 

Square-stalked Willow Herb.

5. *E. molle Torr.*: densely and softly pubescent; stem terete, erect; leaves alternate and opposite, crowded, sessile, lanceolate or oblong-linear, remotely denticulate or entire; petals deeply emarginate, twice as long as the calyx; stigma large and thick; capsule pedicellate. *E. strictum Muhl.*

*Sphagnous Null.*

Sphagnous swamps. N. Y., N. J., and Penn. Aug., Sept. 2—Stem 18—20 inches high, simple or branched above. Flowers axillary in the upper part of the stem, pale purple.

Soft Willow Herb.

6. *E. alpumum Linn.*: stem creeping at the base, usually marked with 2 pubescent lines; leaves opposite, ovate or ovate-oblong, slightly petioloed, denticulate, smooth; stigma entire; capsule mostly pedicellate.


Alpine Willow Herb.

2. **GAURA. Linn.—Gaura.**

(From the Greek yapos, superb; on account of its showy spikes of flowers.)

Calyx tubular, adnate to the ovary at base; segments 4, reflexed; tube deciduous. Petals mostly 4-clawed, somewhat unequal. Stamens usually 8. Fruit 4-angled, dry and indehiscent, by abortion mostly 1-celled, 1—4-seeded. Seeds naked.

*G. biennis Linn.*: stem herbaceous, erect, hairy, mostly purplish; leaves alternate, sessile, lanceolate, toothed; flowers numerous, sessile, in terminal spikes; fruit roundish, slightly 4-angled, pubescent.


Biennial Gaura.

3. **ŒNOTHERA. Linn.—Evening Primrose.**

(Said to be derived from the Greek oinos, wine, and ἡρά, hunting; but the application is uncertain.)

Calyx with a long 4-sided or 8-ribbed deciduous tube; seg-

* Capsule elongated, 4-sided, sessile.

1. **OE. biennis Linn.** : stem erect, mostly simple, usually hairy; leaves alternate ovate-lanceolate, repandly denticulate, acute, pubescent, lower ones on short petioles; capsule sessile, obtusely 4-angled, somewhat turgid. **OE. mucicata** **Murr.** **OE. parvislora Linn.** **OE. grandiflora** **Ait.**


**Common Evening Primrose.**

2. **OE. sinuata Linn.** : pubescent or villous; stem ascending or decumbent; leaves oblong or lanceolate, nearly entire, sinuate-toothed or pinnatifid; calyx and ovary villous; capsule cylindric or somewhat prismatic, elongated. **OE. minima** **Pursh.**

Sandy fields. N. J. to Flor. W. to Miss. May, June. ①.—Stem 1—6 inches high, simple or branching from the base. Flowers small, axillary, sessile, pale yellow. Petals obcordate. **Sinuate-leaved Evening Primrose.**

**Capsule obovate-clavate, angular, mostly pedicellate.**

3. **OE. fruticosa** **Linn.** : hairy or nearly smooth; stem erect, simple or branched; leaves lanceolate or oblong-lanceolate, slightly toothed; petals obcordate; capsules oblong-clavate, 4-winged, longer than the pedicels. **OE. ambigua** **Spreng.** **OE. hybrida** **Mich.** **OE. incana** **Nutt.**

Shady woods. N. Y. to Flor. W. to Ohio. July. ①.—Stem 1—3 feet high. Leaves sessile or slightly petioled. Flowers large, pale yellow, in a peduncled corymb. Varies much in the amount of pubescence. **Sun Drop.**

4. **OE. riparia** **Nutt.** : slightly pubescent; leaves linear-lanceolate, acute, attenuate at base and somewhat petioled, remotely denticulate or entire; petals slightly obcordate; capsules subsessile, oblong-clavate, sometimes shorter than the pedicels, slightly 4-winged, with 4 intermediate ribs.

Swamps and banks of streams. Quaker Bridge, N. J. to Flor. June, July. ②.—Stem 2—3 feet high, often vagently branched. Leaves rather thick, somewhat pubescent on the midrib and margin. Flowers large, yellow, somewhat produced towards the summits of the branches. **Swamp Evening Primrose.**

5. **OE. linearis** **Mich.** : stem erect or decumbent at base, slender and often branched; leaves narrow-lanceolate or linear, remotely denticulate or entire, tapering at base; capsule clavate, turbinate or obovate, mostly pubescent or canescent, with the alternate angles slightly winged above.

Dry sandy grounds. Montauk Point, Long Island, N. Y. (the decumbent variety. Torr. & Gr.) to Flor. and Louis. April—July. ②.?—Stem 10 inches to 2 feet high. Flowers rather large, yellow, somewhat corymbose at the extremity of the branches, but not in an elongated spike like those of **OE. pumila.** **Narrow-leaved Evening Primrose.**

6. **OE. chrysantha** **Mich.** : pubescent; stem ascending; leaves lanceolate, rather obtuse, entire or slightly toothed, the radical ones obovate-spathulate; petals broad-obovate, emarginate; capsule clavate-oblong, pedicelled, the alternate angles narrowly winged.

Rocky grounds. Hudson’s Bay to near Niagara Falls. June, July. ②.?
(Torr. & Gr.) 4. (Pursh.)—Stem about a foot high, slender, smooth and purplish towards the summit. Flowers small, orange-yellow, in a terminal somewhat crowded spike. Perhaps not distinct from the next.

Orange-flowered Evening Primrose.

7. **E. pusilla** Linn.: minutely pubescent; stem ascending; leaves lanceolate or oblong-lanceolate, mostly obtuse, attenuate at base, entire, the radical ones obovate-spatulate; petals obcordate; capsule oblong-clavate, nearly sessile, 8-angled. **E. pusilla** Mich.

Dry fields. Hudson's Bay to Car. July. 2. (Torr. & Gr.)—Stem 6–12 inches high, mostly simple. Flowers small, pale yellow, in a loose elongated leafy spike.

Low Evening Primrose.

4. **ISNARDIA** Linn.—Isnardia.

(In honor of Antoine d'Isnard; a French botanist.)

Tube of the calyx ovate or subcylindric, short, adhering to the ovary; limb 4-parted, persistent. Petals 4, often minute or wanting. Stamens 4. Style filiform, deciduous. Stigma capitate. Capsule short, 4-sided, 4-valved, many-seeded.

* Petals 4. **LUDWIGIA.**

1. **I. alternifolia** D. C.: stem erect, branched, nearly smooth; leaves alternate, lanceolate or oblong-lanceolate, somewhat scabrous on the margins and under side; peduncles axillary, 1-flowered; lobes of the calyx large, ovate, acuminate; capsule obovoid-globose 4-cornered, the angles winged. **Ludwigia alternifolia** Linn. Torr. & Gr. L. macrocarpa Mich.

Swamps. Can. to Flor. July. 4.—Stem 2–3 feet high, often purplish. Flowers large, yellow, on short peduncles. **Alternate-leaved Isnardia.**

2. **I. uniflora.** stem straight, simple; leaves alternate, lanceolate, acute, smooth; flower terminal; petals longer than the calyx. **Ludwigia uniflora** Raf.

Swamps. N. J.—This seems to be sufficiently distinct. Dr. Torrey, however, suggests that it is a variety of the former. **Single-flowered Isnardia.**

3. **I. hirtella:** hirsute; stem erect, scarcely-angled; leaves alternate, ovate-oblong, sessile, upper ones narrower; peduncles 1-flowered, axillary; capsule villous, globose, 4-angled, the angles slightly winged. **I. hirsuta** Pursh. **Ludwigia hirtella** Raf.

Ditches and pools. N. J. to Flor. July, Aug. 4.—Stem 1–2 feet high, simple or sparingly branched. Flowers bright yellow, axillary. **Hairy Isnardia.**

** Petals very minute or none. **ISNARDIA.**

4. **I. sphaerocarpa** D. C.: stem erect, nearly smooth, much branched; leaves narrow-lanceolate, mostly acute, attenuate at base; flowers solitary, axillary, or clustered towards the summit of the branches; capsule turbinate-globose, obscurely 4-sided, canescent. **Ludwigia sphaerocarpa** Ell.


5. **I. palustris** Linn.: stem prostrate, creeping, glabrous; leaves opposite,
HALORAGACEÆ.


5. CIRCiEA. Linn.—Enchanter's Nightshade.

(From the enchantress Circe, either from the prettiness of its flowers, or as some say, from its growing in damp, shady places, where plants used for incantations are found. *Hook. Br. Fl.*)


2. *C. alpina* Linn.: stem ascending, nearly smooth; leaves cordate, shining, coarsely toothed, the lower ones about as long as the petiole. Moist shady places on mountains. Can. to Car. July. 24. Stem 3—8 inches high, somewhat diaphanous. Leaves very thin and delicate. Flowers and fruit as in the preceding, but smaller. Many botanists consider the two as varieties of one species. *Alpine Enchanter's Nightshade.*

ORDER XLIV. HALORAGACEÆ.—HIPPURIDS.

Calyx with a minute limb. Petals 3 or 4, inserted into the calyx, or none. Stamens as many as the petals or fewer. Ovary adhering to the calyx, 1 or more celled; style none; stigmas as many as the cells. Fruit dry, indehiscent, membranous or bony, 1 or more-celled. Seeds solitary, pendulous. Herbaceous plants or under-shrubs, growing in wet places, with alternate, opposite or whorled leaves. Flowers sessile, occasionally monoeccious or dioecious.

1. PROSERPINACA. Linn.—Mermaid Weed.

(From the Latin *proserpo*, to creep; the stems creeping and rooting at the base.)

Tube of the calyx adhering to the triquetrous ovary; limb 3-parted. Petals none. Stamens 3. Stigmas 3, sessile upon the top of the ovary. Fruit bony, 3-sided, 3-celled.

1. *P. palustris* Linn.: upper leaves linear-lanceolate, serrate; lower ones often pinnatifid or pectinately-incised; fruit angular, acute. *P. palustris* var. a. *Mich.*

the lower part usually submerged. Flowers mostly solitary, sometimes 2—4 together, very small, nearly sessile. Stigmas purplish. 

Common Mermaid Weed.


Sandy swamps. Mass. to Flor. Aug. 24.—Distinguished from the former, by having the leaves all finely pectinate and the fruit with rather obtuse instead of acute angles.

Pectinate Mermaid Weed.

2. **MYRIOPHYLLUM.** Linn.—Water Milfoil.

(From the Greek *μυριος*, myriad, and *φυλλον*, a leaf; in allusion to the minute divisions of the leaf.)


* Flowers octandrous.

1. *M. spicatum* Linn.: leaves verticillate, pinnately divided, segments capillary; floral leaves shorter than the flowers; lower sub serrate and mostly very entire; petals broad-ovate; carpels smooth and even. In water. Can. and N. S. Aug., Sept. 24.—Stem slender, varying in length with the depth of the water. Leaves in whorls, 3—5, pectinate. Flowers in a terminal nearly naked spike. 

Spiked Water Milfoil.

2. *M. verticillatum* Linn.: leaves verticillate, pinnately divided into capillary or setaceous segments; floral leaves pectinate-pinnatifid, usually much longer than the flowers; petals oblong-ovovate; carpels smooth and even.


** Flowers tetrandrous.

3. *M. heterophyllum* Mich.: leaves verticillate, pinnately divided into capillary segments; floral leaves ovate or lanceolate, sharply serrate, crowded; petals oblong; carpels minutely roughened, slightly 2-ridged on the back.

In water. Can. to Flor. W. to Texas. July. 24.—Stem branching, thick. Flowers purple, whorled in the axils of the upper leaves. Stamens 4. (6, Michaux.)

Various-leaved Water Milfoil.

4. *M. ambiguum* Nutt.: submersed leaves cut into capillary segments; the emersed ones pectinate; floral leaves linear, tapering into a short petiole, sparingly incised or toothed, sometimes entire; flowers mostly perfect; petals oblong; carpels smooth and even. *M. capillaceum* Torr. Comp. *M. procumbens* Big.

Ponds and ditches. Mass. to Penn. July, Aug. 24.—Stems 2—6 inches long and creeping in the mud, or when floating in water, long and slender. Leaves variously divided, depending upon the place of growth. Flowers small, purplish.

Polymorphous Water Milfoil.
5. *M. tenellum* Big.: stem simple, nearly leafless, erect, somewhat rooting at base; floral leaves minute, entire; flowers alternate; petals linear-oblong; carpels smooth and even.

Borders of ponds. N. Eng. and N. Y. July. 2l.—*Scapes* several from the same rhizoma, 4—12 inches high, with numerous small scales. *Flowers* minute, purplish.  

Leafless Water Milfoil.

3. **Hippuris.** Linn.—Mare's-tail.  
(From the Greek *ippos,* a horse, and *oupa,* a tail; from a fancied resemblance of the plant.)

Tube of calyx adnate to the ovary; limb minute, entire. Petals none. Stamen 1, inserted into the margin of the calyx. Style filiform, received into a groove of the anther. Fruit 1-seeded, crowned with the margined limb of the calyx.

*H. vulgaris* Linn.: leaves in whorls of 8—12, linear, acute, callous at the tip.

Ponds and lakes. Labrador and Subarct. Amer. to Penn. Aug. 2l.—*Stems* 12—18 inches high, simple, erect. *Leaves* mostly in whorls of 8. *Flowers* at the base of the upper whorls, one to each leaf, sessile, minute.  

Common Mare's-tail.

4. ? **Callitrichace.** Linn.—Water Starwort.  
(From the Greek *kallos,* beautiful, and *thrix,* hair; in allusion to its long and slender stems.)

Flowers perfect or imperfect. Bracts 2, opposite, petaloid. Calyx (corolla of some) inconspicuous. Petals none. **Sterile Fl.** Stamens 1, (rarely 2), with the filament filiform and exserted; anthers reniform. **Fertile Fl.** Ovary 4-lobed. Capsule compressed, 4-celled, indehiscent.

*C. verum* Linn.: leaves 3-nerved; upper ones aggregated, broader; fruit sessile, with 2 bracts at the base, each carpel bluntly keeled on the back.

var. 1. *vulgaris:* leaves all elongated and obovate.

var. 2. *intermedia:* upper leaves spatulate-ovobovate; lower ones linear.  
*C. intermedia* Willd. *C. heterophylla* Pursh.

var. 3. *linearis:* leaves all linear, or the upper ones linear-elliptic.  
*C. autumnalis* Mich.

var. 4. *terrestris:* stem procumbent, rooting in the mud; leaves linear or elliptic-oblong.  
*C. terrestris* Raf.

Ponds and slow-flowing streams, or in muddy banks. N. S. Some varieties throughout the U. S. May—Aug. (1)—*Stems* slender, varying in length with the depth of the water, growing in tufts or patches. *Flowers* very minute, white. I readily adopt the views of Darlington and Torrey in regard to this very variable plant.  

Common Water Starwort.

**Order XLV. Podostemaceae.**—Podostemads.

Flowers usually perfect, naked, bursting through an irregularly lacerated spathe. Stamens 1, 2, or many, often monadel-
phous. Ovary 2—3-celled; styles or stigmas 2 or 3, acute and sessile. Fruit capsular, slightly pedicellate. Seeds numerous, minute, without albumen.—Herbaceous plants, with alternate leaves, which are usually cut into capillary segments. Flowers minute.

**PODOSTEMUM.** Mich.—Podostemum.

(From the Greek ποδός, a foot, and στάμην, a stamen; the stamens being supported on a common footstalk.)

Calyx and corolla none. Stamens 2, affixed to a common pedicel. Stigmas 2, sessile, recurved. Capsule 2-celled, 2-valved, many-seeded.

*P. ceratophyllum* Mich.: leaves dichotomously many-parted; peduncles solitary, axillary.


**ORDER XLVI. CERATOPHYLLACEÆ.—HORNWORTS.**

Flowers monoecious. Calyx inferior, many-parted. **Sterile Fl.** Stamens 12—20; filaments wanting; anthers 2-celled. **Fertile Fl.** Ovary 1-celled; stigma filiform, oblique. Fruit a beaked achenium. Seed pendulous, without albumen.—Floating herbs, with dichotomous cellular verticillate leaves. Flowers small.

**CERATOPHYLLUM.** Linn.—Hornwort.

(From the Greek κέρας, a horn, and φύλλον, a leaf; the dichotomous leaves resembling horns.)

Character same as of the order.

*C. echinatum* Gray: achenium elliptic, slightly compressed, with 3 short spines; sides strongly muricated; margins slightly winged, not gibbous, armed with blunt teeth which finally become weak spines or horns as long as the lateral spines. (*Torr. & Gr.*) *C. demersum* (wholly or in part) of American botanists.

Ponds and slow-flowing streams. N. Y. to Virg. June, July. 4.—Stem submerged, branching, filiform, jointed. Leaves in numerous whors of 6—8, 2 or 3-chotomously divided, the segments capillary. Flowers axillary, solitary, sessile, very minute.  

**ORDER XLVII. LYTHRACEÆ.—LOOSESTRIFES.**

Sepals combined into a 4—7-toothed calyx, the sinuses sometimes lengthened into other teeth or processes. Petals inserted between the teeth of the calyx, sometimes wanting. Stamens
as many, or 2—4 times as many as the petals, inserted into the tube of the calyx. Ovary superior, 1—6-celled; style filiform; stigma usually capitate. Capsule membranous, covered by the calyx, dehiscent. Seeds numerous, small, without albumen.—Herbs, rarely shrubs. Leaves opposite, seldom alternate, entire. Flowers axillary, or in terminal spikes or racemes.

1. AMMANNIA. Linn.—Ammannia.

(In honor of John Ammann, a Russian botanist of the last century.)

Calyx 4—5-toothed or lobed, the sinuses expanding into teeth or horns. Petals 4, or wanting. Stamens as many, and sometimes twice as many, as the lobes of the calyx. Style mostly short. Stigma capitate. Capsule globose or ovate, many-seeded.

1. *A. ramosior* Linn.: stem erect, somewhat 4-sided; leaves linear-lanceolate, dilated at the base; flowers axillary, sessile; the lower ones compactly whorled, the upper solitary; petals 4, obovate-roundish; stamens 4.


2. *A. humilis* Mich.: stem procumbent at the base, square, somewhat branched; leaves narrow-lanceolate, tapering at base into a short petiole; flowers sessile, solitary, axillary; petals 4, orbiculate; stamens 4. *A. ramosior* Walt.


Dwarf Ammannia.

2. LYTHRUM. Linn.—Purple Loosestrife.

(From the Greek λυθρον, blood; in allusion to the color of the flower in some species.)

Calyx cylindric, striate, 8—12-toothed. Petals 4—6, inserted into the calyx. Stamens as many or twice as many as the petals, sometimes fewer. Style filiform. Stigma capitate. Capsule oblong, 2-celled, many-seeded.

* Stamens mostly equal in number with the petals. *Flowers* solitary in the axils of the leaves.

1. *L. hyssopifolia* Linn.: leaves alternate or opposite, linear or oblong, somewhat obtuse; flowers subsessile, shorter than the leaves; bracts minute or none; petals and stamens 5—6.

2. *L. lineare* Linn.: leaves linear, opaque, mostly opposite; the lower obtuse; the upper narrow, acute; flowers slightly pedicelled; bracts minute; petals and stamens 6.


**Stamens twice the number of the petals. Flowers numerous, somewhat verticillate in an interrupted virgate spike.**


3. **DECODON.** Gmel.—Swamp Willow-herb.

(From the Greek ὀξεός, ten, and ὀξώς, a tooth; in allusion to the ten teeth of the calyx.)

Calyx short, broad campanulate, 10-toothed, 5 teeth longer and spreading. Stamens 10, 5 very long, the alternate ones shorter. Style filiform. Stigma small, undivided. Capsule covered with the calyx, 3—4-celled. Seeds numerous, wingless.

*D. verticillatum* Ell. *Lythrum verticillatum* Linn.


*Swamp Willow Herb.*

4. **CUPHEA.** Jacq.—Cuphea.

(From the Greek κυφός, curved; in reference to the form of the capsule.)


*C. viscosissima* Jacq.: viscid-pubescent; leaves opposite, petioled, ovate-oblong, a little rough; flowers lateral, solitary, on short peduncles; calyx ventricose, gibbous at the base.


*Viscid Cuphea.*

**ORDER XLVIII. MELASTOMACEÆ.**—MELASTOMADS.

Calyx divided into 4, 5, or 6 lobes, cohering more or less with the angles of the ovary. Petals as many as the segments
of the calyx, with a twisted aestivation. Stamens as many or twice as many as the petals; anthers long. Ovary 3—6-celled; style 1; stigma simple. Fruit capsular or baccate. Seeds very numerous, without albumen.—Herbs, trees or shrubs, with opposite mostly entire leaves. Flowers terminal, solitary or cymose.

RHEXIA. Linn.—Rhexia.

(A Greek name said to have been originally applied to a different plant.)

Calyx with the tube ventricose-ovate at base, narrowed at the apex; the limb 4-cleft. Petals 4, obovate. Anthers 8, attached to the filaments behind, naked at base. Capsule free in the calyx, 4-celled. Seeds cochleate.

1. R. Mariana Linn.: very hairy; leaves linear-oblong or lanceolate, acute at each end, sparingly hispid on both sides, ciliate-serrulate; calyx hispid.


Maryland Rhexia.

2. R. ciliosa Mich.: stem nearly square, smooth; leaves broad-ovate, subpetiolate, serrulate, ciliate, 3-nerved, smooth beneath, slightly hispid above; flowers with an involucre; calyx smooth. R. petiolata Walt.

Moist pine barrens. Del. to Flor. July. 4.—Stem 12—18 inches high. Flowers in a loose dichotomous panicle, large, purple, with an involucre of leaves at the base of each.

Fringed Rhexia.

3. R. Virginica Linn.: stem with winged angles, somewhat hairy, square; leaves sessile, ovate-lanceolate, ciliate, serrate, sprinkled with hairs on both sides; calyx hispid.


Deer Grass.

Order XLIX. CUCURBITACEÆ.—Cucurbits.

Flowers monoecious or dioecious. Calyx 5-toothed, sometimes obsolete. Corolla 5-parted, scarcely distinguishable from the calyx, with strongly marked reticulated veins. Stamens 5, distinct, or cohering in 2 or 3 parcels; anthers sinuous. Ovary adherent, 1-celled; style short; stigma very thick, velvety or fringed. Fruit more or less succulent (a pepo). Seeds flat, often arillate, without albumen.—Succulent herbaceous plants, climbing by tendrils. Leaves alternate, palmately veined. Flowers axillary.
1. **SICYOS. Linn.**—Single-seeded Cucumber.

(From the Greek κύκκος, cucumber.)

Flowers monoecious. **Sterile Fl.** Calyx 5-toothed; teeth subulate or minute. Petals 5, all cohering in a tube, at length separating into three parcels. **Fertile Fl.** Calyx constricted above the ovary, campanulate. Corolla campanulate. Style rather slender. Stigmas 3, thick, obtuse, spreading. Fruit ovate, spiny or hispid, 1-seeded.

*S. angulatus* Linn.: leaves roundish-cordate, 5-angled, toothed, scabrous; lobes acuminate; tendrils umbellate; sterile flowers corymbose-capitate, with the common peduncle long; fertile ones sessile on a much shorter peduncle.

Banks of streams. Can. to Car. W. to Miss. June. ①.—A procumbent vine, climbing by 3—5-cleft tendrils. **Flowers** greenish-white, the fertile not half the size of the sterile ones. **Fruit** small, ovate, prickly.

**Common Single-seeded Cucumber.**

2. **ECHINOCYSTIS. Torr. & Gr.**—Wild Balsam Apple.

(From the Greek εχινος, prickly, and κυστις a bladder; in allusion to the appearance of the fruit.)


Banks of streams. Can. N. Y. and Penn. W. to Miss. July, Aug. ①.—**Stem** smooth, 10—15 feet long, climbing. **Leaves** large, nearly smooth, with 5 deep acuminate sharply denticulate lobes. **Flowers** white; the sterile in long compound racemes; the fertile solitary, or 2 or 3 together. **Fruit** about as large as a pigeon's egg, covered with short bristly spines. **Wild Balsam Apple.**

3. **MELOTHRIA. Linn.**—Creeping Cucumber.


*M. pendula* Linn.: leaves somewhat reniform, lobed and angled, slightly hispid; fruit oval, smooth, pendulous.

Banks of streams. Penn. to Ala. and Louis. June. ①.—A slender vine running over small shrubs and herbs. **Stem** hairy. **Leaves** on petioles. **Ten-**
**PORTULACACEÆ.**

*drils 5—6 inches long. Flowers axillary, yellow, the sterile in small racemes, the fertile solitary.*

**Small Creeping Cucumber.**

**Order L. PASSIFLORACEÆ.—Passionworts.**

Sepals 5, combined in a tube of variable length which is lined by filamentous processes. Petals 5, arising from the throat of the calyx, sometimes wanting. Stamens 5, monadelphous, rarely indefinite. Ovary seated on a long stalk, 1-celled; styles 3, clavate; stigma dilated. Fruit with 3 polyspermous placentæ, sometimes 3-valved. Seeds with a brittle sculptured testa; albumen fleshy.—Herbaceous plants or shrubs, usually climbing. Leaves alternate, with leafy stipules. Flowers axillary or terminal.

**PASSIFLORA. Linn.—Passion Flower.**

*(Altered by Linnaeus from *flos passionis*, or passion flower.)*

Calyx 5-parted, colored, with the tube very short. Petals 5, inserted into the calyx, or none. Stamens 5, monadelphous. Crown of many filiform rays. Berry often pulpy, rarely submembranaceous, pedicelled.

1. *P. lutea Linn.*: leaves cordate, 3-lobed, obtuse, nearly smooth; petioles without glands; peduncles axillary, in pairs; petals much longer than the calyx.


   **Yellow Passion Flower.**

2. *P. incarnata Linn.*: leaves smooth, subcuneate at base, 5-nerved, deeply 3-cleft; lobes ovate-lanceolate, mostly acuminate; petioles with 2 glands; involucre 3-leaved; leaflets lanceolate, glandular-serrate; ovary villous.


   **Flesh-colored Passion Flower.**

**Order LI. PORTULACACEÆ.—Purslanes.**

Sepals 3, cohering by the base. Petals generally 5. Stamens inserted irregularly into the calyx or hypogynous, variable in number. Ovary 1-celled; style 1 or more; stigmas several. Capsule 1-celled. Seeds attached to a central placentæ; albumen mealy.—Succulent shrubs or herbs. Leaves mostly alternate, with stipules. Flowers usually ephemeral.
1. PORTULACA. Linn.—Purslane.

(Origin uncertain.)

Calyx adnate to the ovary, 2-parted, finally separating at base and deciduous. Petals 4—6, inserted on the calyx, equal. Stamens 8—20. Style 3—6-cleft at the apex, or parted. Capsule subglobose, 4-celled, many-seeded, opening circularly.

_P. oleracea Linn._: leaves cuneiform, obtuse, fleshy, smooth; axils geniculate, naked; flowers sessile.

Near gardens, &c. N. S. May—Aug. (1.)—Stem fleshy, spreading on the ground, with the summit a little assurgent. Flowers in clusters, axillary and terminal, small, pale yellow. Introduced. According to Mr. Nuttall it is indigenous on the plains of the Missouri. **Common Purslane.**

2. TALINUM. Sims.—Talinum.

(Supposed to be derived from the Greek ῥαλλος, to be green.)

Calyx of 2 ovate deciduous sepals. Petals 5, distinct, or somewhat connected at base. Stamens 10—20. Style filiform, cleft at the apex. Capsule 1-celled, 3-valved, many-seeded.

_T. teretifolium Pursh._: leaves terete, subulate, fleshy; peduncles elongated, naked; cyme terminal, somewhat dichotomous and corymbose.


3. CLAYTONIA. Linn.—Spring Beauty.

(In honor of John Clayton, one of the earlier Virginian botanists.)


1. _C. Virginica Linn._: leaves mostly 2, linear-lanceolate, elongated and attenuated into a petiole below; raceme simple, loose, at length elongated; pedicels slender, nodding; petals usually cmarginate.

Wet meadows. Can. to Flor. March—May. (2.)—Scape 6—10 inches long, weak, erect or subprocumbent. Flowers about 6—12, in a loose simple raceme. Petals rose-red, with deeper veins, three times as long as the sepals. **Narrow-leaved Spring Beauty.**

2. _C. Caroliniana Mich._: leaves ovate-lanceolate or oval, somewhat spatulate, or abruptly decurrent into a petiole; pedicels slender, nodding; sepals and petals very obtuse. _C. Virginica var. latifolia Torr. Fl._ _C. spathulafolia Nutt._

Woods and hilly places. Can. to Car. W. to the Rocky Mountains. April,
May. 4.—Stem 4—8 inches high. Cauline leaves sometimes oval. Sepals roundish-ovate. Petals pale rose-color, entire or slightly emarginate. Smaller than the preceding. 

**Order LII. SCLERANTHACEÆ.—KNAWELS.**

Calyx 4 or 5-toothed, with a stiff tube. Stamens 1—10, inserted into the orifice of the tube. Ovary simple, superior, 1-seeded; styles 1 or 2, emarginate at the apex. Fruit a membranous utricle, enclosed within the hardened calyx. Seed pendulous; albumen mealy.—Small diffusely branched plants. Leaves opposite, without stipules. Flowers small.

**SCLERANTHUS. Linn.—Knawel.**

(From the Greek σκλερός, hard, and ανθος, a flower; in allusion to the indurated nature of the floral covering.)

Calyx 5-cleft, persistent; tube urceolate. Petals none. Stamens 10, rarely 5 or 2. Styles 2. Capsule very smooth, without valves, covered by the indurated tube of the calyx.

*Snwa anwwa Linn.:* stems spreading, slightly pubescent; flowers decandrous; calyx of the fruit spreading, acute.

Sandy fields. N. S. July. 1.—Stems numerous, much branched in a dichotomous manner, forming tufts 3—6 inches in diameter. Leaves linear-subulate, scarios and dilated at base. Flowers very small, green, in axillary leafy clusters. Introduced?

**Order LIII. CRASSULACEÆ.—HOUSE-LEEEKS.**

Sepals 3—20, more or less united at the base. Petals as many as the sepals, distinct or cohering. Stamens as many or twice as many as the petals. Pistils always equal in number to the sepals, distinct or partly united. Carpels follicular, usually several-seeded.—Succulent herbs or shrubs, with simple leaves and the flowers usually in cymes.

1. **TILLÆA. Linn.—Tillaæ.**

(Although of Michael Augustus Tilli; an Italian botanist, who died in 1740.)


*T. simplex Nutt.:* stem diffusely branching from the base and rooting; the branches ascending; leaves linear-oblong, connate, rather obtuse; flowers solitary, nearly sessile; petals twice as long as the sepals. Muddy banks of streams. N. Y., Conn and Penn. July, Aug. 1.—Stems 1—3 inches long. Leaves 2—3 lines long, spreading. Flowers very minute, white. Carpels 8—10-seeded.
2. SEDUM. Linn.—Stonecrop.

(From the Latin *sedo*, *to sit*; in allusion to the humble growth of these plants on their native rocks.)

Sepals usually 5, more or less united at base, ovate, often turgid and leafy. Petals 5, often spreading. Stamens twice the number of the petals. Carpels 5, many-seeded, with a nectariferous scale at the base of each.

1. *S. ternatum* Mich.: stem creeping, a little scabrous; leaves flat; the lower ones spatulate-obovate, ternately verticillate; the upper ones lance-oblong, scattered; cymes mostly 3-spiked; terminal flowers decandrous, the rest octandrous. *S. portulacoides* Muhl.


2. *S. telephioides* Mich.: stem erect; leaves ovate or oval, flat, acute at each end, somewhat toothed, smooth and fleshy; corymbs fasciculate, many-flowered.


3. *S. Telephium* Linn.: stem erect; leaves flat, oblong and oval, attenuate at the base, toothed, smooth; corymbs leafy; stamens shorter than the corolla.


3. PENTHORUM. Linn.—Penthorum.

(From the Greek *nurts*, *five*, and *opos*, a *border*; in allusion to the five-beaked capsule.)

Sepals 5, united at base. Petals 5, or none. Stamens 10. Carpels 5, united at the base into a 5-beaked, 5-celled capsule; cells opening transversely on the inner side of the beaks. Seeds numerous, minute.

*P. sedoides* Linn.: stem branched, angular above; leaves alternate, lanceolate, subsessile, unequally serrate; flowers in terminal one-sided spikes or racemes; seeds numerous, elliptic.


Order LIV. TETRAGONIACEÆ.—AIZOONS.

Calyx 3—5-cleft, free or partially adherent to the ovary. Corolla none. Stamens definite. Ovary 2—9-celled; styles as many as the cells, distinct. Fruit either an indehiscent
tough-shelled nut, or a capsule splitting all round. Seeds with mealy albumen.—Succulent herbs or rarely small shrubs. Leaves alternate, without stipules. Flowers small, axillary.

**SESUVIUM.** Linn.—Sesuvium.

(From ἕνεκος, a bird’s nest; which the capsule resembles when open.)


*S. Portulacastrum* Linn.: leaves linear or lanceolate-oblong, flat; flowers pedicelled or subsessile.


**Order LV. CACTACEÆ.—INDIAN FIGS.**

Sepals numerous, usually indefinite and confounded with the numerous petals. Stamens indefinite; filaments long, filiform. Ovary fleshy, 1-celled; style filiform; stigmas numerous. Fruit a berry, 1-celled, many-seeded. Seeds without albumen.—Succulent shrubs, very variable in form. Leaves mostly wanting; when present fleshy, smooth, and entire or spine-like. Flowers usually showy, sessile.

**OPUNTIA.** Tourn.—Indian Fig.

(A name given to this plant by Theophrastus.)

Sepals numerous, leafy, adnate to the ovary; outer ones flat, short; inner ones petal-like, obovate, rosaceous; tube above the ovary none. Stamens numerous, shorter than the petals. Style cylindric, contracted at base. Stigmas many, erect, thick. Berry ovoid, umbilicate at the apex, tuberculate, often bearing spines.

*O. vulgaris* D. C.: stems erect or procumbent, destitute of proper leaves, articulately proliferous; joints compressed, ovate; spines setaceous; flowers sessile on the margin of the joints. *CactusOpuntia* Linn.


*Common Indian Fig or Prickly Pear.*
Order LVI. Grossulariaceae.—Currantworts.

Calyx campanulate or tubular, 4—5-parted, sometimes colored. Petals 4—5, minute, inserted into the throat of the calyx. Stamens 4—5, inserted alternately with the petals, very short. Ovary 1-celled; style 2—4 cleft. Fruit a berry, crowned with the withered flower, 1-celled. Seeds numerous, suspended among the pulps by long filiform cords; albumen corneous.—Shrubs, either spiny or unarmed. Leaves alternate, lobed. Flowers mostly in racemes.

Ribes. Linna.—Currant and Gosseberry.

(An Arabic name, said to have been originally applied to a species of rhubarb, Rheum Ribes.)

Character same as that of the order.

* Stem unarmed; flowers in racemes. Ribesia.

1. R. rubrum Linn.: leaves subcordate, obtusely 3—5-lobed, pubescent beneath when young, mucronate-serrate; calyx rotate, the segments roundish; petals truncate; fruit smooth, globose. R. albinervium Mich.


2. R. prostratum L’Her.: stem reclining or prostrate; leaves deeply cordate, smooth, 5—7-lobed; the lobes somewhat ovate, acute, coarsely serrate; calyx rotate, the segments obovate; petals spatulate, small; fruit glandular-hispid, globose. R. glandulosum Ait. R. rigens and R. trifidum Mich. (according to Torr. & Gr.)


3. R. floridum L’Her.: leaves on long petioles, punctate on both sides, sharply 3—5-lobed, subcordate; the lobes acute, doubly serrate; racemes pendulous, pubescent; bracts linear, longer than the pedicels; calyx tubular-campanulate, the segments oblong-spatulate; fruit ovoid-globose, smooth. R. recurvatum Mich. R. Pennsylvanicum Lam.


** Stem usually armed with subaxillary spines, often prickly. Grossularia.

4. R. Cynosbati Linna.: stem unarmed or prickly; subaxillary spines 1—3; leaves cordate, roundish, pubescent, with 3—5 incisely-toothed lobes; peduncles long, 2—3-flowered; tube of the calyx broad-campanulate, slightly contracted at the mouth; fruit prickly, rarely smooth.
Woods and mountains. Hudson's Bay to Penn. W. to Ken. and the Rocky Mountains. May, June. 4.—Stem 2—3 feet high, branching, the lower part often prickly. Flowers in pendulous racemes, greenish-white. Berries brownish when ripe, usually covered with strong prickles, but sometimes smooth.

Prickly Gooseberry.

5. **R. hirtellum** Mich.: stem prickly or naked; subaxillary spines mostly solitary and very short; leaves roundish, cordate, 3—5-lobed, toothed, pubescent beneath; peduncles very short, deflexed, 1—2 flowered; calyx-tube campanulate, the segments twice as long as the petals; fruit smooth. **R. triflorum** Big.


Mountains, woods. Mass. N. Y. W. to the Rocky Mountains. May, June. 7.—Stem 2—4 feet high, with recurved branches, sometimes without spines. Flowers greenish, with a tinge of purple. Berries about as large as the black currant, purple when ripe, finely-flavored. **R. lacustre** Pursh. Round-leaved Gooseberry.

7. **R. lacustre** Pursh.: stem hispid-prickly; subaxillary spines weak; leaves cordate, 3—5-parted, the lobes deeply incised; racemes 5—9-flowered, loose; calyx rotate; fruit small, hispid. **R. oxyanthoides** var. lacustre Pers. R. oxyanthoides Mich.


Order LVII. **SAXIFRAGACEÆ**.—Saxifrages.

Calyx either superior or inferior, 4—5-cleft. Petals 5, or none. Stamens 5—10, inserted either into the calyx or beneath the ovary. Disk either hypogynous or perigynous. Ovary 1 or 2-celled; styles none; stigmas sessile on the tips of the lobes of the ovary. Fruit a capsule or berry, with numerous minute seeds.—Herbaceous plants, with alternate leaves. Flower stems simple, often naked.

1. **SAXIFRAGA** Linn.—Saxifrage.

(From the Latin, saxum, a stone, and frango, to break; in allusion to the roots penetrating the crevices of rocks and stones.)


1. **S. Virginica** Linn.; pubescent; scape mostly naked, corymbose-
SAXIFRAGACEÆ.

paniculate above; more or less spatulate-obovate, often obtuse, crenate-dentate, taping at the base into a broad petiole; flowers subsessile; petals oval, twice as long as the calyx; capsule half inferior. **S. vernalis** Big.  *S. nivalis* Muhl.

Rocky hills. Can. to Geor. W. to Oregon. April—June. **2.**—Scape 4—12 inches high. **Leaves** in a radical spreading tuft. **Flowers** in rather dense terminal cymose clusters, white, with a tinge of purple. **Virginia Saxifrage.**

2. **S. Pennsylvanica** Linn.: pubescent; scape naked; leaves oblan-celolate or oval, attenuate into a long naked petiole, acute, obsolesly denticulate; cymes in a large oblong panicle; flowers pedicellate; petals lance-linear, a little longer than the calyx; capsule superior.

Wet grounds. Can. to Virg. W. to Ohio. May, June. **2l.**—Scape 1—2, sometimes 3—4, feet high. **Leaves** all radical, 4—8 inches long. **Flowers** small, greenish-yellow. **Pennsylvania Saxifrage.**

3. **S. Wolleana** Torr. & Gr.: leaves all radical, membranaceous, ob-long, taping at base into a short winged petiole, sinuate-toothed, ciliate; branches of the panicle loosely flowered, from the axils of leaf-like bracts; sepals nearly distinct, ovate, obtuse, 3-nerved, reflexed, free from the ovary, about as long as the oval obtuse petals.

On a mountain near Bethlehem, Penn. Mr. Wolle.—**Root** fibrous. **Scape** rather slender, 12—18 inches high. **Petals** small, white, with a yellowish spot near the base. **Resembles S. Pennsylvanica in habit, but differs in its flowers.** **Wolle's Saxifrage.**

4. **S. rivularis** Linn.: small; stem weak, ascending, 3—5-flowered; radical leaves somewhat reniform, crenately lobed, with the petioles dilated at base; cauline ones lanceolate, nearly entire; petals ovate, scarcely longer than the calyx; capsule thick, exceeding the calyx and crowned by the short divergent styles.

White Mountains, N. H. **Oakes.** N. to Labrador, W. to the Rocky Mountains. **1.**—**Scape** about 2 inches high. **Flowers** white, bracteate. **Alpine-brook Saxifrage.**

5. **S. aizoides** Linn.: stems cespitose, leafy; leaves linear, more or less ciliate, slightly mucronate, thick; flowers panicled or sometimes solitary; sepals ovate-oblong, nearly as long as the oblong petals; stigma depressed; capsule thick, as long as the styles.

Wet rocks. Annsville, Oneida co. N. Y.; the only locality in the U. S. **Torr. N. Y. Fl.** N. to Labrador, W. to the Rocky Mountains. June. **2.**—**Stems** numerous, 2—4 inches long, spreading. **Leaves** crowded at the base, scattered above. **Flowers** in a loose panicle, yellow. **Yellow Mountain Saxifrage.**

2. CHRYSSOSPLENIUM. Linn.—Golden Saxifrage.

(From the Greek χρυσός, gold, and σπλήν, spleen; in allusion to the supposed medicinal virtues of the genus.)

Calyx adhering to the ovary, the limb of 4—5 obtuse lobes. Petals none. Stamens 8—10. Styles 2. Capsule 2-beaked, 2—4-valved, at length 1-celled, many-seeded.

**C. Americanum** Schne.: stem decumbent, dichotomously branched; leaves opposite, upper ones often alternate, roundish-ovate, slightly crenate-lobed; flowers dichotomal, distant, sessile. **C. oppositifolium** Mich. not of Linn.
SAXIFRAGACEÆ.


**American Golden Saxifrage.**

3. MITELLA. Linnaeus.—Bishop’s-Cap.

(A diminutive of the Latin *mitra*, a *mitre* or *cap*; in allusion to the form of the capsule.)

**Calyx** campanulate, 5-cleft. **Petals** 5, inserted into the calyx, laciniate or toothed. **Stamens** 10. **Styles** 2, united. Stigmas scarcely distinct. **Capsule** 1-celled, 2-valved; valves equal. **Seeds** numerous.


4. TIARELLA. Linnaeus.—Mitrewort.

(A diminutive of the Latin *tiara*, a head-dress; in allusion to the form of the capsule.)

**Calyx** 5-parted, persistent, with the lobes obtuse. **Petals** 5, inserted into the calyx, unguiculate, entire. **Stamens** 10. **Styles** 2, distinct. **Capsule** 1-celled, 2-valved; valves unequal. **Seeds** few, near the base of the capsule.


5. HEUCHERA. Linnaeus.—Heuchera.

(In honor of John Henry Heucher, a German botanist.)

**Calyx** campanulate, coherent with the ovary below, 5-cleft. **Petals** 5, small, entire. **Stamens** 5, inserted alternately with the petals into the throat of the calyx. **Styles** 2. **Capsule** with 2 beaks, 1-celled, many-seeded.
1. **H. Americana Linn.**: scabrous-puberulent and somewhat viscid; scape mostly naked; leaves roundish-cordate, with short and rounded dentate-mucronate lobes; flowers in a loose terminal panicle; petals spatulate, about as long as the calyx; stamens at length much exserted. **H. cortusa Mich.** **H. viscosa** Pursh.

Shady rocks. N. Y. to Geor. W. to Miss. June, July. 2. **H. pubescens** Pursh.: scape naked, pulverulent-pubescent, nearly smooth below; leaves orbicular-cordate, smoothish, obtusely lobed; the lobes crenulate with short slightly mucronate teeth; flowers in a somewhat thyrsoid panicle; petals spatulate, longer than the included stamens.


**Order LVIII.—Escalloniaceæ.—Escalloniads.**

Calyx 5-toothed. Petals 5, inserted on the tube of the calyx. Stamens 5, alternate with the petals. Ovary 2—5-celled, with a large polysperous placenta in the axis; style simple; stigma 2—5-lobed. Fruit capsular or baccate, surmounted by the persistent style and calyx. Seeds very numerous and minute; albumen oily.—Shrubs, with alternate toothed leaves and conspicuous flowers.

**Itea. Linn.—Itea.**

(From the Greek *irea*, a willow; probably on account of the rapidity of its growth.)

Calyx campanulate, 5-toothed; the teeth subulate. Petals 5, lanceolate-linear, 1-nerved. Stamens 5, shorter than the petals. Style 1; stigma 2-lobed. Capsule 2-celled, 2-parted from the base to the apex.

**I. Virginica Linn.**


**Order LIX. Hydrangeaceæ.—Hydrangeas.**

Calyx 4—6-toothed, adhering more or less to the ovary. Petals 4—6, inserted on the calyx, deciduous. Stamens 8—12 in 2 rows, or many and distinct. Ovary of 2—5 carpels, adhering by their sides; styles as many as the carpels, distinct, with simple reniform stigmas. Fruit a capsule crowned by
the permanent diverging styles. Seeds minute, usually indefinite; albumen fleshy.—Shrubs, with opposite simple leaves. Flowers usually in cymes.

HYDRANGEA. Linn.—Hydrangea.

(From the Greek ὑδρός water, and ἄγγειον, a vase; in allusion to the form of the capsule.)

Marginal flowers usually sterile. **Sterile Fl.** Calyx membranaceous, colored, veiny, 4—5-parted. Petals, stamens, and pistils rudimentary or none. **Fertile Fl.** Calyx hemispheric, adnate to the ovary, 5-toothed. Petals 5, ovate. Stamens 10. Styles 2. Capsule 2-celled, opening by a foramen between the styles. Seeds numerous.


Sandy banks. Penn. to Geor. W. to Miss. July. 12.—Stem 4—8 feet high. Leaves large, the veins pubescent. Flowers white or yellowish-white, varying from all fertile to all sterile and radiate. **Tree Hydrangea.**


Penn. to Geor. Muhl. Tenn. May, June. 12.—Stem 6—8 feet high. Flowers large, white, very ornamental. Changes by cultivation. **Rayed Hydrangea.**

ORDER LX. UMBELLIFERÆ.—Umbellifers.

Calyx entire or 5-toothed. Petals 5, usually inflexed at the point. Stamens 5, alternate with the petals. Ovary inferior, 2-celled; styles 2, distinct; stigmas simple. Fruit consisting of two carpels, which are attached to a common axis by their face (the **commissure**) from which they separate when ripe; each carpel traversed by several ribs or wings; in the intervening spaces (**intervals**) are often lodged longitudinal channels or receptacles (**vitce**), containing colored oily matter. Seeds usually adhering to the carpel; albumen copious, horny.—Herbaceous plants with hollow stems. Leaves mostly compound and sheathing at base. Flowers in umbels.

**Suborder I. ORTHOSPERMÆ.**

Albumen flat or flattish on the face.
* Umbels simple or imperfectly compound.

1. HYDROCOTYLE. Linn. Marsh Pennywort.

(From the Greek ὕδωρ, water, and κοτυλή, a cup; perhaps in allusion to the form of the leaves of some species.)

Calyx with the tube subcompressed and the margin of the limb obsolete. Petals ovate, entire, acute, with apex straight. Fruit laterally compressed; ribs 5, filiform, the middle and lateral ones often obsolete.—Involucre few-leaved. Flowers white.

1. _H. interrupta_ Muhl.: stem filiform, creeping, rooting at the joints, smooth; leaves peltate, orbicular, doubly crenate, 11-nerved; flowers 5—8 in axillary umbellate heads. _H. vulgaris_ Mich.

Wet places. Can. to Geor. Pursh. June—Aug. *.—Flowers minute, white, on very short pedicels; peduncles longer than the pedioles. _Interrupted Marsh Pennywort._

2. _H. umbellata_ Linn.: stem glabrous, rooting at the joints; leaves peltate, orbicular, doubly crenate, 11—12-nerved, emarginate at the base; umbels 20—30-flowered; flowers distinct, pedicellate.

Boggy places. Mass. to Flor. and Louis. June—Aug. *.—Stem creeping or floating. Leaves on long pedioles. Flowers minute, in umbels which are sometimes proliferous. _Many-flowered Marsh Pennywort._

3. _H. Americana_ Linn.: very smooth and shining; leaves orbicular, reniform, somewhat lobed, doubly crenate, 7—9-nerved; umbels nearly sessile, 3—5-flowered.

Moist places. Can. to Geor. June, July. *.—Stem filiform, branching, with long creeping suckers. Flowers greenish-white, in very small axillary umbels. _American Marsh Pennywort._

4. _H. ranunculoides_ Linn.: smooth; leaves orbicular-reniform, 5-nerved, 3—5-lobed; umbels 5—10-flowered; pedicels very short. _H. cymbalariafolia_ Muhl.

In water. Penn. to Geor. June, July. *.—Stem creeping or floating. Leaves mostly deeply 3-lobed. Flowers white; pedicules shorter than the pedioles. _Lobed Marsh Pennywort._

2. CRANTZIA. Nutt.—Crantzia.

(In honor of Prof. H. J. N. Crantz, an Austrian botanist of the last century.)

Calyx with the tube subglobose; limb nearly wanting. Petals roundish, entire, obtuse. Fruit roundish; commissure excavated. Carpels unequal, with 3 margined dorsal ribs, and 4 obtuse-angled grooves.—Involucre 5—6-leaved.

_C. lineata_ Nutt.: leaves cuneate-linear, obtuse, shorter than the pedicules. _Hydrocotyle lineata_ Mich.

Muddy banks of streams. Mass. to Flor. July. *.—Stem smooth, creeping and rooting. Leaves about 2 at each joint, 1—2 inches long, marked with transverse lines. Umbels 8—10-flowered, on long pedicelles. Flowers pedicellate, white with a tinge of red. _Narrow-leaved Crantzia._
3. ERIGENIA. Nutt.—Eryngo.

(From the Greek ἑριγενία, a name of Aurora, the harbinger of day, or of the spring; on account of its being the first conspicuous flowering plant in the U. S. Nutt.)

Calyx with the margin obsolete. Petals 5, obovate, entire, equal. Styles persistent, very long, subulate. Fruit oval, somewhat laterally compressed. Carpels gibbously convex, marked with 3 striae.—General involucre none; partial one a few unequal leaflets.


Bulbous Eryngia.

4. SANICULA. Linn.—Sanicle.

(From the Latin sanio, to heal; on account of its supposed medicinal virtues.)

Calyx with the tube echinate, the lobes somewhat leafy and persistent. Petals erect, connivent, obovate, deeply emarginate. Fruit subglobose, solid, not ribbed, armed with hooked bristles.—Leaflets of the involucre few, often divided.

1. _S. Marylandica_ Linn.: leaves digitatedely 5—7-parted, the segments incisedly and mucronately serrate; sterile flowers numerous, distinctly pedicellate, and nearly as long as the fertile ones; styles long and recurved.

Woods. Throughout the U. S. June—Aug. 3. —_Stem_ about 2 feet high, branching at the top. _Radical leaves_ on long petioles. _Petals_ white or slightly yellowish, obovate.

_Long-styled Sanicle._

2. _S. Canadiana_ Linn.: leaves digitatedely 3—5-parted, the segments incisedly and mucronately serrate; sterile flowers few, slightly pedicellate, and much shorter than the fertile ones; styles shorter than the prickles.

Woods. Throughout the U. S. June—Aug. 4. —_Dr. Torrey, in his Flora of New York, has given figures of these two species, by which their difference is fully shown. The latter may be distinguished by its less divided leaves, its fewer sterile flowers, and especially by its very short inconspicuous styles. Both species are medicinal and poisonous._ See _Big. Med. Bot._ 1. 125.

_Canadian Sanicle._

5. ERYNGIUM. Linn.—Eryngo.

(A name given by Dioscorides to this or some allied plant, from its supposed virtue in cases of flatulence.)

Calyx 5-parted; tube rough with scales. Petals erect, connivent, oblong-ovate, deeply emarginate. Fruit sealy or tuberculoose.—_Flowers_ in a roundish or oblong head, blue or white, bracteate.

1. _E. aquaticum_ Linn.: leaves linear-lanceolate, nerved, remotely ciliate-spinose; lower subensiform; leaflets of the involucre 7—9, mostly entire, shorter than the ovate-globose pedunculate heads. _E. yuccifolium_ Mich.
UMBELLIFERÆ.


2. *E. Virginianum Lam.*: leaves linear-lanceolate, elongated, slightly serratate, tapering at each end; flowers in large terminal umbels or cymes; leaflets of the involucre 7—8, longer than the heads, 3-cleft or dentate-spiny, whitish beneath. *E. aquaticum* Mich.

Marshes. N. J. to Flor. W. to Texas. July, Aug. 2.—Stem 2—5 feet high, cymosely branched at the summit, hollow. Heads numerous, nearly an inch in diameter, pale blue or nearly white. Virginian Eryngo.

** Umbels compound or perfect.


(A Latin name applied to a hollow stem or internodes; such as occur in this genus.)

Calyx with the margin 5-toothed. Petals obcordate, reflexed. Fruit roundish, didymous, laterally contracted. Carpels with 5 equal flattish ribs; the lateral ones margined.—General involucre none or few-leaved; partial one many-leaved.

1. *C. maculata* Linn.: stem spotted; lower leaves tri-ternate and quinate; upper bi-ternate; segments lanceolate or ovate-lanceolate, acuminate, mucronate-serrate; umbels large, axillary and terminal; partial involucre of 5—6 setaceous leaves.


2. *C. bulbifera* Linn.: leaves various, ternate and bi-ternate; leaflets linear and linear-lanceolate, remotely toothed; umbels small, axillary and terminal; partial involucre of 3—5 subulate leaves; axils of the leaves bulbiferous.


7. *ZIZIA*. Koch.—Meadow Parsnip.

(In honor of J. B. Zizii, a German botanist.)

Calyx with the margin obsolete or very short, 5-toothed. Petals elliptic, attenuated into a long inflexed point. Fruit laterally contracted, subdidymous, roundish or oval. Carpels with 5 prominent equal ribs; the lateral ribs margined.—General involucre none; partial one few-leaved.

1. *Z. aurea* Koch.: lower leaves bi-ternate, upper bi-ternate or ternate; segments oblong-lanceolate, attenuate at base, incisely serrate; partial involucre 3-leaved, unilateral. *Smyrnium aureum* Linn.


2. *Z. cordata* Koch.: radical leaves undivided, cordate, crenate, on long
petioles; cauline subsessile, ternate; segments petiolate, ovate or ovate-oblong, serrate; partial involucre 1—2-leaved. _Smyrnium cordatum_ Walt. 

3. _Z. integerrima D. C._: leaves bi-tertane, somewhat glaucous; segments oblong-ovate, entire; partial involucre 1-leaved, very short. _Smyrnium integerrimum_ Linn.

8. _DISCOPLEURA._ _D. C._ — Discopleura.

(From the Greek διςκς, a disk, and πλατὺς, the side; the two sides of the fruit being marked with a kind of disk.)

Calyx with 5 subulate persistent teeth. Petals ovate, entire. Fruit ovate, subdidymous. Carpels with 5 ribs; 3 dorsal ribs filiform, exsert, subacute; 2 lateral ones with a thick margin. — Leaves much divided; the segments linear. Partial involucre a few linear setaceous leaflets.

_D. capillacea D. C._: stem erect or procumbent; umbels 3—12-rayed; leaflets of the involucre 3—5, mostly 3-cleft; fruit ovate. _Ammi majus_ Walt. A. capillaceum Mich.

Bogs. N. Y. to Geor. July—Sept. 2. — Stem 1—2 feet long, geniculate, smooth. Leaves many-parted, with the segments filiform and spreading. _Flowers_ very small, white, on axillary umbels. _Few-rayed Discopleura._

9. _CRYPTOTÆNIA._ _D. C._ — Hone-wort.

(From the Greek κρυπτός, hidden, and ταινία, a fillet; the narrow vittae being concealed in the carpels.)

Calyx with the margin obsolete. Petals obovate, subentire, with a narrow inflexed point. Fruit laterally contracted, linear-oblong, crowned with straight styles. Carpels with 5 equal filiform obtuse ribs; the lateral ones nearly margined. — Um-bels numerous, arranged somewhat in the form of a panicle. General involucre none; partial one few-leaved.

_C. Canadensis D. C._: leaves ternate, smooth; leaflets rhomboid-ovate or lanceolate, acute, incisely toothed, acutely serrate; umbels numerous, lower ones rising from the axis of the upper leaves; fruit oblong, beaked with the persistent styles. _Sison Canadense_ Linn. _Cherophyllum Canadense_ Pers.

Rocky Woods. Can. to Geor. W. to Miss. June—Aug. 2. — Stem about 2 feet high, branched above. Leaves sometimes quinate; the lower ones on long petioles. _Flowers_ white. _Canadian Hone-wort._

10. _SIUM._ _Linn._ — Water Parsnip.

(From the Celtic _siw, water_; in allusion to its place of growth.)

Calyx with the margin 5-toothed, often obsolete. Petals
umbelliferæ.

Obovate, emarginate, with an inflexed point. Styles divergent-reflexed, capitulate at the apex. Fruit compressed or contracted at the side, subdidymous, crowned with the styles. Carpels with equal filiform and somewhat obtuse ribs.—Involucre many-leaved, rarely wanting.

1. *S. latifolium* Linn. : root creeping; stem angular and sulcate; leaves pinnate; leaflets ovate-lanceolate, unequal at base, sessile, smooth, equally serrate, sometimes pinnatifid; umbels terminal, large, many-rayed; involucre many-leaved.

Swamps. Arct. Amer. to Penn. W. to Oregon. July. 2. — Stem 2–4 feet high, branching. *Flowers* white. When growing in water the lower leaves are bi-pinnatifid, or have the leaflets laciniate. Broad-leaved *Water Parsnip.*

2. *S. lineare* Mich.: stem erect, smooth, angular and sulcate; lower leaves pinnate, upper ones ternate; leaflets linear-lanceolate or linear, acutely and finely serrate; umbel terminal, with short rays; involucre many-leaved, linear. *S. tenuifolium* Muhl.


11. BUPLEURUM. Linn.—Hare's Ear.

(From the Greek βοξ, an ox, and πλανίνω, a rib; probably in allusion to the ribbed leaves of some species.)

Calyx with the margin obsolete. Petals roundish, entire, involute. Fruit laterally compressed or subdidymous, crowned with the depressed style. Carpels with 5 winged acute filiform or obsolete ribs; lateral ones marginal.—Leaves mostly simple. Involucre various.

*B. rotundifolium* Linn.: stem leaves perfoliate, roundish-ovate; umbel 5-rayed; general involucre none; partial one of 5 mucronate leaflets. *B. perfoliatum* Lam.


12. ÆTHUSA. Linn.—Fool's Parsley.

(From the Greek ἄδω, to burn; on account of its acrid quality.)

Calyx with the margin obsolete. Petals obovate, emarginate, with an inflexed point. Fruit ovate-globose. Carpels with 5 elevated, thick and acutely keeled ribs; the lateral ones margined and a little broader, and surrounded by a somewhat winged keel.—General involucre none or 1-leaved; partial one 1–3 or 5 leaved.

Æ. *Cynopodium* Linn.: leaves bi- and tri-pinnate, dark green; segments ovate-lanceolate; partial involucre of 3 long pendant leaves.
Near cultivated grounds. Mass. and N. Y. July, Aug. (1)—Stem about 2 feet high, branched, hollow, not spotted. Leaves with the ultimate divisions linear-lanceolate. Umbels on long peduncles, terminal and opposite the leaves. It has a nauseous odor and is said to be poisonous. Common Fool's Parsley.

13. CONIOSELINUM. D. C.—Conioselinum.

(Name compounded of Conium and Selinum.)

Calyx with the margin obsolete. Petals obcordate or obovate, with an inflexed point. Fruit convex or compressed on the back. Carpels with 5 winged ribs; the lateral ones twice as broad as the others and marginal.—General involucre none, or few-leaved; partial one of 5—6 subulate leaves.


14. THASPIUM. Nutt.—Thaspium.

(From the Isle of Thaspia; a name unfortunately applied.)

Calyx with the margin 5-toothed. Petals elliptic, attenuated into a long inflexed point. Fruit not contracted at the side, subelliptic. Carpels convex, with 5 winged ribs; wings subequal; intervals grooved.—General involucre none; partial one about 3-leaved.

* Umbels opposite. Flowers dark purple.

1. T. atropurpureum Nutt.: stem smooth, dichotomously branched; radical leaves subcordate, simple, serrate; cauline ones ternate, serrate; leaflets ovate-oblong. Cnidium atropurpureum Spreng.


** Umbels terminal. Flowers yellow.

2. T. acteolatum Nutt.: stem very tall, smooth and straight; lower leaves tri-ternate; upper ones bi-ternate; leaflets ovate, coarsely toothed; umbels numerous, terminal, somewhat whorled; partial involucre setaceous. Ligusticum acteolatum Mich. Torr. & Gr.

Banks of streams. Can. to Geor. W. to Ken. July. 2l.—Stem 3—5 feet high. Fruit ovate-oblong, with the ribs somewhat winged. Tall Thaspium.

3. T. barbinode Nutt.: petioles and nodes of the stem pubescent; lower leaves tri-ternate; upper ones bi-ternate; segments cuneate-ovate, acute, unequally and incisely serrate, entire at the base; partial involucre 3-leaved, setaceous. Ligusticum barbinode Mich. Thapsia trifoliata Spreng.

4. T. aureum Nutt.: lower and middle cauline leaves bi-ternately, and the uppermost ternately, divided; segments oblong-lanceolate, mostly wedgeform at the base, sharply serrate; carpels with the winged ribs nearly equal. (Torr.) Smyrnium aureum Big.


Golden Thaspium.

15. LIGUSTICUM. Linn.—Lovage.

(Named from Liguria, where the old Ligusticum Levisticum abounds. Hook. Br. Fl.)

Calyx with the margin 5-toothed or obsolete. Petals obovate, acute, emarginate, inflexed; claw very short. Fruit roundish in the transverse section, or slightly laterally compressed. Carpels with 5 equal and somewhat winged ribs; the lateral ones margined.—Involucre various; partial one many-leaved.

L. scoticum Linn.: stem erect, smooth and striate; lower leaves bi-ternate; upper ones ternate and nearly sessile; leaflets broadly ovate, coarsely serrate; umbels many-rayed; flowers equal; petals inflexed; involucres linear-lanceolate, 5—7-leaved.


16. ANGELICA. Linn.—Angelica.

(Named Angelic, from its medicinal and cordial properties.)

Calyx with the margin obsolete. Petals lanceolate, entire, acuminate, with a straight or incurved point. Fruit compressed on the back, with the central raphe two-winged on each side. Carpels with 3 dorsal filiform elevated ribs; the 2 lateral ribs dilated into a membranaceous wing.—General involucre none or few-leaved; partial one many-leaved.

1. A. triquinata Mich.: stem terete, pubescent above; leaves on long petioles, ternate; partitions quinate; leaflets oblong-ovate, equally serrate, smooth; lower ones 2-lobed at the base; general involucre none; partial one of 6—8 subulate leaves directed to one side. A. hirsuta Muhl. Ferula villosa Wall. Archangelica hirsuta Torr. & Gr.

Dry grounds. N. Y. to Car. July, Aug. 2. —Stem 2—3 feet high, erect and straight, white, villous below the umbel. Umbels mostly 3. Flowers numerous, white.

Trigintate Angelica.
2. *A. atropurpurea* Linn.: stem large, smooth, colored; leaves ternate, on large inflated sheathing petioles; partitions subquinate; leaflets large, oblong-ovate, coarsely serrate, sublobed; the three terminal ones often united at base; general involucre none; partial one of 8—10 subulate leaves. *A. triquinala* Big. *Archangelica atropurpurea* Torr. & Gr.

Wet meadows. Can. to Penn. June. 24.—*Stem* 3—6 feet high, purplish. (Dr. Darlington says it is sometimes nearly 3 inches in diameter at base.) *Flowers* white. Much larger than the preceding. Root poisonous.

*Dark-purple Angelica.*

3. *A. lucida* Linn.: stem erect, glabrous; leaves bi- and tri-pinnate; leaflets equal, ovate, cuneate at base, incisely serrate; general involucre about 5-leaved; partial one subulate.


17. ARCHEMORA. D. C.—Archemora.

(A fanciful name given by De Candolle in allusion to *Archemorus*, who is said to have died from eating parsley.)

Calyx with the margin 5-toothed. Petals obcordate, inflexed. Fruit dorsally compressed, flat, oval or obovate. Carpels with 5 subcarinate equidistant filiform ribs; lateral ribs dilated into a membranaceous margin nearly as broad as the seed.—General involucre none or few-leaved; partial one many-leaved.

1. *A. rigida* D. C.: stem erect, rigid, striate; leaves pinnate, smooth; leaflets 4—5 pairs, large, oblong-lanceolate, entire or with several remote teeth; umbels terminal, on long peduncles; general involucre none; partial one of 6—8 subulate leaves; fruit much compressed. *A. rigida* var. a. Torr. & Gr. *Sium rigidius* Linn. *Enanthe rigida* Nutt.


Swamps. N. Y. and N. J. W. to Miss. Aug. 24.—*Stem* 3—5 feet high. *Flowers* white. Both species are supposed to be poisonous.

*Ambiguous Archemora.*

18. PASTINACA. Linn.—Parsnip.

(From the Latin *pastus*, food; in allusion to the use made of the root.)

Calyx with the margin obsolete or minutely denticulate. Petals roundish, entire, involute. Fruit dorsally and flatly compressed, surrounded by a dilated margin. Carpels with very slender ribs; 3 intermediate ribs equidistant; 2 lateral ones contiguous.—Involucre none or few-leaved.
UMBELLIFERÆ.

_P. sativa_ Linn.: stem smooth, sulcate; leaves pinnate; leaflets sessile, subpubescent beneath, oblong, incised, terminal one 3-lobed; umbels large, terminal; fruit oval, much compressed.


**Wild Parsnip.**

19. HERACLEUM. Linn.—Cow Parsnip.

(Named from Hercules, who is said to have brought this or some allied plant into use.)

Calyx 5-toothed. Petals obovate, emarginate, with an inflexed point; outer ones often rayed, bifid. Fruit dorsally and flatly compressed, surrounded by a membranaceous margin. Carpels with 3 equidistant ribs on the back; 2 lateral ribs with a dilated margin.—General involucre caducous, often few-leaved; partial one many-leaved.

_H. lanatum._ Mich.: stem sulcate, pubescent; leaflets ternate, petioled, tomentose beneath; leaflets petioled, round-cordate, lobed; partial involucre 5—6-leaved; fruit orbicular.

Meadows. Can. as far N. as lat. 58° to Penn. W. to Oregon. June. ②.—Stem 4—8 feet high. _Petioles_ very broad and membranous. _Flowers_ white, in very large terminal umbels. One of our largest umbelliferous plants. 

**American Cow Parsnip.**

20. DAUCUS. Linn.—Carrot.

(From _dauros_, the ancient Greek name for the Carrot.)

Calyx with the margin 5-toothed. Petals obovate, emarginate, with an inflexed point; outer ones often rayed and deeply bifid. Fruit somewhat laterally compressed, ovate or oblong. Carpels with 5 primary filiform ribs; 3 intermediate dorsal ones; 2 lateral, flat, placed on the commissure; 4 secondary ones equal, with prominent wings, parted into a simple aculeate series.—General involucre with many pinnate or pinnatifid leaves; partial one with many entire or trifid leaflets.

_D. Carota._ Linn: stem erect, hispid; leaves tri-pinnate; leaflets pinnatifid; segments linear-lanceolate, acute; leaves of the involucre pinnatifid, nearly as long as the umbel.

Old fields, road sides, &c. Throughout the U. S. July, Aug. ②.—Stem 2—3 feet high, branching. _Umbel_ with a solitary colored abortive flower in the centre, when in seed concave.

**Wild Carrot.**

_Suborder II. CAMPYLOSPERMÆ._

Seed with the margin involute or deeply furrowed on the face.
21. CHÆROPHYLLUM. Linn.—Wild Chervil.

(From the Greek χαρός, to rejoice, and φύλλον, a leaf; on account of the agreeable smell of the leaves.)

Calyx with the margin obsolete. Petals obovate, emarginate, inflexed. Fruit not beaked, laterally contracted or compressed. Carpels with 5 obtuse equal ribs; lateral ribs margined.—General involucre none or few-leaved; partial one many-leaved.

C. procumbens Lam: stem decumbent, somewhat hairy; leaves bi-pin-nate; leaflets pinnatifid; segments lance-oblong, rather obtuse; umbels opposite the leaves, 2—3-rayed; partial involucre of 4—5-ovate ciliate leaves; fruit prismatic, smooth, crowned with the persistent styles. Scandix procumbens Linn. Myrrhis procumbens and M. bifida Spreng.


22. OSMORHIZA. Raf.—Osmorhiza.

(From the Greek ὀσμή, odor, and ρῶς, a root; from its sweet or fragrant root.)

Calyx with the margin obsolete. Petals ovate, scarcely emarginate, with a very short inflexed point. Fruit elongated, attenuated at base, solid, acute-angled, in the transverse section roundish. Carpels with hispid angles and 5 acute ribs; commissure sulcate.—General involucre 2—3-leaved; partial one often 5-leaved.


Wet meadows. N. Can. to Virg. W. to Oregon. May, June. (4)—Stem 2—3 feet high, purplish, at length nearly smooth, striate. Leaves mostly bi-ternate, the radical ones on long petioles; leaflets oblong-ovate, incisely serrate, acute. Flowers white, twice as large as in the next species. The root has the flavor of Aniseed. Long-styled Osmorhiza. Sweet Cicely.

2. O. brevistyliis D. C.: styles conical, erect, about half the length of the fruit. Myrrhis Claytoni Mich. Uraspermum hirsutum Big.

Shady rocks. Can. to Car. W. to Oregon. May, June. (4)—Stem about 2 feet high, branching, striate, pale-green, at length nearly smooth. Leaves bi-ternate; leaflets incised, often pinnatifid. The root has a sweetish taste, not so pleasant as that of the preceding. Short-styled Osmorhiza.

23. CONIUM. Linn.—Poison Hemlock.

(Said to be derived from the Greek κωπος, a cone or top; in allusion to the giddiness produced by its fruit.)

Calyx with the margin obsolete. Petals obcordate, somewhat emarginate, very short and inflexed. Fruit ovate, laterally compressed. Carpels with 5 prominent equal undulate
ribs; the lateral ribs margined.—Involucre 3—5-leaved; partial one dimidiate or unilateral.

*C. maculatum* Linn.: stem erect, branched, smooth and spotted; leaves large, tri-pinnate; leaflets lanceolate, pinnatifid; ultimate segments acute; general and partial umbels many-rayed; general involucre of several short lanceolate leaves; partial one few-leaved, linear-lanceolate, directed to one side.


**Order LXI. ARALIACEÆ.—Ivyworts.**

Calyx superior, entire or toothed. Petals definite, 5—10, valvate in aestivation, occasionally none. Stamens as many or twice as many as the petals. Ovary many-celled. Fruit succulent or dry, of several-seeded cells. Seeds pendulous; albumen fleshy.—Trees, shrubs or herbaceous plants, with the habit of the Umbelliferae.

1. **ARALIA.** Linn.—Aralia.

(Origin of the name unknown.)

Calyx with the margin very short, 5-toothed or entire. Petals 5, spreading. Stamens 5. Styles 5, spreading. Berry 5-celled.—Umbels often panicked.

1. *A. nudicaulis* Linn.: nearly stemless; leaf mostly solitary, tri-quinate; leaflets sessile, oblong-oval, acute, serrate, smooth; scape shorter than the leaf, 3-cleft at the top; umbels few, small, on long peduncles, without involucres.


2. *A. racemosa* Linn.: stem herbaceous, branched; petioles 3-parted; divisions ternate and quinate; leaflets ovate, often cordate, acuminate, sharply serrate, mostly smooth; umbels numerous, compound, in large axillary panicles; involucre small, few-leaved.


3. *A. hispida* Mich.: low, suffruticose; stem and petioles hispid; leaves doubly pinnate; leaflets oblong-ovate, sharply serrate, unarmèd; umbels axillary and terminal, on long peduncles.

Rocky woods. Hudson's Bay to Virg. July. 1.—Stem 1—2 feet high, with stiff and thick bristles at the base. *Flowers* greenish-white, in spreading umbels, *Wild Elder.*
4. *A. spinosa* Linn.: arborescent; stem and petioles prickly; leaves doubly or triply pinnate; leaflets ovate, acuminate, sessile; umbels numerous, in compound panicles; involucre small, few-leaved.

Fertile woods. Penn. to Geor. W. to Miss. Aug., Sept. %.—Stem 8—12 (sometimes 30 or 40) feet high, with the leaves crowded at the summit. *Flowers* white, in very large terminal panicles. A watery infusion of the bark is said to be both emetic and cathartic. *Ell. Sk.* i. 373.

**Angelica Tree.**

2. **PANAX.** Linn.—Ginseng.

(From the Greek πάνα _, all, and ἁέρας, a cure; being considered by the Chinese as a remedy for all diseases.)

Calyx with the margin very short and obsolescely 5-toothed. Petals 5. Stamens 5, inserted under the margin of the disk and alternating with the sepals. Styles 2—3, short. Fruit fleshy, compressed, orbiculate or didymous, 2-celled; cells 1-seeded.—*Flowers* in simple umbels, polygamous.

1. *P. quinquefolium* Linn.: root fusiform, sometimes branched; stem angular; leaves ternate-quinate; leaflets on distinct petioles, oval, acuminate, serrate; peduncles shorter than the petioles; styles and seeds 2.


2. *P. trifolium* Linn.: root roundish; stem simple, smooth; leaves ternate; leaflets subsessile, oblong-lanceolate, serrate; styles often 3; berry 3-seeded.


**ORDER LXII. HAMAMELIDACEÆ.—WITCHHAZELS.**

Calyx adherent, in 4 or 5 pieces. Petals 4 or 5, or none. Stamens 8, 4 alternate with the petals, and 4 sterile placed at the base of the petals. Ovary 2-celled; styles 2. Fruit half inferior, capsular, usually opening with two septiferous valves. Seeds pendulous; albumen horny.—Small trees or shrubs, with alternate deciduous leaves. Flowers axillary, often polygamous.

**HAMAMELIS.** Linn.—Witchhazel.

(Origin of the name uncertain.)

Calyx 4-lobed, with 2—3 bracteoles at the base. Petals 4, long, ligulate. Sterile stamens scale-like, and opposite the petals. Styles 2, short. Capsule coriaceous, 2-celled, 2-valved at the top.
H. Virginica Linn.: leaves ovate, acute, toothed, cordate, with the sinus small, scabrous beneath; flowers in axillary clusters.

var. parviflora Nutt.: leaves smaller and more pubescent beneath.

Woods. Can. to Flor. and Louis. Oct., Nov. 12.—Stem 6—13 feet high. Flowers in threes, polygamous, greenish-yellow, appearing in autumn and continuing during a great part of the winter; the fruit is not perfected until about September of the following year. Var. parviflora is found on the mountains of Pennsylvania.

Order LXIII. Cornaceae.—Dogwoods.

Sepals 4, adherent. Petals 4, distinct. Stamens 4, alternate with the petals. Ovary 2-celled; style filiform; stigma simple. Fruit a 2-celled drupe crowned with the remains of the calyx. Seed solitary; albumen fleshy.—Trees or shrubs, with opposite rarely alternate leaves. Flowers capitate, umbellate or corymbose.

Cornus. Linn.—Dogwood.

(From the Latin cornu, a horn; in allusion to the toughness of the wood.)

Calyx adherent to the ovary; the limb minute, 4-toothed. Petals 4, oblong, spreading. Stamens 4. Stigma obtuse. Drupe with the cells not united.

* Flowers capitate, surrounded by a petaloid involucre.

1. C. Canadensis Linn.: herbaceous; lower leaves opposite, small; upper on short petioles, verticillate, veined; leaves of the involucre 4, broad-oval, acuminate; flowers numerous, very small, in a terminal head; drupe globose.

Damp woods. Arct. Amer. and Labrador to Car. W. to Oregon. May, June. 21.—Stem 4—6 inches high, simple, with one or two pairs of opposite leaves and a whorl of about 6 at the summit. Involucre greenish-white, petaloid, much longer than the flowers. Drupe red. Dwarf Dogwood.

2. C. florida Linn.: arborescent; leaves ovate, acuminate, whitish beneath; leaves of the involucre 4, large, obcordate, nervèd, with a callous notch at the apex; flowers in small terminal heads; drupe oval.


** Flowers naked, in cymes.

† Leaves opposite.

3. C. circinata L'Herit.: branches warty; leaves on short petioles, broad-oval, acuminate, white-downy beneath; cymes crowded, depressed; drupe globose. C. tomentulosa Mich.


5. *C. stolonifera* Mich.: stem often reclined and stoloniferous, with reddish-purple branches; leaves ovate, somewhat acuminate, obtuse at base, rough with minute pubescence on both sides, whitish beneath; cymes small, flat, rather crowded; drupe globose. *C. alba* Wang. *C. sanguinea* Pursh, ? not of Linn.

Banks of streams. Can. from lat. 69° to N. Y. W. to Miss. May, June. \( \bar{v} \). — Stems sometimes 5—10 feet long, erect, or prostrate and rooting. Flowers white, in small cymes. Drupe small, white or lead-colored. *C. sanguinea* seems not to be a native of North America. The plant described under that name by our botanists, is thought by Torrey and Gray to be this species; while Darlington connects it with *C. sericea*. *C. stricta* Lam. (Beck Bot. 1st Ed.), is said to be confined to the southern states. Stoloniferous Dogwood.

6. *C. paniculata* L'Herit.: branches erect, smooth; leaves ovate-lanceolate or oval, acuminate, acute at base, rough with a minute pubescence, hoary beneath; cymes loose, usually paniculate, smooth; drupe small, depressed-globose. *C. racemosa* Lam.

Wet woods. Can. to Penn. W. to Miss. July. \( \bar{v} \). — Stem 6—8 feet high, with a grayish bark. Flowers white, in very numerous panicled or thyrsoid cymes. Drupe white or lead-colored. Panicled Dogwood.

†† Leaves alternate.

7. *C. alternifolia* Linn.: branches alternate, warty; leaves alternate, broad-oval or ovate, acuminate, smooth above, hoary pubescent beneath; cymes depressed and spreading; drupe globose.


**Order LXIV. Loranthaceae.—Loranthis.**

Calyx, with 3, 4 or 8 sepals often joined into a tube, usually with 2 bracts at base, sometimes none. Petals none. Stamens as many as the sepals, and opposite to them, when they are present. Ovary 1-celled; style 1 or none; stigma simple. Fruit succulent. Seed solitary; albumen fleshy.—Shrubs, almost parasitical. Leaves fleshy, entire, mostly opposite, rarely wanting.

**VISCUM. Linn.—Mistletoe.**

(From the Latin *viscus*, glue; in allusion to its glutinous fruit.)

Flowers monoecious or dioecious. Sterile Fl. Sepals 4. (rarely 3—5,) fleshy, the segments triangular. Fertile Fl.
Calyx with the margin obsolete; inner sepals (petals) 4, distinct. Stigma obtuse, sessile. Berry pulpy.

*V. flavescens* Pursh.: branches terete, opposite and verticillate; leaves cuneate-ovate, 3-nerved; spikes axillary, solitary, rather shorter than the leaves; sterile flowers mostly trifid. *V. verticillatum* Nutt. Parasitic on trees. N. J. to Flor. and throughout the valley of the Mississippi. May. — Stem 9—18 inches high, yellowish-green, smooth. Leaves fleshy or somewhat coriaceous. Flowers small, yellowish-green, sessile. Berries pearly white, resembling white wax. White Misseltoe.

**Order LXV. CAPRIFOLIACEÆ.—Caprifoliols.**

Calyx 4—5-cleft, usually with 2 or more bracts at base. Corolla monopetalous or polypetalous, rotate or tubular, regular or irregular. Stamens epipetalous, as many as the lobes of the corolla and alternate with them. Style 1, or none; stigmas 3—5. Fruit usually a berry or drupe, rarely a capsule. Seeds solitary or numerous; albumen fleshy.—Shrubs or herbaceous plants. Leaves opposite, without stipules. Inflorescence various.

1. **SAMBUCUS. Linn.—Elder.**

(From the Greek *sakbaven*, a musical instrument, in the construction of which this wood is said to have been employed.)


2. **VIBURNUM. Linn.—Viburnum.**

(Origin of the name uncertain.)

Calyx with the limb small 5-toothed and persistent. Corolla rotate, subcampanulate or tubular, 5-lobed. Stamens 5,
equal. Stigmas 3, sessile. Berry ovate or globose, 1-seeded, crowned by the teeth of the calyx.

* Leaves serrate or toothed.

1. **V. prunifolium** Linn.: branches spreading, smooth; leaves obovate, nearly round and oval, very smooth, acutely serrate; petioles winged; cymes sessile, lateral; fruit oblong-ovoid.


   **Plum-leaved Viburnum. Black Haw.**

2. **V. pyrifolium** Lam.: leaves ovate-oblong, somewhat acute, subserrate, smooth; petioles naked; cymes large, spreading, on angular peduncles; fruit ovoid. **V. nudum**, var. Torr. & Gr.

   Swamps. Can. and N. S. May, June. **1.**—Stem 5—10 feet high. Flowers white, in large spreading cymes. Fruit red. **Pear-leaved Viburnum.**

3. **V. Lentago** Linn.: smooth; leaves broad-ovate or oval, acuminate, sharply serrate; petioles with waved margins; cymes terminal, sessile; fruit oval.


4. **V. nudum** Linn.: leaves oval-oblong, slightly acuminate, smooth above, veins and margins pubescent beneath, obsolescently crenulate; petioles naked; cymes peduncled; fruit ovoid. **V. squamatum** R. & S.

   Swamps. Can. to Flor. June. **1.**—Stem 8—12 feet high. Flowers small, crowded, white. Fruit dark-blue, nearly black. **Swamp Viburnum.**

5. **V. lantanoides** Mich.: branches flexuous and often procumbent; leaves orbicular-cordate, abruptly acuminate, unequally serrate; nerves and petioles puberulent-tomentose; cymes closely sessile; fruit ovoid. **V. Lantana**, var. *grandiflorum* Ait.

   Rocky woods. Can. to Virg. May, June. **1.**—Stem 4—8 feet high. Flowers white, in flat, loose cymes, the sterile ones very large. Fruit red, black when ripe. **Large-flowered Viburnum.**

6. **V. dentatum** Linn.: nearly smooth; leaves on long petioles, orbicular-ovate, with coarse serratures, plaited; axils of the veins pubescent beneath; cymes terminal, pedunculate; fruit nearly globose. **V. dentatum**, var. *glabellum* Mich.


7. **V. pubescens** Pursh.: pubescent; leaves on very short petioles, ovate or ovate-oblong, subcordate, acuminate, dentate-serrate, villous beneath; cymes pedunculate; fruit oblong. **V. dentatum**, var. *semilomentosum* Mich.

   High grounds. Can. to Car. June. **1.**—Stem 2—3 feet high, with straggling branches. Leaves smoother when old. Cymes smaller than in the preceding. Fruit small, reddish. **Pubescent Viburnum.**

**Leaves lobed or incised.**

8. **V. acerifolium** Linn.: leaves roundish or broad-ovate, subcordate, coarsely and acutely serrate, velvety pubescent beneath, 3-lobed; lobes...
CAPRIFOLIACEÆ.

divergent; petioles hairy, with two setaceous appendages; cymes on long peduncles; fruit oval, compressed.


10. _V. Oxyccoccus Pursh._: leaves 3-lobed, acute at the base, 3-nerved; lobes divaricate, acuminate, remotely and obtusely toothed; petioles glandular; cymes radiate; flowers of the ray large and abortive. _V. Opulus, var. Americanum_ Ait. Torr. & Gr. *V. opulusoides* Muhl. Woods. Arct. Amer. to N. J. May, June.—A small shrub with spreading branches. Fruit large, subglobose, red, intensely acid and slightly bitter; sometimes used as a substitute for cranberries. Cranberry-like Viburnum.

11. _V. edule Pursh._: leaves 3-lobed, rather obtuse at the base, 3-nerved; lobes very short, with acuminate-dentate serratures; petioles glandular; cymes radiate. _V. Opulus, var. Americanum_ Torr. & Gr. Banks of rivers. Arct. Amer. to N. Y. July.—A smaller and more upright shrub than the preceding; berries of the same color and size, but when completely ripe more agreeable to eat. Pursh. Eatable Viburnum.

3. TRIOSTEUM. Linn.—Feverwort.

(From the Greek τρις, three, and στενος, a bone; in allusion to its three bony seeds.)

Calyx with the tube ovoid and the limb 5-parted; lobes linear-lanceolate, persistent. Corolla tubular, subequally 5-lobed, gibbous at base. Stamens 5, included. Stigma capitate. Berry rather dry, crowned by the calyx, with 3—5 bony nucules.

1. _T. perföliatum Linn._: stem glandular-hairy; leaves lance-oval or spatulate-ovate, acuminate, entire, abruptly narrowed at base, connate, velvety pubescent beneath; flowers 1—3 in the axils of the leaves, sessile. _T. majus_ Mich.


2. _T. angustifolium Linn._: stem hispid; leaves lanceolate or oblong, acuminate, tapering to the base, pubescent or almost glabrous beneath, hisurate above; flowers mostly solitary in the axils, sessile or pedunculate. _T. minus_ Mich.

4. DIERVILLA. Tourn.—Bush Honeysuckle.

(Calx with the tube oblong, bibracteate at base; the limb 5-cleft. Corolla funnel-form, 5-cleft, spreading, much longer than the calyx. Stamens 5, somewhat exerted. Stigma capitate. Capsule oblong, acute, not crowned, 1-celled, many-seeded.


5. LONICERA. D. C.—Honeysuckle.

(In honor of Adam Lonicer, a German botanist of the sixteenth century)


*Flowers capitate-verticillate. Berry solitary, 3-celled, crowned by the calyx. Lonicera.

1. L. flava Sims.: smooth and somewhat glaucous; leaves ovate, obovate or oval, with a narrow cartilaginous margin; upper ones connate-perfoliate; spikes verticillate, terminal; tube not gibbous. Caprifolium flaxum Ell. C. Fraseri Pursh.

Catskill Mountains, N. Y. S. to Geor. W. to Wisconsin. June, July. 12.—Stem twining, very smooth. Flowers bright yellow, an inch or more in length. Yellow Honeysuckle.

2. L. kirsula Eat.: leaves broad-ovate and obovate, pubescent and ciliate, glaucous beneath; upper ones connate-perfoliate, nearly smooth; spikes verticillate, terminal, subcapitate, glandular-pubescent; tube slightly gibbous at base. Caprifolium pubescens Goldic.


3. L. parviflora Lam.: smooth; leaves elliptic or oblong, smooth, very glaucous beneath, the upper pair connate-perfoliate, the rest mostly subconnate; flowers in verticillate pedunculate heads; corolla short, gibbous at base; filaments bearded. Caprifolium parviflorum Pursh. C. bracteosum Mich.

Rocky woods. Subarct. Amer. to Car. June, July. 12.—Stem 6—10 feet long, twining or trailing, branched. Flowers yellow, smaller than in either of the preceding. Small-flowered Honeysuckle.

4. L. grata Ait.: leaves obovate, smooth, glaucous beneath, the upper pairs connate subperfoliate; flowers verticillate in the axils of the upper
leaves; tube of the corolla long and slender, not gibbous. *Caprifolium gratum* Pursh.


5. *L. sempervirens* Ait.: leaves oblong, glaucous beneath, shining above, the upper ones connate-perfoliâlate; spikes verticillate, somewhat naked, terminal; corolla nearly equal, with the tube ventricose above. *Caprifolium sempervirens* Mich.


**Pedicels axillary, in pairs. Berries in pairs, distinct or more or less connate, 2-celled, many-seeded. *Xylosteum.*

6. *L. ciliata* Muhl.: stem erect; leaves opposite, ovate and subcordate, ciliate on the margin, younger ones villous beneath; tube of the corolla calcarate at base, ventricose above; segments short, acute; style exserted; berries distinct. *Xylosteum ciliatum* Pursh.


7. *L. caerulea* Linn.: stem erect, leaves oval, entire, pubescent; peduncles shorter than the flowers; bracts longer than the ovaries; corolla gibbous at base; berries formed by the union of two ovaries. *L. villosa* D. C. *Xylosteum villosum* Big. X. Solonis Eat.


8. *L. oblongifolia* Hook: stem erect; leaves oblong or oval, nearly smooth when old; peduncles filiform, erect, much longer than the flowers; bracts minute; corolla gibbous at the base, deeply 2-lipped; berries formed by the union of 2 ovaries. *Xylosteum oblongifolium* Goldie.


6. SYMPHORICARPUS. Dill.—Snowberry.

(From the Greek συμφωνο, to grow together, and καρπος, fruit; the berries forming clusters.)

Calyx with the tube globose; the limb small, 4—5-toothed. Corolla funnel-form, subequally 4—5-lobed. Stamens 5, scarcely exserted. Stigma subglobose. Berry crowned by the calyx, 4-celled, 4-seeded; 2 of the cells sometimes abortive.

1. *S. vulgaris* Mich.: racemes axillary, almost sessile, in little glomerate heads; corolla with the lobes smoothish inside; stamens and bearded style included. *Symphoria glomerata* Pursh.

2. S. racemosus Mich. : spikes terminal, loose, interrupted, often somewhat leafy; flowers on short pedicels; corolla campanulate, densely bearded inside; style and stamens included. Symphoria racemosa Pursh.


7. LINNÆA. Gron.—Linnaea.

(Calyptra with the tube ovate; limb 5-parted; segments lanceolate-subulate. Corolla turbinate, subcampanulate, 5-lobed. Stamens 4, subdidynamous, included. Stigma globose. Berry dry, small, ovate-globose, 3-celled, (one cell only bearing a perfect seed.)

L. borealis Gron.


ORDER LXVI. RUBIACEÆ.—MADDERWORTS.

Tube of the calyx mostly adhering to the ovary; the limb usually 4—5-cleft or toothed. Corolla with as many petals as there are divisions of the calyx. Stamens as many as the petals and alternate with them. Ovary 2-celled; style mostly single; stigmas 2. Fruit various. Albumen copious, horny or fleshy.—Trees, shrubs or herbs. Leaves simple, entire, opposite or in whorls.

1. HEDYOTIS. Linn.—Hedyotis.

(From the Greek ὧδος, sweet, and ὠτος, an ear; on account of its supposed virtue in curing deafness. Darlington.)

Calyx with the tube ovate, the limb 4-toothed; teeth erect, persistent. Corolla funnel-form, salver-form or rotate, 4-parted. Stamens 4, somewhat exserted. Capsule ovoid or globose, 2-celled, opening transversely at the top, many-seeded.

1. H. ccerula Hook.: stem erect or spreading, dichotomous; radical leaves spatulate-oval; cauline oblanceolate; peduncles filiform, elongated, 1-flowered. Houstonia ccerula Linn.

2. **Rubiaceae.**

2. *H. ciliolata Torr.*: smooth, somewhat branched above; radical leaves oval or oblong-spatulate, tapering into a petiole, the margin ciliate; cauline oblanceolate; flowers in corymbose clusters; peduncles and pedicels short. *Houstonia ciliolata Torr.* Fl.

Wet banks. Western and Northern N. Y. Can. W. to Miss. May, Aug. 24.—Stems usually numerous, 4—6 inches high, at length spreading. Flowers numerous, terminal, pale purple. **Fringed-leaved Hedychium.**

3. *H. longifolia Hook.*: smooth; stem erect; leaves linear and oblong-linear, tapering at base, rough on the margin, but not ciliate; radical ones narrow-oval or oblong, tapering into a petiole; flowers mostly in threes, terminal, nearly sessile. *Houstonia longifolia Willd.*

Dry hills and fields. Can. to Flor. W. to Miss. June—Aug. 24.—Stems 5—8 inches high, slender, branched at the top, 4-sided. Flowers usually in threes, pale purple. **Corolla** about thrice as long as the lobes of the calyx.

**Long-leaved Hedychium.**

4. *H. glomerata Ell.*: stem erect or somewhat diffuse, branching, pubescent; leaves oblong-lanceolate, attenuate at base or slightly petioloed, nearly smooth; flowers in clusters, sessile, axillary and terminal; tube of the calyx hairy, shorter than the lobes. *H. auriculata Wall.* Oldenlandia glomerata Mich.

Moist grounds. N. Y. N. J. to Flor. Aug. 24.—Whole plant dull green. Stem 2—4 inches high, first simple, then branching and assurgent. Flowers usually clustered, small, white. **Cluster-flowered Hedychium.**

5. *H. purpurea Torr. & Gr.*: stem erect or ascending, 4-sided, pubescent; leaves ovate or ovate-lanceolate, closely sessile, 3—5-nerved, smoothish above, lower surface and margins pubescent; flowers in terminal corymbs; lobes of the calyx subulate-linear. *Houstonia purpurea Linn.*

Woods. Penn. and Virg. W. to Miss. and Tenn. May—July. 24.—Stems usually several from the same root, about a foot high, branching. **Flowers** purple. **Purple Hedychium.**

2. **MITCHELLA.** Linn.—Partridge Berry.

(In honor of Dr. John Mitchell, a botanist of Virginia.)

Flowers in pairs, with their ovaries united. Calyx 4-toothed. **Corolla** funnel-form; tube cylindric; limb 4-parted, spreading, villous on the inner side. Stamens 4, adnate to the tube, scarcely exserted. **Stigma** 4-cleft. **Berry** didymous, 4-seeded.

*M. repens Linn.*: stem branched, smooth, creeping; leaves opposite, petioloed, roundish-ovate, often slightly cordate, smooth, very entire; flowers terminal, in pairs.


**Partridge Berry.**

3. **CEPHALANTHUS.** Linn.—Button Bush.

(From the Greek κεφάλη, a head, and αὐθός, a flower.)

Calyx small, angular, inversely pyramidal, 4-cleft. **Corolla** tubular, slender, 4-cleft. **Style** much exserted. **Stigma** glo-
bose. Capsule 2-celled, 2-seeded, mostly 2-parted. Recep-
tacle globose, hairy.—Flowers in a globose head.

*C. occidentalis Linn.*: leaves petiolate, opposite or ternate, ovate or oval, acuminate, smoothish; peduncles long, often ternate at the extremity of the branches.


*Stem 4—8 feet high, branched. Heads of flowers about an inch in diameter. Corolla white, somewhat funnel-form.*

Button Bush. Pond Dogwood.

4. DIODIA. Linn.—Diodia.

(Said to be derived from the Greek δίοδος, a road or way; in allusion to its growing by way-sides. *Eat. Man.*)

Calyx with the tube ovate or obovate, often 8-nerved, 2—4-toothed. Corolla funnel-form, 4-lobed. Stamens 4, exserted or included. Style bifid or undivided. Fruit crowned with the calyx, 2-celled, bipartite; carpel 1-seeded.

*D. teres Walt.*: stem procumbent, diffuse, terete, hairy; leaves linear-lanceolate, nearly smooth, margin and keel serrulate; stipules with numerous long bristles; flowers axillary, solitary, alternate; corolla bearded within; fruit ovate, pubescent, crowned by the 4-lobed calyx. *Spermacoce diodina Mich.*

Sandy fields. N. J. to Flor. and Louis. W. to Ark. Aug. 1.—

*Stem 4—16 inches high, much branched. Flowers opposite, often clustered, white or pale purple.*

Terete Diodia.

5. GALIUM. Linn.—Bedstraw.

(From the Greek γάλα, milk; one of the species having been formerly used to curdle milk.)

Calyx with the tube ovate-globose or oblong; limb nearly wanting. Corolla 4-parted, rotate, (very rarely 3-parted.) Stamens short. Styles 2, short. Fruit didymous, roundish, rarely oblong.

* Fruit smooth. Flowers yellow.

1. *G. verum Linn.*: leaves about 8 in a whorl, narrow-linear, grooved, scabrous, with somewhat revolute margins; flowers in dense panicles.


** Fruit smooth. Flowers white.

2. *G. trifidum Linn.*: stem decumbent or ascending, scabrous downward; leaves 4—6 in a whorl, linear, obtuse, scabrous on the margin and midrib; peduncles smooth, spreading, 1—3-flowered; corolla 3—4-cleft. *G. Claytoni Mich. G. obtusum Big.*

Swamps and wet fields. Aret. Amer. to Car. W. to Oregon. June, July. 14.—

*Stem 5 inches to 1 or 2 feet long, much branched. Leaves varying from
linear to oblong, elliptic and oblanceolate. Flowers in threes, white, very minute. Dr. Hooker thinks the American, distinct from the European, plant.

Small Bedstraw.

3. *G. tinctorium* Linn.: stem diffuse, smoothish; leaves linear, somewhat acute; those of the stem in sixes; of the branches in fours; peduncles terminal, elongated, mostly 3-flowered; corolla 4-parted. *G. trifidum* var. *tinctorium* Torr. & Gr.


Dyer's Bedstraw.

4. *G. asperllum* Mich.: stem diffuse, very branching, the angles retrospectly acuate; leaves in sixes, fives and fours, elliptical or lanceolate, the midrib and margins aculate-hispid; branches 2—3-forked; pedicels filiform, divaricate, short. *G. micranthum* Pursh.

Moist places. Can. to Virg. June, July. 4—. Stem weak, 2—4 feet long, often supported on other plants by its hooked prickles. Flowers numerous, minute, white.

Rough Bedstraw.

*** Fruit hispid.***

5. *G. Aparine* Linn.: stem weak, branching, retrospectly acuate; leaves 6—8 in a whorl, linear-lanceolate, mucronate, with the midrib and margin rough with reflexed prickles; fruit large.


6. *G. triflorum* Mich.: stem procumbent, smoothish, the angles aculate or hispid; leaves 5 or 6 in a whorl, narrow-elliptic or elliptic-lanceolate, acuminate, mucronate, slightly hispid or scabrous on the margin and midrib; peduncles axillary and terminal, mostly 3-flowered at the extremity. *G. cuspidatum* Muhl. Ell. *G. brachiatum* Pursh.


7. *G. pilosum* Ait.: stem ascending, hispid, hairy or nearly smooth; leaves 4 in a whorl, oval or ovate, mucronate, ciliate and mostly hairy; peduncles elongated, dichotomous, often 3-flowered at the extremity. *G. puncticulatum* Mich. *G. Bermudianum* Pursh.

Dry woods. N. Y. to Louis. W. to Texas. June, July. 4—. Stem 1—2 feet high, mostly simple, more or less pubescent. Flowers brownish purple. Hairy Bedstraw.


9. G. boreale Linn.: stem erect, branched above, smoothish; leaves in fours, linear-acute or linear-lanceolate, 3-nerved, smooth, margin involute and scabrous; flowers in a divaricate terminal panicle. C. septentrionale R. & S.


Northern Bedstraw.

Order LXVII. VALERIANACEÆ.—Valerianworts.

Calyx with a limb of various kinds either membranous or resembling pappus. Corolla tubular, regular or irregular, sometimes calcarate at the base. Stamens 1—5. Ovary inferior, 1—3-celled; style filiform; stigmas 1—3. Fruit dry, indehiscent, with 1 fertile cell and 2 empty ones. Seed destitute of albumen.—Herbaceous plants. Leaves opposite, without stipules. Flowers in cymes or panicles.

1. FEDIA. Mænch.—Corn-Salad.

(Origin of the name uncertain.)

Calyx with the limb toothed and persistent or obsolete. Corolla not spurred; the limb 5-lobed, regular or slightly irregular. Stamens 2 or 3. Stigmas entire, 2 or 3-lobed. Fruit 3-celled; 2 cells empty (sometimes confluent into one) the other 1-seeded.

F. Fagopyrum Torr. & Gr.: fruit triangular, with an ovate outline, nearly smooth when mature, oblong, the anterior somewhat obtuse; lateral angles acute, the anterior somewhat obtuse; upper leaves mostly entire and rather acute. F. radiata Torr. Fl. Valerianella radiata Beck Bot. 1st Ed.


2. VALERIANA. Tourn.—Valerian.

(From the Latin valeo, to be powerful; on account of its medicinal effects.)

Calyx with the limb involute and at length evolved in a deciduous plumose pappus. Corolla with the tube obconic or cylindric, equal or gibbous at base, the limb obtusely 5-cleft. Stamens 3. Fruit indehiscent, 1-celled, 1-seeded.

V. silvatica Richardson: smooth; stem slightly striate, simple; radical leaves ovate or oblong-spatulate, entire or slightly lobed at base, on slender petioles; cauline pinnate; leaflets lanceolate or ovate-lanceolate, entire or obscurely serrate; flowers all perfect and similar, in a cyme which is at...
first compact, but at length open corymbose; fruit ovoid, compressed, smooth. (Torr. N. Y. Fl.) V. dioica Pursh. V. sylvatica Beck Bol. 1st Ed.

Swamps. Fairhaven, Ver. Dr. Robbins. Savannah, Wayne county, N. Y. Dr. Sartwell. Subarct. Amer. and the Rocky Mountains. June, July. 21.— Root consisting of numerous fibres, with the odor of V. officinalis. Stem 2—3 feet high, simple, erect, smooth, (slightly pubescent when young) Radical leaves on long petioles, mostly-simple, but sometimes lobed or auricled at base, sometimes a little cordate; cauleine pinnate; leaflets 3—6 pairs with a larger odd one, ovate oval or somewhat rhomboid, all sometimes entire or with a few coarse teeth. Flowers numerous, in a pedunculate 2—3-forked corymb. Corolla reddish-white, gibbous at base; the limb 5-cleft. Stamens much exserted. Style very long and filiform. Capsule 2-ribbed. According to Torrey and Gray, the Vermont and New York plant is a distinct variety, (adigitosa,) but their description does not include all the forms which I have observed in the Fairhaven specimens.

**Order LXVIII. DIPSACACEÆ.—Teazelworts.**

Calyx adhering, membranous, surrounded by a scarious involucel. Corolla tubular; limb oblique, 4—5-lobed. Stamens 4; anthers distinct. Ovary 1-celled; style 1; stigma simple. Fruit dry, indeliscent, 1-celled, crowned by the pappus-like calyx. Albumen fleshy.—Herbs or under shrubs, with opposite or whorled leaves. Flowers collected upon a common receptacle and surrounded by a many-leaved involucre.

**DIPSACUS. Linn.—Teazel.**

(From the Greek διψαω, to be thirsty; the upper connate leaves containing water in their hollows.)

Flowers collected in an ovate or roundish head. Common calyx (involucre) foliaceous, many-leaved; proper superior, of one leaf. Corolla tubular, 4-cleft. Stamens 4. Stigma longitudinal. Fruit crowned with the limb of the calyx.

*D. sylvestris* Linn.: leaves opposite, rarely connate; the many-leaved involucre turned upwards; scales of the receptacle straight.

Fields and waste places. N. S. July. 2.—Stem 3—5 feet high, strong, angular, prickly. Flowers blue, in dense oval heads, shorter than the scales of the receptacle. Introduced. *Wild Teazel.*

**Order LXIX. COMPOSITÆ.—Composites.**

Calyx closely adhering to the ovary, and undistinguishable from it; its limb either wanting or membranous, divided into bristles, paleæ, hairs or feathers, called pappus. Corolla monopetalous, either ligulate or tubular; in the latter case 4 or 5 toothed. Stamens 5, rarely fewer, the anthers cohering into a tube. Ovary 1-celled; style simple; stigmas 3, either distinct or united. Fruit an achenium, crowned with the limb of the
calyx or pappus. Seed destitute of albumen.—Herbs, rarely shrubs. Leaves alternate or opposite, without stipules. Flowers collected in dense heads upon a common receptacle, surrounded by an involucre.

**Suborder I. TUBULIFLORÆ.**

Corolla of the perfect flowers tubular, with 5, rarely 4, equal teeth.

1. **VERNONIACEÆ.** *Style of the perfect flowers cylindrical; its branches long and subulate, occasionally short and blunt, always covered over with bristles.*

1. **VERNONIA.** Schreb.—Iron Weed.

(In honor of Mr. William Vernon, an English botanist.)

Heads several or many-flowered; the flowers all equal. Involucre imbricate. Receptacle mostly naked. Corolla regular, 5-cleft. Filaments smooth. Achenia with a cartilaginous callus at the base. Pappus often double; the inner row of numerous bristles; the outer one much shorter and often chaffy.

*V. Noveboracensis Willd.*: stem erect, smoothish; leaves on short petioles, elliptic-lanceolate, pubescent beneath; heads numerous, 20—30-flowered; scales of the involucre ovate, appressed at base, the apex produced into a spreading filiform seta: achenia smooth, shorter than the pappus.

var. *præalta Torr. & Gr.*: scales of the involucre acute or acuminate, unarmed or only a part of them filiform at the top. *V. præalta Willd.*


2. **ELEPHANTOPUS.** Cass.—Elephant's-Foot.

(From the Greek ἀλεφας, an elephant, and ποις, a foot; in allusion to the form and position of the leaves in one species.)

Heads 3—5-flowered, densely crowded into clusters. Involucre compressed, in two rows; the leaflets dry, oblong, the inner ones often 3-nerved. Receptacle naked. Corolla palmate; segments acuminate, one sinus deeper than the rest. Achenia somewhat compressed, many-ribbed, oblong, pilose. Pappus in one or two rows of several chaffy bristles, dilated at the base.

*E. Cardinianus Willd.*: stem branched, hairy; leaves scabrous; radical ovate, or obovate-oblong, crenate-serrate, attenuate at the base; cauline oblong, narrow at base; floral ovate-oblong.
Dry soils. Penn. to Flor. W. to Miss. Sept. 2. — Stem 2 feet high, hairy; especially near the base, branching towards the summit. Heads composed of four clusters, each 4-flowered, with the involucre 9—10-leaved. Corolla purple. *Carolinian Elephant’s-foot.*

II. *Eupatoriaceae.* Style of the perfect flowers cylindrical; its branches long and clavate, with a papillose surface on the outside near the end.


(From the Greek σκληρός, hard, and λεπίς, a scale; in allusion to the scales of the pappus.)

Heads many-flowered. Involucre with the scales in two series, linear and equal. Receptacle naked. Corolla tubular, smooth, 5-toothed, the throat scarcely distinct from the tube. Style branching, exsert, cylindric-clavate. Achenia 5-angled. Pappus of 5 somewhat corneous short oval and obtuse scales in one row.


In shallow water. N. J. to Flor. Aug., Sept. 2. — Stem 1—2 feet high, simple, a little pubescent at the top. Leaves linear, an inch long, 6—8 in a whorl. *Heads few, terminal, purple.* Whorled *Sclerolepis.*


(In honor of Dr. Adam Kuhn, of Penn.)

Heads many-flowered. Scales of the involucre imbricated in two or three series. Receptacle naked. Corolla with the limb not distinct from the tube. Achenia elongated, sessile or stiped. Pappus in a single series, plumose.

1. *K. eupatorioioides* Linn.: stem herbaceous; leaves broad-lanceolate, serrate; corymbes paniculate, terminal, few-flowered.


(Origin of the name unknown.)

Heads few, many-flowered. Involucre with few or numerous imbricate scales. Receptacle naked. Corolla tubular, 5-lobed; the lobes elongated. Style with the branches much exserted.
Achenia about 10-ribbed, somewhat cylindric. Pappus of numerous plumose or barbulate bristles.


Long-spiked *Liatris*. Blue Blazing Star.

2. *L. pilosa* Willd.: stem simple, pubescent; leaves linear, hairy, ciliate; heads 10—14-flowered, on long pedicels, forming a loose raceme; scales of the involucre oblong, obtuse, villous.


*Hairy Liatris.*

3. *L. scariosa* Willd.: stem erect, pubescent; leaves lanceolate, pubescent, scabrous on the margin; lower oblong, tapering into a petiole; heads 15—40-flowered, in a spike or raceme; scales of the involucre obovate, obtuse, scarious on the margin, the lower a little spreading or squarrose. *L. heterophylla* Nutt.


Ragged-cupped *Liatris.*

4. *L. squarrosa* Willd.: stem simple, pubescent; leaves very long, linear, nerved, with the margins somewhat scabrous; heads few, about 20-flowered, on leafy pedicels, racemose; upper scales of the involucre lanceolate, rigid and spreading; segments of the flowers linear, villous internally.


*Rough-headed Liatris.*


*Cylindrical-headed Liatris.*

6. CONOCLINIUM. D. C.—Conoecidium.

(From the Greek κωνος, a cone, and κλων, a bed; in allusion to its conic receptacle.)


*C. caelestinum* D. C.: herbaceous; stem terete, pubescent; leaves opposite, petiolated, ovate, truncate at base or subcordate, somewhat acute, ob-
tusely dentate, 3-nerved, somewhat scabrous; flowers in crowded corymbs.  
Celestina caerulea Spr Eng. Eupatorium celestinum Linn.

*Leaves on petioles, opposite, sometimes deltoid: Flowers in close fastigate corymbs, fragrant, light-blue.  Involucr about 30-leaved, 40—60-flowered.  
Blue Conocephalum.

7. EUPATORIUM. Linn.—Hempweed.  
(Named after Eupator, king of Pontus.)

Heads 3- many-flowered. Receptacle flat, naked. Involucre cylindric or campanulate; the scales in 1, 2 or many series. Corolla tubular, funnel-form, often dilated at base. Anthers included. Achenia angled. Pappus in a single series, pilose, rough.

* Heads 5—15-flowered. Scales of the involucr oblong, imbricate. Leaves opposite, closely sessile or connate.

1. *E. sessilifolium* Linn. : stem somewhat terete, smoothish; leaves lanceolate or ovate-lanceolate, sessile or somewhat clasping, rounded at base, acuminate, serrate, smooth; corymb compound; heads 5-flowered; scales of the involucr 10, oblong-linear, obtuse, imbricate.

Sessile-leaved Hempweed.

2. *E. truncaturn Muhl. : stem terete, striate, villous-hispid; leaves lanceolate, clasping, obtuse at base, acuminate, rugose, dentate-serrate, villous-pubescent beneath; corymb compound, crowded; heads 5—10-flowered; scales of the involucr 12—15, imbricate, linear, obtuse.

Shady woods. Penn. to Car. July—Sept.  Very similar to the preceding, but has the stem pubescent, the leaves truncate at base, with the serratures larger and more obtuse, and the involucr more pubescent.  Willd.  
Truncate-leaved Hempweed.

*E. connatum* Mich.

Swampy grounds. Can. to Flor. W. to Miss. Aug., Sept.  2—4 feet high, hairy or woolly, branched at the top. *Leaves large, sometimes only slightly connate. Flowers in large fastigate corymbs, white. The whole plant is bitter and is used as a tonic.  Big. Med. Bot. i. 33.  
Boneset.  Thoroughwort.

4. *E. resinosurn* Torr.; stem erect, velvety pubescent; leaves opposite, closely sessile or partly clasping at base, linear-lanceolate, elongated, acuminate, serrate, nearly smooth above, velvety canescent beneath; corymb fastigate, compound; heads glomerate, 10—15-flowered; scales of the involucr oval, obtuse, imbricate, white-tomentose and glandular.

Resinous Hempweed.
COMPOSITE.

5. **E. purpureum** Linn.: stem simple, hollow, or nearly solid; leaves 3—6 in a whorl, or rarely opposite, oblong-ovate or lanceolate, more or less petioled, acuminate, veiny, rough or smooth above, somewhat pubescent beneath, serrate; heads in a large corymb, 5—9-flowered. *E. maculatum* Linn. *E. verticillatum* Willd. *E. trifoliatum* Linn. *E. punctatam* Willd. *E. amanum* Pursh.

Low grounds. Can. and throughout the U. S. Aug.—Oct. **£**.—Stem 3—8 feet high. Leaves 2—3 inches long. Flowers in a large terminal corymb, purple. A very variable plant. The stem is sometimes solid and purplish, and the leaves three or four in a whorl. (*E. verticillatum.*) In other specimens the stem is solid and marked with purple spots, the leaves broader, more rugose and scabrous, (*E. maculatum.*)

Purple Hempweed. Joe Pye’s Weed.

*** Heads 8—20-flowered. Leaves petioled, opposite.

6. **E. aromaticum** Linn.: stem terete, pubescent; leaves opposite, petioled, ovate, acuminate, 3-nerved, coarsely and unequally serrate, somewhat scabrous; corymb somewhat panicked; heads about 20-flowered; scales of the involucre 10—12, linear-acute, equal. *E. melissoides* Willd. *E. ceanothifolium* Muhl.


Aromatic Hempweed.

7. **E. ageratoides** Linn.: stem smooth, branching at the top; leaves opposite, on long petioles, broad-ovate, acuminate, 3-nerved, unequally and coarsely serrate, thin and smoothish; heads 12—20-flowered; scales of the involucre narrow-lanceolate. *E. verticifolium* Mich.


Nettle-leaved Hempweed.

**** Heads 5-flowered. Leaves alternate or opposite, rarely whorled.

8. **E. hyssopifolium** Linn.: stem pubescent; leaves linear-lanceolate, 3-nerved, pubescent and punctate; lower opposite and dentate; upper entire, and sometimes alternate; heads 5-flowered; scales of the involucre 10, imbricate, pubescent and glandular on the back. *E. linearifolium* Wall.


Hyssop-leaved Hempweed.

9. **E. altissimum** Linn.: stem pubescent; leaves opposite, subsessile, lanceolate, 3-nerved, attenuate at both ends, pubescent; lower serrate in the middle, upper entire; heads in a terminal corymb, 5-flowered; scales of the involucre 10, oblong-linear, imbricate, somewhat obtuse, pubescent.


Tall Hempweed.

10. **E. leucolophis** Torr. & Gr.: stem puberulent; leaves opposite, divaricate, lanceolate or linear, obtuse, closely sessile, serrate, very rough on both sides, punctate, strongly 1-nerved; corymb fastigate, canescent; scales of
the involucre 8—10, lanceolate, acute or acuminate, very pubescent and glandular on the back, white and scarious at the summit. E. glaucescens \( \beta \) leucolepis D. C. E. linearifolium Mich. (in part.)


11. E. pubescens Muhl.: stem pubescent; leaves opposite, sessile, ovate, acuminate, sparingly pubescent and glandular-punctate on both sides; lower doubly serrate, upper slightly serrate; corymb compound, fastigiate; heads 5-flowered; scales of the involucre 10, linear-lanceolate, acute. E. ovatum Big.


12. E. album Linn.: stem pubescent at the top; leaves opposite, subsessile, broad-lanceolate, attenuate at base, with a few coarse teeth at the apex, somewhat scabrous, punctate beneath; heads 5-flowered, in a terminal corymb; scales of the involucre 10, oblong-lanceolate, acuminate, almost exceeding the corolla, glandular on the back. E. glandulosum Mich.


13. E. verbenaefolium Mich.: stem roughish-pubescent; leaves opposite, (the upper often alternate,) sessile, ovate-oblong or ovate-lanceolate, scabrous, coarsely serrate-toothed; corymb compound, somewhat panicked; heads 5—6-flowered; scales of the involucre 10, oblong-lanceolate, rather acute, hispid-pubescent. E. teurifolium and lanceolatum Willd.

Low woods. Mass. to Car. Aug.—Nov. 74.—Stem 2—3 feet high, erect, rather slender. Leaves sometimes almost incised; the lower broad at base and closely sessile. Heads somewhat clustered, coriaceous. Flowers white. Scales scarious on the margin, white at the tips. Michaux's name for this species has the claim of priority, and, as Mr. Elliott remarks, is equally, perhaps more, appropriate.

14. E. rotundifolium Linn.: stem densely pubescent; leaves opposite, sessile, roundish-ovate or ovate-cordate, obtuse, toothed, veined, pubescent, glandular-punctate beneath; coriaceous fastigiate; heads 5-flowered; scales of the involucre 10, acuminate. E. Marrubium Walt.


8. MIKANIA. Willd.—Climbing Hempweed.

(In honor of Prof. Mikan, of Prague, a botanist of the last century.)

M. scandens Willd.: stem climbing, smooth; leaves petaled, hastate-cordate, acuminate, repand-toothed; corymbs panicked, clustered. Eupatorium scandens Linn.

Low grounds. Can. to Flor. July—Sept. 2. — Stem 3–6 feet long, branching, striate. Leaves with a somewhat triangular outline. Flowers in numerous compound cymose panicles, purplish-white. M. pubescens Muhl., which is probably only a variety of this species, is confined to the Southern States.

Common Climbing Hempweed.


(From the Greek vapōs, spikenard, and οὖς, odor.)

Heads many-flowered, somewhat dioecious. Sterile Fl. Flowers of the ray in a single series, pistillate, ligulate; of the disk numerous, perfect but infertile, with the corolla tubular and 5-toothed. Fertile Fl. Flowers of the ray in several series, pistillate, mostly ligulate; those of the disk few. Involucres in a single series. Receptacle flat, naked. Achenia smooth.

1. N. frigida Hook.: leaves cordate, unequally coarsely and obtusely toothed, somewhat lobed, smooth above, white-tomentose beneath; the lobes divergent at base. Tussilago frigida Pursh.


2. N. palmata Hook.: leaves reniform or roundish-cordate, palmately 5–7-lobed, tomentose beneath; segments coarsely toothed, often incised or somewhat lobed. Tussilago palmata Ait.


10. TUSSILAGO. Town.—Colt's-foot.

(From the Latin tussis, a cough; for the cure of which the plant is esteemed.)

Heads many-flowered, heterogamous. Flowers of the ray in several series, pistillate; those of the disk few, staminate, tubular, 5-toothed. Receptacle naked. Involucres of one series, the scales oblong-obtuse. Achenia of the ray oblong-cylindric, smooth; of the disk abortive. Pappus of the ray in many series; of the disk in a single series, capillary.

T. Farfara Linn.

Wet places and low meadows. N. S. March, April. 4. — Scape 4–10 inches high, clothed with oblong brownish scales. Leaves cordate, angular, toothed, smoothish above, the lower surface and the long petiole white-tomentose. Terminal head about three-fourths of an inch in diameter. Introduced and naturalized in several parts of the Northern States. Common Colt's-foot.
III. ASTEROIDEÆ. Style of the perfect flowers cylindrical; its branches linear, flat-tish on the outside, minutely and equally pubescent above.

11. ASTER. Linn.—Aster.

(From the Greek ἀστήρ, a star; which the flowers resemble.)

Heads many-flowered; the ray-flowers in a single series, ligulate, pistillate; those of the disk tubular, perfect. Receptacle flat, alveolate, or rarely naked. Scales of the involucre in many series, more or less imbricated, with the tips sometimes foliaceous. Achenia usually compressed. Pappus simple, of numerous rough bristles.

* Scales appressed, nearly destitute of herbaceous tips. Bristles of the pappus unequal. Achenia slender, scarcely compressed. Leaves large, coarsely serrate, radical ones cordate. BIOTIA D. C.

1. A. macropaphyllus Linn.: stem more or less hirsute above; leaves rough, serrate, acuminate; lower and radical on long petioles, cordate; upper on winged petioles or sessile, ovate; heads in large corymbs; scales of the involucre oblong-lanceolate, obtuse. BIOTIA macropaphila D. C.


2. A. corymbosus Ait.: stem smooth, dichotomously corymbose at the summit; leaves ovate, mostly cordate, sharply serrate, acuminate, petiolate; heads loosely corymbose; scales of the involucre imbricate, obtuse, shorter than the disk; outer ones ovate. BIOTIA corymbosa D. C.


3. A. biflorus Mich.: leaves sessile, narrow-lanceolate, serrate, scabrous; stem one or few-flowered above; scales of the involucre imbricate, appressed, oblong, acute, scarcely shorter than the disk. A. strictus Pursh.


4. A. surculosus Mich.: stem simple, low and slender, minutely pubescent; lower leaves linear-lanceolate, entire or subserrate, scabrous above; upper linear, clasping; corymb 3—5-flowered, somewhat naked; involucre imbricate, subsquarrose; scales ciliate, linear-oblong, inner ones obtuse.

5. *A. spectabilis Ait.*: stem scabrous, corymbose at the summit; leaves oblong-lanceolate, very rough; upper sessile and entire; lower serrate and petioled; involucre hemispheric; scales numerous, obtuse, squarrose, glandular-pubescent. *A. grandiflorus Wall.* *A. elegans Wild.*


**Showy Aster.**

6. *A. gracilis Nutt.*: stem slightly pubescent, corymbose at the summit; leaves roughish, obscurely crenulate-serrate; radical oblong or spatulate, or naked petioles; cauline oblongate or narrow oblong, slightly clasping; heads in a spreading corymb; involucre obconic, as long as the disk; scales whitish and coriaceous, with spreading tips.

Pine barrens. N. J. W. to Tenn. Sept. *41.—Stems several, often from the same succulose caudex, about a foot high, simple or with corymbose flowering branches. Heads about 30-flowered; rays violet. Resembles the preceding. Slender Aster.*

7. *A. Radula Ait.*: stem smoothish, angular, corymbose; branches few and nearly naked; leaves lanceolate, attenuate at both ends, rugose, very rough, coarsely serrate in the middle; scales of the involucre imbricate, oblong, somewhat acute, spreading at the tips. *A. nudiflorus Nutt.*

Low grounds. Nova Scotia and Maine to Penn.; rare. Aug., Sept. *41.—Stem 1—3 feet high, with a few spreading branches at the summit, purplish. Leaves numerous, about 3 inches long. Heads few, large, on peduncles 2 or 3 inches long; rays numerous, pale purple; disk yellow. Rasp-leaved Aster.*

8. *A. Novo-Angliae Linn.*: stem stout, hairy, corymbose at the summit; leaves narrow-lanceolate, hairy, clasping, auriculate, crowded on the branchlets; scales of the involucre subulate-linear, viscid, as long as the disk.


9. *A. patens Ait.*: stem hairy, panicle at the summit; leaves oblong-ovate, cordate, clasping, rough, entire; those of the divaricate slender branches very small; scales of the involucre imbricate, linear-lanceolate, somewhat rough, spreading. *A. amplexicaulis Mich.*


10. *A. phlogifolius Muhl.*: stem very simple, pubescent, panicle above; leaves oblong-lanceolate, entire, narrower below the middle, auriculate and clasping at base, tapering to an acute point, pubescent beneath; scales of the involucre loose, imbricate, lanceolate. *A. patens, var. phlogifolius Nees.*


***Scales of the involucre more or less membranaceous on the margin. Bristles of the pappus soft, capillary, nearly equal. Receptacle alveolate-toothed. Achenia smooth or slightly pubescent. Genuini Nees.***
† Leaves of different forms.

11. *A. cordifolius* Linn.: stem often flexuous, hairy, racemose, paniculate at the summit; lower leaves petiolate, cordate, acuminately sharply serrate, hairy beneath; upper becoming gradually smaller; heads in daisy-like racemes; scales of the involucre closely imbricate. *A. paniculatus* Ait. *A. heterophyllus* Willd.

Woods. Can. to Geor. Aug.—Oct. 2. — Stem 2–4 feet high, often hairy or roughish above. Leaves varying from broad- to narrow-ovate, the upper small. Heads small, crowded on the spreading branches; rays pale purple or whitish; disk yellowish, changing to purple. Heart-leaved Aster.

12. *A. sagittifolius* Willd.: stem smooth, racemose-compound above; leaves ovate-lanceolate, acuminate, slightly ciliate; lower cordate-sagittate, on slender narrowly winged petioles, serrate; upper linear-lanceolate, acuminate at each end, sessile and usually entire; heads in dense compound racemes, on short peduncles; scales of the involucre closely imbricate, linear-subulate. *A. paniculatus* Mich. not of Ait.


13. *A. undulatus* Linn.: stem grayish-pubescent; leaves ovate or ovate-lanceolate, rough above, somewhat woolly-pubescent beneath, acute, the margins undulate or crenate-serrate; lower cordate and on slightly margined and often dilated petioles; uppermost smaller, cordate, clasping; scales closely imbricate. *A. diversifolius* Mich.

Dry woods. Nearly throughout the U. S. Torr. & Gr. Sept., Oct. 2. — Stem 2–3 feet high, pyramidal branching at the summit. Heads middle sized, the branches and pedicels pubescent; rays violet-blue; disk yellow, at length purple. Wave-leaved Aster.

†† Leaves all nearly of a similar form.

14. *A. prenanthoides* Muhl.: stem and branches hairy in lines, corymbose-paniculate at the summit; leaves spatulate-lanceolate or oval-lanceolate, incisely serrate in the middle, acuminate, cordate or auriculate-clasping at base, scabrous above, smooth beneath; scales of the involucre linear, squarrose-spreading at the apex.


15. *A. puniceus* Linn.: stem hispid, paniculate above; leaves oblong-lanceolate, clasping-auriculate at base, acuminate, coarsely serrate in the middle, scabrous above, smoothish beneath; scales of the involucre loosely imbricate, linear-subulate, nearly equal.

Wet grounds. Can. and N. S. Sept.—Nov. 2. — Stem 2–6 feet high, hispid with strong prickly hairs, mostly purple. Leaves often rough on both sides and sparingly serrate. Heads above the middle size, on nearly naked pedicels; rays violet purple, sometimes pale. Red-stalked Aster.

16. *A. estivus* Ait.: stem branching from near the base, erect, hispid; branches lax, hairy, with a head at the extremity of each; leaves lanceo-
late, ciliate, subclasping; radical, appressed-serrate; cauline entire; involucre narrow, obconic; inner scales subulate.


17. A. Novi-Belgii Linn.: stem terete, smooth, often somewhat glaucous; branches rigid, racemose or corymbose; leaves lanceolate, subclasping, acute, scabrous on the margin; lower serrate in the middle; involucre loosely imbricate; scales linear-lanceolate, acuminate. A. Novi-Belgii and floribundus Willd.


18. A. simplex Willd.: stem smooth, racemose-decompound; branches subcorymbose at the summit; leaves lanceolate, acuminate, very smooth, scabrous on the margin; the lower serrate; involucre loosely imbricate, the scales linear-subulate.


19. A. laxus Willd.: stem smooth, racemose-compound or decompound, the branches loose and subcorymbose at the top, the branchlets elongated; leaves narrow-lanceolate, acuminate, rough on the margin; the lower serrate; those of the branches linear, obliquely spreading; scales of the involucre loose, linear, reflected at the tips.


20. A. praelatus Poir: stem somewhat hairy, racemose-paniculate or corymbose at the summit; leaves lanceolate, somewhat clasping, acute, nearly entire, rough on the margin, smooth and somewhat shining above; lower narrowed at base; scales of the involucre loosely imbricate, linear-lanceolate, acute, often with spreading tips. A. salicifolius Pursh. ?

Moist woods. N. H. to Penn. Aug.—Oct. 4. — Stem 1—5 or 6 feet high, branched near the summit. Heads large and showy; rays reddish-blue; disk changing to purple. Tall Aster.

21. A. Tradescanti Linn.: stem smoothish, racemose-compound; branches virgate, the branchlets often unilateral; leaves sessile, smooth, with rough margins; cauline linear-lanceolate, acuminate, remotely and coarsely serrate; those of the branches becoming smaller, entire, spreading and mucronate; scales of the involucre imbricated in 3—4 series, narrow-linear, acute.

var. fragilis Torr. & Gr.: cauline leaves, except the lowermost, minutely appressed, serrulate or entire, usually shorter; heads more scattered on the branchlets. A. fragilis Willd. A. tenuifolius Ell. not of Linn.

Fields and dry swamps. Mass. to Ala. and Louis. Aug.—Oct. 4. — Stem 2—4 feet high, bushy, with numerous branches, at length widely spreading. Heads small, numerous, on branchlets disposed in a racemose manner; rays pale purple, almost white; disk becoming purplish. Tradescant's Aster.

22. A. dumosus Linn.: stem smooth or slightly scabrous, racemose
compound or decompound; the branches corymbose at their summits; leaves linear, entire, or remotely serrate, rough on the margin, sessile; those of the branches smaller and acute; scales of the involucre imbricate, linear-obtuse. *A. sparsiflorus* Willd. *A. foliolosus* Ait.?


23. *A. ericoides* Linn.: stem smoothish, racemose-compound; branches virgate, branchlets unilateral; lower leaves oblanceolate or oblong-spatulate, tapering into a short margined petiole, often serrate; upper linear-lanceolate and linear-subulate; scales of the involucre short, imbricate, subulate-spreading, the lower cuspidate. *A. sparsiflorus* Mich.

Old fields. Can. to Car. W. to Miss. Aug.—Oct. 24.—Stem 1—3 feet high, often so much branched as to resemble a small bush. *Leaves* very numerous, and somewhat rigid. *Heads* arranged unilaterally; *rays* white or pale purple; *disk* at length purplish.

24. *A. miser* Linn.: stem mostly pubescent or hairy, racemously branched or compound; branches erect or spreading; leaves lanceolate or oblong-lanceolate, sessile, acuminate or attenuate at each end, serrate in the middle; radical spatulate-lanceolate or oval; upper becoming smaller and often entire; scales of the involucre linear; *rays* short.

var. 1. *miserrimus* Torr. & Gr.: leaves elliptic- or cuneiform-lanceolate, more or less rough; flowering branches short.

var. 2. *glomerellus* Torr. & Gr.: mostly cinerous-pubescent or rough; heads glomerate-spicate at the summit of the stem, or on diverging branches. *A. diffusus* Muhl.

var. 3. *diffusus* Torr. & Gr.: branches diffuse, mostly elongated, divergent recurved-spreading or divaricate. *A. diffusus, divergens, pendulus and parviflorus* Nees.

var. 4. *hirsuticaulis* Torr. & Gr.: leaves narrow-lanceolate elongated, more or less hairy; heads racemose or spicate, on short diverging branchlets. *A. hirsuticaulis* Linn.

Old fields. Can. and throughout the U.S. Aug.—Nov. 24.—A very variable species, the exact limits of which are not yet perhaps accurately fixed. I follow Torrey and Gray, although it will probably be found that the characters which they have given to their several varieties are not in all cases constant. The *heads* are usually numerous, but quite small, with the *rays* often inconspicuous white or very pale purple; *disk* purplish. *Pappus* dirty white. It usually has the appearance of a stunted plant; varies in height from 8 or 10 inches to 3 or 4 feet, erect or diffuse, at first nearly simple, but at length much branched. *Starved Aster.*

25. *A. concolor* Linn.: stem erect, simple or sparingly branched, virgate; leaves oblong-lanceolate, sessile, entire, minutely silky on both sides; heads in a simple or compound virgate raceme; scales of the involucre imbricate, lanceolate, acute.

Dry sandy soils. N. Y. to Flor. Aug.—Nov. 24.—Stem 2—3 feet high, sparingly branched. *Leaves* at length nearly smooth. *Heads* on short bracteate peduncles, middle-sized; *rays* bluish-violet. It has somewhat the habit of a *Liatris*, and is one of our most showy species. *Racemed Violet Aster.*

26. *A. multifloris* Ait.: stem grayish-pubescent, diffusely racemose-compound; leaves crowded, linear, entire, serrulate-scabrous on the margin,
somewhat 3-nerved; those of the branchlets spreading or reflexed; scales of the involucre loosely imbricate, subapulate, ciliate, with the mucronate tips spreading or recurved. *A. multiflorus* and *ciliatus* Willd.

Dry fields. Can. to Geor. W. to the Rocky Mountains. Sept., Oct. 2|—Stem about 2 feet high, much branched, usually covered with a dense white pubescence. *Heads* small, in crowded terminal racemes, on horizontal branches; rays white or slightly purplish; disk purplish when old.

**Many-flowered Aster.**

27. *A. tenuifolius* Linn. : stem smooth, racemose-decompound; branches virgate; leaves narrow-lanceolate, mostly elongated, attenuate-acuminate, rough on the margin; lower serrate in the middle; those of the branches smaller, entire, spreading; involucre ovate-hemispheric; scales imbricate, linear-oblong, acute, spreading at the tips. *A. polyphyllus* and *bellidi-florus* Willd.

Low grounds. Can. to Car. Aug.—Nov. 2|.—Stem 2—5 feet high, mostly stout. Leaves variable. *Heads* middle-sized; rays numerous, pale purple or white; disk sometimes becoming purplish. **Slender-leaved Aster.**

28. *A. carneus* Nees. : smooth or with the branches somewhat pubescent in lines; leaves narrow-lanceolate, mucronate-acuminate, roughish above, with serrulate-scabrous margins; lower more or less attenuate at base; upper subclasping; heads racemose; scales of the obovate involucre closely imbricate, unequal, acute.

Moist soils. Mass. to Louis. W. to Miss. Sept., Oct. 2|.—Resembles the preceding in its foliage, but has the *heads* usually larger, the *rays* longer, broader and more showy, flesh-colored or nearly white. A variable species. **Flesh-colored Aster.**

29. *A. coccinus* Willd. : stem smooth, loosely subcorymbose; branches virgate, dichotomously paniculate; leaves lanceolate, somewhat clasping; lower remotely serrate; those of the branchlets oblong, entire; scales of the closely imbricate involucre with a white margin.

Fields and woods. N. Y. and Penn. Pursh. S. to Flor. Sept.—Nov. 2|.—Stem 2 feet high. *Heads* middle-sized; rays bluish-purple. The leaves are said by Pursh to resemble those of *Phlox maculata*. It may belong to the next. **Neat Aster.**

30. *A. levis* Willd. : smooth and more or less glaucous; stem loosely paniculate or somewhat corymbose at the summit; leaves lanceolate, ovate-lanceolate or oblong, coriaceous, very smooth, with rough or sparingly serrate margins; lower narrowed towards the base or tapering into a margined petiole; upper clasping and usually auriculate or cordate at base; scales of the involucre closely imbricate, rigid, lanceolate or broad-linear, with acute or acuminate tips. *A. levis, leavigatus* and *mutabilis* D. C. *A. amplexicaulis* Willd. *A. rubicanticus* Lam. (according to Torr. & Gr.)


Woods and banks of streams. Can. to Geor. Aug.—Oct. 2|.—Stem 2—4 feet high, more or less branched at the summit, often dark purple. *Heads* middle-sized; rays bright violet-blue; disk yellow. A handsome species, but very variable. It may be recognized by its very smooth stem and shining leaves. **Smooth Blue Aster.**

31. *A. versicolor* Willd. : stem smooth, paniculate-compound; branches densely corymbose; leaves oblong-lanceolate, acuminate, very smooth, of
the same color on both sides; lower serrate in the middle; upper clasping, entire; scales of the involucre imbricate, lanceolate.


32. A. Greenii Torr. & Gr.: stem very smooth, racemosely branched or compound; leaves nearly all remotely appressed-serrulate, smooth, acute or acuminate, rough above; cauline narrowly lanceolate, elongated, slightly clasping (not dilated) at the base, spreading; heads simply racemose on the leafy branches, on short bracteate peduncles; scales of the campanulate involucre linear-lanceolate, acute, rather closely imbricately.

Fields. Boston, Mass. Dr. Greene. Schenectady, N. Y. Tucker.—Heads racemose or crowded on the slender branches; rays rather short, purplish; disk turning to reddish-purple. Greene's Aster.

33. A. elodes Torr. & Gr.: very smooth; stem simple or sparingly branched, slender; leaves varying from lanceolate to linear, somewhat ciliate, narrowed at each end, nearly entire or serrulate, shining; upper somewhat clasping by a narrow base; scales of the hemispheric involucre spatulate-linear, acute, mucronulate, with recurved-spreading herbaceous tips. A. paludosus Nutt.

Swamps in pines. Mass. to Car. Aug.—Oct. 24. — Stem 1—2½ feet high, flexuous, simple, with a few flowers in a paniculate raceme at the summit, or somewhat compoundly branched above with the flowers more numerous. Heads large, seldom numerous, solitary on the shortish branchlets; rays large, deep blue or violet; disk yellow, sometimes turning purplish. (Torr. N. Y. Fl.) Blue Smooth Marsh Aster.

**** Scales of the regularly imbricate involucre with membranaceous or scariosus margins, destitute of herbaceous tips. Receptacle alveolate, flat. Bristles of the pappus capillary, mostly unequal. Orthomeris Torr. & Gr.

34. A. acuminatus Mich. : stem simple, flexuous, pubescent, or hairy, loosely and paniculately corymbose at the summit; peduncles slender, naked; leaves broad cuneiform-lanceolate, membranaceous, conspicuously acuminate, unequally serrate above, tapering and entire towards the base, smooth above, pubescent beneath; scales of the involucre loosely imbricate, linear, acuminate.


35. A. ptarmicooides Torr. & Gr.: stem simple, rough above; leaves linear-lanceolate, rigid, acute, somewhat shining, very rough on the margin; cauline entire; lower elongated, often slightly and remotely toothed, tapering at base or somewhat petioled; corymb fastigiate; scales of the hemispheric involucre closely imbricate, rather obtuse, shorter than the disk. Chrysopsis alba Nutt. Diplopappus albus Hook. Helenastrum album D. C.

Rocky banks. Can. Ver. and N. Y. W. to Fort Mandan. July—Sept. 24. — Stems 6—18 inches high, slender, usually several from one root. Heads rather small, in a fastigiate corymb; rays white. From Dr. Torrey's figure in his
New York Flora, this plant appears to be a true Aster. It has been referred to several different genera.

Ptarmicoid Aster.

**** Scales of the involucre membranaceous or with membranaceous margins, destitute of herbaceous tips. Receptacle somewhat alveolate. Bristles of the pappus capillary, nearly equal. Leaves thickish or succulent. Oxystyrium D. C.

36. A. flexuosus Nutt.: stem very smooth, flexuous, sparingly branched; branches mostly terminated by large solitary heads; cauline leaves linear; lower lanceolate-linear, fleshy, acute, tapering to the base; those of the branchlets subulate; scales of the campanulate involucre lanceolate-acuminate. A. sparsiflorus Pursh. Tripolium flexuosum D. C.

Salt marshes. Mass. to Flor. Sept.—Nov. 24. — Stem 1—2 feet high, usually with a few spreading branches at the summit. Heads 1—2 on the branchlets, large; rays pale purple; disk yellow.

Perennial Salt-marsh Aster.

37. A. linifolius Linn.: very smooth; stem erect, racemously branched from the base; branches erect, spreading; leaves lanceolate-linear, acuminate, narrowed at base; scales of the cylindric involucre linear-subulate; rays scarcely longer than the pappus. A. subulatus Mich. Tripolium subulatum D. C.

Salt marshes. Mass. to Car. Sept.—Nov. 24. — Stem about 2 feet high, striate-angular, with numerous spreading branches. Heads very small, in a loose terminal panicle; rays short, pale purple or nearly white.

Annual Salt-marsh Aster.

12. GALATELLA. Cass.—Galatella.

(Origin unknown.)

Heads radiate; rays in one series, neutral or bearing an abortive style; disk-florets tubular, fertile. Involucre with the imbricate scales shorter than the disk; outer scales often 3-nerved. Receptacle alveolate; the alveolar margins toothed. Achenia densely hirsute or silky-villous. Pappus consisting of numerous scabrous filiform bristles.

1. G. linifolia Nees.: stem erect, corymbose at the summit; leaves linear, entire, punctate, roughish, 1-nerved; branchlets with a single head, and having the leaves linear-subulate and becoming smaller; scales of the involucre lanceolate, acute, the margins somewhat membranaceous; rays not exceeding the disk. Chrysoptis linifolia Nutt.


2. G. hyssopifolia Nees.: stem erect, corymbose at the summit; the branches spreading; leaves lanceolate-linear, acute, entire, rough, 3-nerved, punctate; those of the branchlets linear-subulate; scales of the involucre acutish; rays elongated. Aster hyssopifolius Linn.

3. G. nemoralis Nees.: stem pubescent, rough, corymbose at the summit; leaves lanceolate-linear, entire, without nerves or punctures, scabrous and somewhat revolute on the margin; scales of the involucre linear, acute, in few series, much shorter than the disk; rays elongated. *A. nemoralis* Ait. *A. ledifolius* Pursh.


13. SERICOCARPUS. Nees.—Sericocarpus.

(From the Greek σιρικος, silky, and καπνος, fruit; the achenia being very silky.) Heads 12—15-flowered; the ray flowers about 5; those of the disk tubular, fertile. Involute imbricate, ovate or oblong; the scales in several series, broad at the base, cartilaginous, nerveless, the upper part herbaceous and often spreading. Receptacle small, alveolate; the alveoli toothed or lacerate-ciliate. Achenia obpyramidal, short, densely strigose-silky. Pappus of simple, rigid, rough bristles.

1. *S. solidagineus* Nees.: smooth; stem erect, somewhat flexuous, angled with elevated lines; leaves linear-lanceolate or linear, attenuate at the base, obtuse, the margin scabrous, obscurely 3-nerved; corymb fastigate; scales of the oblong involucre squarrose at the tips; rays elongated. *Coryza" linifolia* Linn. *Aster solidagineoides* Willd.

Dry swamps and woods. Can. and N. S. to Louis.; rare. Aug., Sept. 24.—Plant yellowish-green. Stem about 2 feet high, often several from the same root, slender, nearly simple or with a few short branches near the summit. Heads few, somewhat clustered in a fastigate corymb; rays 3—8, white, longer than the disk. Pappus white. Narrow-leaved Seriocarpus.

2. *S. conyzoides* Nees: stem slightly pubescent, a little angular; leaves elliptic, or oval-lanceolate, obscurely 3-nerved, smooth beneath, acute at each end, ciliate; lower serrate towards the apex, narrowed to a petiole at base; involucres oblong-turbinate, the scales squarrose at the tips; rays short. *Coryza" asteroideis" Linn. Aster conyzoides" Willd.


14. DILOPAPPUS. Cass.—Diploappus.

(From the Greek διπλος, double, and καπνος, pappus.) Heads many-flowered; ray flowers in a single series, pistillate; those of the disk tubular, perfect. Receptacle flat, somewhat alveolate. Involute imbricate. Achenia oblong, com-
pressed. Pappus double; inner of long rough capillary bristles; outer very short, subulate.

1. D. tinariifolius Hook.: stem erect or somewhat decumbent; leaves linear, rigid, spreading or recurved, rough on the margin; scales of the turbinate involucre rigid, 1-nerve; the outer short and acute, inner usually obtuse. D. linariifolius and rigidus Lind. in D.C. Chrysopsis tinariifolia Nutt. Aster linariifolius and rigidus Linn.

Hills and rocky places. Can. to Car. Aug.—Oct. 2.—Stems 9—18 inches high, often several from the same root, or branched from near the base. Leaves about an inch long and one or two lines wide. Heads middle-sized, solitary and terminal on the branches, forming an umbellate corymb; rays pale violet; disk yellow. Narrow-leaved Diplopappus.


Low grounds. Can. to Car. Aug., Sept. 2.—Stem 2—5 feet high, branched at the summit. Leaves somewhat rough above, smooth beneath. Heads numerous, in a level-topped corymb; rays about 12, white or yellowish-white; disk yellowish. Unbelled Diplopappus


Woods. Can. to Car. Aug., Sept. 2.—Stem 1—2 feet high, often flexuous, smooth or sparingly pubescent. Heads usually few, on rather rigid peduncles; rays white or yellowish; disk yellowish. Cornus-leaved Diplopappus

4. D. paludosus Lind.: stem slightly pubescent, somewhat corymbos at the summit; leaves linear, sessile or clasping, somewhat concave, subulate, smooth, rough on the margin; scales of the involucre somewhat squarrose. Helcastrum paludosum D. C. Aster paludosus Ait.

Borders of swamps. N. J. to Flor. Nutt. Aug.—Nov. 2.—Stem 1—2 feet high, smooth nearly to the top. Heads 3—5, large and beautiful; rays numerous, bright blue. Torrey and Gray suggest that Aster paludosus of Nuttall is a form of their A. elodes; if so, this is probably not a northern species. Marsh Diplopappus.

15. ERIGERON Linn.—Fleabane.

(From the Greek er, early, and gyro, an old man; in allusion to the bald heads of the receptacles after the flowers and fruit have fallen. Hook. Br. Fl.)

Heads many-flowered; the ray flowers numerous, very narrow, usually in more than one series, pistillate; those of the disk tubular, perfect. Receptacle naked, flat, punctate or scrobiculate. Involucre imbricate, with numerous linear scales. Pappus mostly simple.
* Rays not exceeding the disk.

1. *E. Canadense* Linn.: stem erect, hirsute, profusely and paniculately branched; leaves lance-linear, mostly entire, ciliate, lower sometimes serrate; heads small, very numerous; rays crowded, scarcely longer than the cylindric involucre.


\[1\]—Stem 6 inches to nearly 6 feet high, depending upon the soil, mostly very hairy. Heads loosely racemose on the branches, forming an oblong panicle; rays white, narrow, scarcely longer than the pappus. When small it constitutes *E. pusillum* of Nuttall.  

**Horse-weed.**

2. *E. bellidifolium* Muhl.: hairy and canescent; radical leaves obovate or spatulate, slightly serrate or entire; cauline sessile, scattered, oblong-lanceolate; heads few, large, corymbose; rays very numerous, linear, twice as long as the involucre. *E. pulchellum* Mich.


3. *E. Philadelphicum* Linn.: stem pubescent, weak, corymbose at the summit; lower leaves cuneate-obovate, sometimes obtusely serrate, or incisely toothed; upper clasping, usually entire; heads few, on elongated pedicels; rays very numerous, capillary, twice as long as the involucre. *E. purpureum* Ait.

Woods and fields. Hudson’s Bay to Flor. W. to Oregon and California. Aug., Sept. \[3\].—Stem 1—3 feet high, hairy or villous at base. Heads few, middle-sized, in a loose corymb; rays 100 or more, very narrow, pale purple or flesh-color.  

**Philadelphia Fleabane.**

4. *E. annuum* Pers.: sparsely hairy; stem corymbose branched above; lower leaves ovate, obtuse, coarsely toothed, tapering into a margined petiole; upper cauline lanceolate-acute, serrate in the middle; uppermost usually entire; rays very narrow, scarcely twice the length of the somewhat hispid involucre. *E. heterophyllum* Willd. *Stenactis annua* and *strigosa D. C.*

Fields and meadows. Can. to Virg. W. to Ken. June—Aug. \[4\].—Stem stout, 2—3 feet high, angular, more or less hirsute. Heads rather small; rays white or tinged with purple, narrow. A popular medicine.  

**Annual Fleabane. Daisy.**

5. *E. strigosum* Muhl.: stem slender, hairy, corymbose-paniculate at the summit; leaves toothed or entire; lower spatulate-lanceolate, 3-nerved, tapering to a long narrow petiole; upper lanceolate or oblanceolate; rays narrow-linear, about twice as long as the hispid involucre. *E. integrifolium* Big. *E. ambiguum* Nutt. *Stenactis ambiguus D. C.*

Fields and meadows. Can. to Flor. W. to Oregon. July, Aug. \[5\] or \[6\].—Stem 1—3 feet high, angular. Heads rather small, in terminal corymbs at the summit of the branches; rays usually white, narrow, sublinear, the tube hairy.  

**Strigose Fleabane.**

16. BOLTONIA. *L’Herit.—Boltonia.*

(In honor of James Bolton, a British naturalist and artist.)

Heads many-flowered; ray flowers in one series, linear, pistillate; those of the disk tubular, perfect. Receptacle hemi-
spheric, alveolate. Scales of the involucre as long as the disk, in two series, appressed, the margins membranaceous. Achenia flat-compressed, smoothish or slightly hispid. Pappus consisting of many minute setose bristles; in the disk florets 2—4 of them elongated, subulate and thicker.

1. *B. glastifolia* L'Herit.: leaves lanceolate, somewhat glaucous, the lower serrate; heads on short pedicels; achenia obovate, broadly winged; awns of the disk pappus many, unequal, two opposite ones thick, elongated and somewhat rigid.


2. *B. asteroides* L'Herit.: leaves linear-lanceolate, entire or obscurely serrate; heads on long pedicels, loosely corymbose; achenia oval, smooth; pappus very short, similar in the disk and ray, deciduous. *Chrysanthemum Carolinianum* Walt.


17. **CHRYSOPSIS. Nutt.**—Chrysopsis.

(From the Greek ἄριστος, gold, and αἰσθήσις, appearance; in allusion to the yellow color of the flowers.)

Heads many-flowered; ray flowers in one series, ligulate, pistillate; those of the disk tubular, perfect. Receptacle flat, subalveolate. Involucre imbricate; the scales linear, acuminate. Achenia obovate, compressed. Pappus double; the outer short and chaffy; the inner elongated, hairy and scabrous.

1. *C. graminifolia* Nutt.: silky; stem leafy towards the summit; leaves grass-like, lanceolate or linear, acuminate, erect, acute, entire, nerved: corymb compound; scales of the involucre linear and lanceolate-subulate, subpubescent and glandular on the back. *Inula graminifolia* Mich.

Sandy woods. Del. to Flor. and Louis. Aug.—Oct. 4.—*Stem* 1—2 feet high, and with the leaves covered with a silky pubescence. *Leaves* long, linear or lanceolate-linear. *Heads* numerous, corymbed; *rays* yellow. Closely allied to *C. argentea* Ell., but the leaves are conspicuously nerved, the corymbs generally more compact and the heads more numerous. *Grass-leaved Chrysopsis.*

2. *C. Mariana* Nutt.: villous with long and somewhat deciduous hairs; leaves sessile, elliptic-oblong, rather obtuse, remotely denticulate; lower spatulate-lanceolate, attenuated to a petiole at base; corymb mostly simple; scales of the involucre linear, acute, and with the peduncles glandular-viscid. *Inula Mariana* Linn.

Sandy woods. N. J. to Car. Aug.—Oct. 4.—*Stem* 1—3 feet high, mostly simple, leafy, sparingly clothed with long hairs. *Heads* rather large, few, in a terminal somewhat umbellate corymb; *rays* 14—18, spatulate-linear, yellow; disk yellow. *Maryland Chrysopsis.*

3. *C. falcata* Ell.: woolly and villous; leaves sessile, linear, very acute,
3-nerved, subfalcate and spreading, hairy beneath; peduncles few, in axillary corymbs and with the involucre villous. *C. Mariana*, var. *Nutt. Tava falcata Pursh.*


*Falcate Chrysopsis.*

18. BIGELOWIA. D. C.—Bigelowia.

(In honor of Dr. J. Bigelow, of Boston, author of the *Flor. Bostoniensis.*)

Heads 3—5-flowered; the flowers all tubular and perfect. Receptacle narrow, pointed by a hyaline or scale-like cusp as long as the achenia. Involucre clavate-cylindric, imbricate; the scales linear, appressed and somewhat glutinous. Achenia somewhat obconic, hairy. Pappus a single series of rough capillary bristles.

*B. virgata D. C.:* herbaceous, smooth; stem virgately branched; branches corymbose, fastigate; leaves narrow-linear, nerveless; heads oblong, 3—4-flowered; scales of the involucre glutinous and appressed. *B. nudata, var. virgata Torr. & Gr.* *Chrysocoma virgata Nutt.*

Swamps. N.J. to Flor. Aug.—. Oct. 4—. Stem about 18 inches high and branched nearly from the base. Leaves short and narrow, scattered, smooth and thickish; the radical ones broader and longer. Florets bright yellow. Resembles *Solidago tenuifolia Pursh.* 

*Virgate Bigelowia.*

19. SOLIDAGO. Linn.—Golden-Rod.

(From the Latin *solidarii, to unite*; on account of its reputed healing qualities.)

Heads usually small, few- or many-flowered; ray flowers few, or sometimes wanting; those of the disk tubular, perfect. Receptacle narrow, naked or alveolate. Involucre oblong; the scales imbricate, appressed. Achenia many-ribbed, somewhat terete. Pappus in a single series, pilose, scabrous.—Flowers yellow (except in *S. bicolor.*)

* Scales of the involucre imbricate, free. Rays ligulate, fewer than the disk flowers. Receptacle naked or alveolate, not fimbriolate. Racemes paniculate or simple, not corymbose. *Virgaurea Tourn.*

† Racemes secund, somewhat recurved.

1. Leaves 3-nerved.

1. *S. Canadensis Linn.* stem villous; leaves lanceolate-serrate, 3-nerved, scabrous above, pubescent beneath; racemes paniculate, secund, recurved; heads small; rays short.

Fields and woods. Can. to Flor. N. to Subarct. Amer. W. to Oregon. Aug., Sept. 6—. Stem 2—5 feet high, very villous. Leaves large, always scabrous on the upper side. Heads very small; rays 7—9. Of this very variable species, *S. procera Ait.* *S. scabra Willd.* are probably nothing more than varieties. *S. reflexa Ait.* and *S. lateriflora Linn.* are also allied to it; but according to
COMPOSITE.

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Torrey and Gray, they are only known as cultivated plants and their characters are very obscure. **Canadian Golden-rod.**

2. *S. serotina* Ait.: stem very smooth and often glaucous; leaves lanceolate, acuminate, acutely serrate, 3-nerved, very smooth except the veins beneath, margin and upper surface rough; racemes paniculate, secund; peduncles slender, pubescent; rays numerous, short. 

Low grounds. Can. Nearly throughout the U. S. W. to Oregon. Sept., Oct. 2l.—Stem 4–8 feet high, terete, sometimes purplish. **Heads** middle-sized; rays 9–12. Distinguished from *S. Canadensis* by its smooth stem, and from *S. gigantea* by its rough leaves. **Late-flowering Golden-rod.**

3. *S. arguta* Ait.: smooth; stem strict; radical and lower cauline leaves large, elliptic- or lanceolate-oval, obscurely 3-nerved, sharply serrate, acuminate, tapering into winged and somewhat ciliate petioles; the others lanceolate, tapering at each end, sessile, sparingly serrate or entire; racemes dense, at length elongated and recurved, forming a corymbose panicle; scales of the involucre oblong, rather obtuse, much appressed. **S. ciliaris** Wiltal. **S. juncea Ait.**

Woods and fields. N. Y. and Penn. to Car. N. to Subarct. Amer. W. to Miss. Aug., Sept. 2l.—Stem 2–4 feet high, terete, sometimes purple. **Heads** small, very numerous, arranged in a long racemose corymbose panicle which is at length spreading. According to Torrey and Gray, *S. juncea Ait.* is a variety with narrower leaves. **Sharp-toothed Golden-rod.**

4. *S. gigantea* Ait.: stem erect, smooth; leaves smooth on both sides, lanceolate, attenuate at both ends, serrate, scabrous on the margin, 3-nerved; racemes paniculate, secund, spreading; peduncles hirsute; rays a little longer than the disk.

Fields and woods. Can. to Ala. W. to Oregon. Aug., Sept. 2l.—Stem 4–7 feet high, purplish, and with the leaves quite smooth. **Heads** rather large. **Tall Smooth Golden-rod.**

2. **Leaves veined.**

5. *S. linoides* Soland: smooth; stem simple; leaves lanceolate, finely appressed-serrate, with scabrous margins; radical and lower cauline acute or acuminate at both ends, on slender ciliate petioles; upper oblong, sometimes entire; panicle small, turned to one side; scales of the involucre oblong-linear, obtuse (Torr & Gr.)

Sphagnous swamps. Mass. and N. J. Sept., Oct. 2l.—Stem 12–20 inches high, slender. **Heads** small; **rays** 1–3, short; the disk flowers 4–5. **Flax-like Golden-rod.**

6. *S. allissima* Linn.: stem erect, hispid with rough hair; leaves ovate-lanceolate or oblong-lanceolate, acute or acuminate, coarsely serrate, very scabrous, rugose-veined; racemes paniculate, spreading or recurved; rays 7–10. **S. allissima, aspera, rugosa and villosa Pursh.** (according to Torr. & Gr.)

Fields and woods. Can. and throughout the U. S. Aug., Sept. 2l.—Stem 3–7 feet high, robust and hairy, often purplish. **Leaves** sometimes thin and nearly smooth above, softly hairy on the veins beneath, (**S. villosa**) or reticulated and very rugose, (**S. rugosa**). **Heads** rather small. **Tall Rough Golden-rod.**

7. *S. Muhlenbergii* Torr. & Gr.: stem smooth, angled; leaves large and thin, very smooth on both sides, sharply serrate; radical on winged
petioles; cauline elliptic-lanceolate, strongly acuminate, tapering at base; uppermost somewhat entire; racemes pubescent, disposed in an elongated open panicle. _S. arguta_ Muh. not of _Ait._

Low grounds. Mass. to Penn. Aug., Sept. 2. — _Stem_ 2—3 feet high, simple or virgately branched. _Heads_ rather large, on short racemes, forming a somewhat slender panicle; _rays_ 5—7, spatulate-oblong, large.

Muhlenberg’s Golden-rod.

8. _S. nemoralis_ Ait.: stem tomentose, simple or branched above; radical leaves somewhat cuneate, crenate-serrate, narrowed at base into a petiole; cauline oblanceolate, nearly entire, roughish-pubescent; racemes secund; paniculate. _S. hispida_ Muh.

Sandy fields. Can. and throughout the U. S. Aug.—Oct. 2. — _Stem_ 1—2 feet high, often much branched at the summit. _Heads_ middle-sized, in a small and somewhat corymbose panicle; _rays_ spatulate-oblong, rather short. The whole plant has a grayish or pulverulent appearance.

Woolly-stalked Golden-rod.

9. _S. puberula_ Nutt.: minutely puberulent; stem simple; leaves lanceolate, entire, attenuated at each end; radical subserrate; racemes spiked, axillary, erect, spreading, forming an elongated panicle; scales of the involucre linear, subulate, appressed; _rays_ about 10, elongated.

Sandy woods. Maine to Geor. 2. — _Stem_ 2—4 feet high, often purplish. _Racemes_ shorter than the lower leaves, collected into a leafy spike: _rays_ bright yellow. Resembles the preceding, but differs in its leaves and flowers.

Puberulent Golden-rod.

10. _S. patula_ Muh.: stem erect, striate, smooth; leaves elliptic, serrate, smooth beneath, rough above; the radical oblong-spatulate; racemes secund, paniculate, spreading; pedicules pubescent.


Spreading Golden-rod.

11. _S. neglecta_ Torr. & Gr.: stem smooth, striate; leaves mostly thickish, smooth; lower oblong or ovate-lanceolate, sessile, mostly acute at each end, finely serrate, upper entire; racemes short, dense, secund, somewhat spreading, forming an elongated leafy panicle; pedicules smoothish.


Neglected Golden-rod.

12. _S. ulmifolia_ Willd.: stem erect, smooth, striate; leaves elliptic-lanceolate, deeply serrate, acuminate, tapering at base, villous beneath; radical obovate; racemes paniculate, secund; pedicules villous; _rays_ short.

Shady woods. N. S. Aug.—Oct. 2. — _Stem_ 3—4 feet high, often with long slender branches at the summit. _Heads_ in racemes which are often slender and usually recurved; _rays_ about 4, small. The name is inappropriate.

Elm-leaved Golden-rod.

13. _S. elliptica_ Ait.: stem erect, glabrous; leaves elliptic, smooth, serrate; racemes paniculate, secund; pedicules and pedicels minutely pubescent; scales of the involucre narrow, acute; achenia strigose-pubescent. (Torr. & Gr.)
Shady woods. Can. and N. Y.?—Stem about 7 feet high. Leaves large. 

14. *S. recurvata* Wild.: stem erect, pubescent; leaves lanceolate, acuminate, serrate, nearly glabrous above, scabrous on the margin and nerves beneath; racemes elongated, secund, panicled.


15. *S. sempervirens* Linn.: stem erect, smooth; leaves linear-lanceolate, fleshy, smooth, very entire, scabrous on the margin; the radical oval, tapering into a long petiole; racemes paniculate, secund; peduncles pubescent. *S. lavigata* and *viminea* Ait. *S. limonisiluia* Torr. Comp.


16. *S. odora* Ait.: stem erect, pubescent; leaves linear-lanceolate, entire, smooth, pellucid-punctate, scabrous on the margin; racemes paniculate, secund.


17. *S. pilosa* Wall.: stem hirsute, strict, very leafy; leaves oblong-lanceolate, serrulate, slightly scabrous, often pubescent beneath; upper ovate-lanceolate or oblong, closely sessile, mostly entire; racemes recurved, secund, in a dense pyramidal panicle. *S. pyramidata* Pursh.

Damp soils. N. J. to Flor. and Louis. Sept., Oct. 4.—Stem 3—7 feet high, stout. Heads very numerous, about as large as in *S. odora*; rays 7—10; disk flowers about 5, nearly as long as the rays. Pilose Golden-rod.

† Racemes erect, not secund.

18. *S. Ohioensis* Riddell: stem very smooth, erect, fastigiate-corymbose at the summit; lower leaves lanceolate-oblong, rather obtuse, scabrous on the margin, remotely serrate near the apex, tapering into slender petioles; upper lanceolate, sessile, nearly entire; heads numerous, on slender pedicels. (Torr. & Gr.)


19. *S. speciosa* Nutt.: stem smooth, simple or virgately branched; leaves lanceolate, entire, somewhat fleshy, scabrous on the margin; lower oval or ovate, sub serrate, petioled; upper lanceolate, entire; racemes terminal, erect and compound, pubescent; peduncles mostly shorter than the involucre. *S. sempervirens* Mich. not of Linn.


20. *S. bicolor* Linn.: stem and leaves hairy; leaves elliptic-lanceolate
acile, white-pubescent; lower tapering into a petiole, serrate; branches leafy; racemes erect; scales of the involucrste obtuse. *Aster bicolor* Nees. Spreng.

Dry Hills. Can. to Geor. Aug.—Oct. 4.—Stem 1—2 feet high, erect, very pubescent. Heads numerous, rather large, in short clusters, forming a long dense leafy raceme along the upper part of the stem; rays 7—9, nearly white. Two-colored Golden-rodi.

21. *S. stricta* Ait.: stem erect, smooth; cauline leaves lanceolate, very entire, smooth, scabrous on the margin; radical tapering into winged petioles, minutely serrate; racemes paniculate, very erect; peduncles smooth.


22. *S. virgata* Mich.: stem smooth and simple, summit racemose; leaves smooth, lanceolate-oblong, somewhat obtuse, appressed to the stem, diaphanously punctate; upper smaller and entire; branches of the panicle elongate, racemed at the summit; peduncles erect, smooth, filiform and squarrose.


23. *S. latifolia* Linn.: stem angled, mostly flexuous, smooth; leaves broad-ovate or oval, coarsely dentate-serrate, very acuminate at both ends or abruptly attenuate into a short petiole, mostly hairy on the veins beneath; heads in short axillary racemes or clusters, racemose or paniculate at the summit of the stem. *S. flexicaulis* Ait. *S. macrophylla* Big.


24. *S. cajisia* Linn.: stem erect, smooth, glaucous, simple or branched; leaves lanceolate or oblanceolate, acuminate, serrate, smooth; heads in short axillary clusters or racemes; peduncles pubescent; involucrue smooth. *S. flexicaulis* Linn. *S. axillaris* Pursh. *S. livida* Willd.


25. *S. rigida* Linn.: stem erect, roughly pubescent, paniculate at the summit; leaves rigid, scabrous, slightly clasping; lower oval, petioled, crenate-dentate; upper ovate-oblong, sessile, entire; heads very large, in compact erect racemes; scales of the involucrue obtuse.

Rocky hills. Conn. and N. Y. to Car. W. to Texas. Aug.—Oct. 4.—Stem 3—4 feet high, rigid, very pubescent when young. Heads very large, many-flowered, clustered near the summits of the branches; rays 7—10, elongated. Rigid-leaved Golden-rodi.

26. *Virga-Aurea* Linn.: stem erect, terete, pubescent and branching at the top; cauline leaves lanceolate, serrate, attenuate at each end; lower ones elliptic, petioled; racemes erect, simple or compound; scales of the involucrue linear-acute.
COMPOSITÆ.

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var. alpina Big.: a few inches in height, with obovate or lanceolate, mostly entire, leaves.


Common Golden-rod.

27. S. humilis Pursh: glabrous; stem simple, erect; radical leaves oblong-lanceolate or spatulate, obtuse, crenate-serrate at the apex, taping into a petiole; cauline lanceolate, acute, narrowed at the base; uppermost linear and entire; raceme simple or compound and paniculate, elongated, strict; scales of the involucre oblong, mostly obtuse. (Torr. & Gr.)


28. S. thyrsoides Meyer: stem erect, or somewhat flexuous, simple, smooth, the summit and peduncles villous-pubescent; leaves smooth, ovate, irregularly and sharply serrate, acute or acuminate, narrowed into very long petioles; uppermost oblong-lanceolate, subsessile, often pubescent beneath; heads large, in an oblong simple raceme; scales of the involucre lanceolate, acuminate, membranaceous. (Torr. & Gr.)


29. S. squarrosa Muhl.: stem thick, very pubescent above; leaves smooth; lower very broad, spatulate-oval, serrate, acute, scabrous on the margin; upper sessile, lanceolate-elliptic, entire; racemes axillary, glomerate; involucre squarrose, many-flowered. S. macrophylla Pursh.


Squarrose Golden-rod.

** Scales of the involucre much appressed, somewhat glutinous. Ray-flowers more numerous than those of the disk, very small, yellow. Receptacle fimbriate. Heads in corymbose clusters, mostly fascicled. Leaves linear, quite entire, sessile. Euthamia Nutt.

30. S. lanceolata Linn.: stem much branched, fastigiate; leaves lanceolate-linear, very entire, 3—5-nerved, minutely scabrous-pubescent; heads ovoid-cylindric, in dense corymbose clusters, sessile. S. graminifolia Ell. Euthamia graminifolia Nutt.


31. S. tenutifolia Pursh.: stem angled, scabrous, with fastigiate branches; leaves very narrow-linear, spreading, 1- or rarely 3-nerved, covered with glandular dots, scabrous on the margin; heads obovoid or turbinate, in

Sandy fields. N. Y. and Mass. to Flor. and Louis. Aug.—Oct. 24.—*Stem slender, 12—18 inches high. Heads smaller and less crowded than in the preceding; rays about 10; disk flowers 5—6.* \[Slender-leaved Golden-rod.\]

20. BACCHARIS. Linn.—Baccharis.

(From Bacchus, to whom the original plant was dedicated by the Greeks.)

Heads many-flowered, dioecious; the flowers all similar and tubular. Receptacle naked or somewhat chaffy. Involucre somewhat hemispheric or oblong, imbricate, in several series. **Sterile Fl.** Corolla dilated, 5-cleft. Anthers exserted, unwawned at base; style more or less abortive. Pappus in a single series, about as long as the involucre. **Fertile Fl.** Corolla filiform and somewhat truncate. Anthers none. Style bifid, exserted. Pappus in one or several series, usually much longer than the involucre.

*B. halimifolia* Linn.: leaves obovate, incisely-toothed above, cuneate at base and attenuated into a short petiole; upper lanceolate and nearly entire; heads of the sterile plant subglobose, solitary or aggregated; of the fertile ovoid-oblong, loosely panicled.

Sandy beaches. N. Y. Conn. and N. J. S. to Flor. Sept., Oct.—A shrub 6—12 feet high, covered with a whitish resinous powder or dust. *Heads* in the sterile plant mostly clustered at the summit of the leafy branches; in the fertile, arranged in a large loose terminal panicle. *Flowers* white.

**Groundsel Tree.**

21. PLUCHEA. Cass.—Marsh Fleabane.

(Named in honor of Noel Pluche, author of “Spectacle de la Nature,” &c.)

Heads many-flowered; the outer flowers in many series, pistillate, truncate or 2—3-toothed; the central ones perfect or sterile, 5-toothed. Receptacle flat, naked or hirsute-fimbriate. Involucre in many series, imbricate. Anthers bicaudate. Achenia cylindric, sulcate-angular. Pappus in one series, filiform, roughish.

1. *P. camphorata* D. C.: minutely viscid-pubescent; leaves ovate or ovate-lanceolate, sessile and slightly petioled, sprinkled with resinous dots, repantly-toothed; corymb fastigate; scales of the involucre viscid-pubescent. \([Torr. & Gr.]\) *P. camphorata* and *P. Marylandica* D. C. *Conyza camphorata* Big. *Erigeron camphoratum* Linn.


2. *P. fatida* D. C.: smoothish or minutely pubescent; leaves oval-lan-
ceolate, acuminate at each end, distinctly petioled, membranaceous, coarsely serrate; corymb fastigiate, somewhat paniculate; scales of the involucre smoothish, dotted with minute glands. *Conyza camphorata* Pursh. *Baccharis fietida* Linn.

Wet banks. Penn. ? to Ala. and Ken. Aug.—Oct. 2Pt. — Stem 2—4 feet high, grooved or angled. The leaves are much larger, the heads more numerous, and the odor is more powerful, than in the preceding. *Fetid Marsh Fleabane.*

22. **INULA.** Linn.—Elecampane.

(Origin doubtful.)

Heads many-flowered; ray flowers in a single series, pistillate, sometimes infertile, ligulate, rarely tubular; those of the disk tubular, perfect. Involucre imbricate, in many series. Receptacle flat or somewhat convex, naked. Anthers with 2 bristles at base. Pappus capillary, roughish.

1. *Helenium* Linn.: leaves toothed, acute, velvety tomentose beneath; the radical ones ovate, tapering into a petiole; the cauline somewhat clasping; heads few, pedunculate, corymbose.

Road sides. N. S. July, Aug. 2Pt. — Stem 3—4 feet high, branching at the top. *Leaves* very large. *Heads* large, solitary, on long terminal thick peduncles, yellow; *rays* numerous, linear, 3-toothed. Introduced from Europe. *Common Elecampane.*

23. **ECLIPTA.** Linn.—Eclipta.

(From the Greek εκλειπτω, to be deficient; in allusion to its wingless achenia, by which it is distinguished from *Verbena. Eat. Man.*)

Heads many-flowered; ray flowers in one series, pistillate, ligulate, very narrow and short; those of the disk tubular and perfect. Receptacle flattish, furnished with linear filiform chaff, as long as the achenia. Involucre in two series; the scales 10—12, ovate-lanceolate, acuminate. Achenia of the ray 3-sided; of the disk compressed at the sides, muricate-tubercular, somewhat hairy at the summit. Pappus none, or of 1—3 minute teeth.

*E. erecta* Linn.: stem erect or ascending, appressed-strigose; leaves oblong-lanceolate, acuminate at both ends, slightly serrate; pedicels solitary or in pairs, several times as long as the head. *E. procumbens* Mich. *Verbena alba* Linn.

IV. Seneconideæ. Style of the perfect flowers cylindrical; its branches linear, fringed at the point, generally truncate, but sometimes extended beyond the fringe into a short cone or appendage.

24. SILPHIUM. Linn.—Silphium.

(From Silphi, the name of a medicinal plant of Africa, transferred to this genus by Linnaeus.)

Heads many-flowered; ray flowers numerous, ligulate, pistillate; the ligules in one series, elongated, the fruit in several series; those of the disk with a very short tube, hairy above, sterile. Receptacle somewhat convex, chaffy. Involucre campanulate, imbricate; the scales loose and leafy at the summit. Achenia of the ray obcompressed, surrounded with a wing which is notched or toothed at the top; those of the disk abortive, with an obsolete crown-like pappus.

1. S. trifoliatum Linn.: stem terete, slightly angled, smooth; leaves 3—4 in a whorl, ovate-lanceolate, unequally toothed and serrate, scabrous on the upper surface; lower petioled, upper nearly sessile and sometimes opposite; heads loose, corymbose or paniculate. S. trifoliatum and S. ternatum Pursh.


2. S. perfoliatum Linn.: stem square, smooth, the branches sometimes terete; leaves opposite; lower deltoid-ovate, coarsely serrate, on winged petioles; upper connate-perfoliate, nearly entire; heads trichotomously corymbose, the central one on a long peduncle. S. connatum Mich.

Banks of streams. Penn. to Car. W. to Miss. Aug. 4.—Stem 5—6 feet high. Leaves very large, the lower somewhat cordate. Heads large; rays Perfoliate Silphium.

25. POLYMNIA. Linn.—Polymnia.

(Said to be named after Полумвив, one of the Muses.)

Heads many-flowered; the ray flowers pistillate, ligulate, in one series; those of the disk tubular, sterile. Receptacle flat, chaffy. Involucre double; the outer scales 4—5, large and leafy; the inner ones numerous, shorter, surrounding the smooth achenia. Pappus none.

* Rays shorter than the involucre.

1. P. Canadensis Linn.: viscid-pubescent; leaves angulate and hastate-lobed, denticulate, acuminate, the lower deeply pinnatifid or lyrate; scales of the involucre ovate, acuminate, ciliate, the outer ones a little larger.
COMPOSITÆ.

Shady hills and in ravines. Can. to Car. W. to Miss. June, July. **Stem 2—5 feet high, roughly pubescent and somewhat viscid, branching. **Leaves opposite or alternate, very thin, mostly 3—5-lobed at the apex. **Heads small, loosely paniculate; rays white, or very pale yellow, small, obtusely 3-lobed at the apex; disk yellow.

** Rays longer than the involucre.

2. P. Uvedalia Linn.: stem sulcate, somewhat pubescent above; leaves sinuate-lobed, broad-ovate or deltoid, roughish; lower subpalmate, decurrent into a winged petiole; outer scales of the involucre oblong-ovate, obtuse, much larger than the inner.

Dry rich grounds. Western N. Y. and Penn. to Geor. W. to Miss. July, Aug. **Stem 3—5 feet high, terete. **Leaves opposite or alternate, the lower very large. **Heads few, large, arranged in loose panicles; rays about 10, 3-toothed at the apex, bright yellow; disk dull yellow.

Large-flowered Polymnia.

26. PARTHENIUM. Linn.—Parthenium.

(From the Greek παρθένος; on account of its supposed efficacy in certain diseases.)

Heads many-flowered; ray flowers 5, pistillate, ligulate, fertile; those of the disk tubular, abortive. Receptacle conic or cylindric, covered with membranaceous chaff. Involucre hemispheric, in 2 series; outer scales ovate, inner nearly orbicular. Achenia obcompressed, smooth. Pappus of 2 aristate or nearly orbicular scale-like processes.

P. integrifolium Linn.: stem hirsute-pubescent; leaves oval, rough, unequally crenate-toothed, or sometimes incised; lower decurrent into a petiole, upper sessile or somewhat clasping; outer scales of the involucre somewhat acute.

Dry soil. Md. to Geor. and Ala. W. to Texas. July—Sept. **Stem 1—2 feet high. **Heads numerous, corymbed; rays small, whitish.

Simple-leaved Parthenium.

27. XANTHIDIUM. Tourne.—Clot-weed.

(From the Greek λαύδος, yellow; a color said to be produced by this plant.)


1. X. strumarium Linn.: fruit-bearing involucre oval, somewhat pubescent; beaks straight; leaves cordate at base, 3—5-lobed, coarsely toothed.

Road sides and waste places. Can. to Flor. W. to the Rocky Mountains. Aug., Sept. **Stem 1—3 feet high, angular, scabrous-pubescent. **Leaves
COMPOSITÆ.


2. X. echinatum Marr.: fruit-bearing involucre oval, very densely clothed with rigid slender prickles and with the incurved beaks strongly hispid; leaves rough, broad-cordate, irregularly sinuate-toothed, obscurely lobed. (Torr. & Gr.) X. macrocarpon Beck Bot. 1st Ed. X. orientale Muhl. X. maculatum Raf.


3. X. spinosum Linn.: spines 3-parted, slender; leaves ovate-lanceolate, cuneate at base, entire or somewhat 3-lobed, acuminate, minutely-pubescent above, the under surface and the veins of the upper canescent.


28. AMBROSIA. Linn.—Rag-weed.

(Ambrosia was the food of the Gods; but it is difficult to determine the application to the plants of this genus.)

Heads monœcious; the fertile at the base and the sterile at the top of the spike. Sterile Fl. Involucre hemispheric or turbinate; scales few. Receptacle naked. Corolla tubular, short. Fertile Fl. Involucre 1-flowered, incurved and often armed with several tubercles or horns. Corolla none. Achenia ovoid or obovoid.

* Upper leaves undivided.

1. A. integrifolia Muhl.: leaves opposite, ovate, sessile, acuminate, serrate, hispid on both sides, ciliate at base; racemes terminal and mostly ternate. A. trifida, var. Torr. & Gr.

Near ponds and ditches. Penn. and Virg. Stem 2—3 feet high, angular, branched above. It is said to have the lower leaves sometimes 3-lobed. Probably a variety of the next, as suggested by Torrey and Gray. Simple-leaved Rag-weed.

** Leaves all 3—5-lobed.

2. A. trifida Linn.: hirsute, rough; leaves 3—5-lobed, serrate; the lobes oval-lanceolate, acuminate; fruit 6-spined below the summit. Banks of streams. Can. to Geor. W. to Miss. July—Sept. Stem 4—8 or 10 feet high, angular, branched above. Leaves very large and rough. Heads small; the sterile ones in long paniculate racemes; the fertile in small clusters at the base of the racemes. Three-lobed Rag-weed.

*** Leaves singly or doubly pinnatifid.

3. A. artemisiaefolia Linn.: stem pubescent, often much branched; leaves bi-pinnatifid, rough, hoary beneath, the petioles ciliate with long hairs; racemes paniculate, terminal. A. elatior Linn. A. absinthifolia Mich.
COMPOSITÆ.


4. A. paniculata Mich.: stem branching, paniculate at the summit, and with the petioles villous; leaves green on both sides, bi-pinnatifid, the segments lanceolate; fruit somewhat clustered, small, obovate, slightly awned. Iva monophylla Walt.


5. A. heterophylla Muhl.: stem pubescent or villous, paniculate; cauline leaves pinnatifid, subdentate, petiolate; those of the branches lanceolate, sessile; petioles with long cilia; racemes terminal, solitary. A. Peruviana Willd.

Banks of streams. Penn. July—Sept. 1. Muhl.—Fruit with 5—6 acute teeth below the summit. Perhaps this and the preceding are only varieties of A. artimisiaefolia. Various-leaved Rag-weed.

29. IVA. Linn.—Marsh Elder.

(Origin of the name doubtful.)


I. frutescens Linn.: shrubby, smooth; leaves opposite, oval or oval-lanceolate, somewhat petioled, deeply-serrate, slightly scabrous; uppermost linear-lanceolate, entire; heads axillary, depressed-globose, pedicellate; scales of the involucre 5, orbicular.


30. HELIOPSIS. Pers.—Ox-eye.

(From the Greek ἥλιος, the sun, and ὁφως, appearance; in allusion to the form of the heads of flowers.)

Heads many-flowered; the ray flowers in one series, ligulate, fertile; those of the disk tubular, perfect. Involucre in 2—3 series; the outer scales leafy, the rest imbricate. Receptacle conic. Achenia angular, partly surrounded by the chaff.

H. levis Pers.: stem smooth; leaves smoothish, ovate-lanceolate or oblong-ovate, tapering at base into a petiole, serrate, 3-nerved. Helianthus levis Linn.

Banks of streams Throughout the U. S. Aug., Sept. 21.—Stem 2—4 feet.
high, dichotomously branched above. **Heads** middle-sized, on long peduncles, solitary, or in a loose fastigiate corymb; **rays** 10—15, 2—3-toothed, yellow; **disk** dark purple, conic.

31. RUDBECKIA. *Linn.*—Rudbeckia.

(In honor of **Olaus Rudbeck**, Professor of Botany at Upsal, in Sweden, who died in 1702.)

Heads many-flowered; ray-flowers neutral, in a single series, ligulate; those of the disk tubular, perfect. Scales of the involucre in two series, leafy, spreading. Receptacle conic or elongated; the chaff lanceolate. **Achenia** quadrangular. **Pappus** none or minute and coroniform.

1. **R. fulgida** Ait.: stem hispid, the branches long and virgate; leaves oblong-lanceolate, denticulate, hispid, narrowed and slightly cordate at base, acuminate; scales of the involucre as long as the rays; chaff lanceolate. **R. chrysomela** Mich.

Fields and mountain woods. Penn. to Flor. July—Oct. 4. **Stem** 2—3 feet high, branched. **Heads** small, solitary and terminal; **rays** orange-yellow, 2-cleft at the summit; **disk** purple, nearly hemispheric. **Small-flowered Rudbeckia.**

2. **R. hirta** Linn.: very hirsute; stem virgate, sparingly branched; lower leaves spatulate-oval, 3-nerved, denticulate, petioled; upper ovate-lanceolate, sessile; scales of the involucre nearly equalling the rays; chaff of the receptacle linear.

Meadows. Can. and N. Y. to Flor. W. to Texas. July—Sept. 4. **Stem** 2—3 feet high, scabrous and hairy. **Heads** middle-sized, solitary, terminal; **rays** 14, bifid, hairy, pale yellow; **disk** dark-purple, conic. **Hairy Rudbeckia.**

3. **R. triloba** Linn.: hairy-hispid; stem paniculate; leaves lanceolate, acuminate at each end, serrate; the lower 3-lobed; scales of the involucre linear, shorter than the rays.

Dry soils. Can. to Flor. W. to Miss. July—Sept. 4. **Stem** 4—5 feet high. **Heads** numerous, on the summits of the branches; **rays** about 8, yellow; **disk** dark purple. **Three-lobed Rudbeckia.**

4. **R. speciosa** Wender.: stem hirsute or hispid, with elongated naked branches; leaves roughish-hirsute or pubescent, coarsely toothed or incised; upper lanceolate, sessile; lower ovate or ovate-lanceolate, acute or acuminate at both ends, petioled; scales of the involucre about half as long as the rays; pappus coroniform. (**Torr. & Gr.**)

Mountains. Penn. to Ohio. Aug.—Oct. 4. **Larger than R. fulgida. Radical leaves** on long petioles, 3-nerved. **Heads** large and showy; **rays** numerous, oblong-linear, elongated, bright yellow; **disk** conoid-globose, black-purple. **Showy Rudbeckia.**

5. **R. laciniata** Linn.: stem tall, smooth, branching; leaves somewhat hairy and scabrous; lower pinnate, the segments 3—5-lobed or incised, sometimes laciniate; uppermost lanceolate or ovate, incisely toothed or entire; pappus toothed. **R. levi-gata and R. digitata** Pursh.

Borders of swamps. Can. to Ala. W. to near the Rocky Mountains. July—Sept. **Stem** 4—6 feet high. **Leaves** gradually less and less divided from the radical to the uppermost ones. **Heads** rather large, in a loose terminal panicle; **rays** bright yellow, about twice as long as the involucre, oblanceolate, drooping; **disk** greenish-yellow, conic. **Tall Rudbeckia. Cone Flower.**
32. LEPACHYS. Raff.—Lepachys.

(From the Greek λεπαχυς, a scale, and παχυς, thick; in reference to the chaff of the receptacle.)

Heads many-flowered; the ray flowers few, in a single series, neutral; those of the disk small, tubular, perfect. Scales of the involucre few, linear or subulate, spreading, sometimes with an inner series of small obtuse scales. Receptacle elongated, spiciform; chaff truncate or obtuse, thickened and hairy at the summit. Achenia of the ray 3-angled, hairy; of the disk, compressed, smooth or ciliate.

L. pinnata Torr. & Gr.: leaves pinnate; leaflets 3—7, oblong-lanceolate, acuminate at each end, sparingly serrate, the uppermost undivided; rays much longer than the disk. Rudbeckia pinnata Mich. and R. digitata Willd. Obeliscaria pinnata D. C.

Shores of Lake Erie, N. Y. Dr. Sartwell. Penn. S. to Flor. W. to Miss. July—Sept. 2. —Stem 3—4 feet high, rough and pubescent, sulcate. Heads terminating the branches; rays slightly toothed at the apex, bright yellow; disk flowers with short recurved teeth. Tall Lepachys.

33. COREOPSIS. Linn.—Coreopsis.

(From the Greek κοραπις, a bug, and οὐγας, resemblance; in allusion to the form of the achenia.)

Heads many-flowered; ray flowers about 8, neutral; those of the disk tubular, perfect. Involucre double, each of about 8 scales; the outer narrow, leafy, spreading; the inner broader and somewhat membranaceous. Receptacle flat or slightly convex, chaffy. Achenia obcompressed, often 2-toothed or 2-awned at the summit; the awns smooth or hispid upwards.

* Leaves alternate.

1. C. gladiata Wall.: stem smooth, terete, dichotomous at the summit; leaves alternate, somewhat fleshy, entire or slightly lobed; lower oblong-lanceolate, tapering into a long and somewhat clasping petiole; scales of the outer involucre ovate-lanceolate; achenia obovate-oblong, surrounded by a pectinate wing. C. dichotoma Mich.


** Leaves opposite, undivided.

2. C. rosea Nutt.: stem smooth, leafy; leaves opposite, narrow-linear, entire; heads few, peduncled; scales of the outer involucre much shorter than the inner; rays unequally 3-toothed; achenia nearly naked. Cal- liopsis rosea Spreng.

3. *C. trichosperma* Mich.: smooth; stem obously 4-angled; leaves opposite, on short petioles, pinnate; leaflets 5-7, linear-lanceolate, serrate or incised; uppermost 3-5-cleft, nearly sessile; scales of the outer involucre subspatulate, ciliate-serrate; achenia cuneiform, with 2-hispid teeth.


4. *C. tripterus* Linn.: smooth; leaves opposite, pelti-date; radical 5-pinnate; cauline ternoate; leaflets lanceolate, acute, entire, sebrous on the margins; achenia obvate, naked at the summit. *Chrysostemma tripterus* Less. D. C.

Banks of streams. Penn. to Flor. W. to Miss. Aug.—Oct. 2. — Stem 4-6 feet high. Heads rather small, in a loose terminal corymb, on short peduncles; rays about 8, yellowish. Three-leaved Coreopsis.

5. *C. verticillata* Linn.: smooth; leaves closely sessile, ternoate; leaflets pinnate or bi-pinnate; segments narrow-linear, obtuse; achenia obovate-wedgeform, slightly winged, with 2 minute teeth. *C. tenuifolia* Pursh.


34. ACTINOMERIS. Nutt.—Actinomeris.

(From the Greek *aer*, a ray, and *pous*, a part; the flower being imperfectly radiate.)

Heads many-flowered; ray flowers neutral, few, elongated or sometimes wanting; those of the disk tubular, perfect. Involucre of 1-3 series; the scales leafy, acuminate. Receptacle convex, chaffy, the chaff embracing the margin of the achenia. Achenia compressed, obovate, winged, with 2 smoothish persistent awns at the summit.

*A. squarrosa* Nutt.: stem erect, pubescent and winged towards the summit; leaves broad-lanceolate, acute, serrate, scabrous above, pubescent beneath; lower often opposite, upper alternate; involucre in 2 series; the outer reflexed, spreading. *Coreopsis alternifolia* Linn. Verbesina Coreopsis Mich.


35. HELIANTHUS. Linn.—Sunflower.

(From the Greek *phlos*, the sun, and *aer*, a flower.)

Heads many-flowered; ray flowers in one series, ligulate, neutral; those of the disk tubular, perfect. Involucre imbricate in several series; the scales usually with foliaceous tips. Receptacle flat or convex; the chaff embracing the compressed
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or somewhat quadrangular achenia. Pappus mostly of 2 unequal chaffy scales or awns, (sometimes additional smaller ones,) deciduous.

* Disk flowers dark purple.

1. H. atrorubens Linn.: stem erect, branched above, hispid with long scattered hairs; leaves mostly opposite, oblong-spatulate or ovate, somewhat serrate, 3-nerved, scabrous; scales of the involucre lanceolate, acuminate, smooth, as long as the disk.


2. H. angustifolius Linn.: stem scabrous or hairy; leaves narrow-lanceolate, sessile, entire, 1-nerved, rough above, pale beneath, the margins revolute; lower opposite, upper alternate; scales of the involucre linear-lanceolate, as long as the disk; chaff 3-toothed. Rudbeckia angustifolia Linn.


** Disk flowers yellow.

† Leaves opposite, or the upper sometimes alternate.

3. H. mollis Lam.: stem villous; leaves ovate or lanceolate, acuminate, somewhat clasping at base, entire or serrulate, scabrous above, tomentose canescent beneath; scales of the involucre lanceolate, villous-canescence. H. canescens Mich.


4. H. strumosus Linn.: stem rough above, smooth below; leaves ovate-lanceolate, with a long tapering point, serrate, 3-nerved, rough above, whitish and pubescent beneath, abruptly tapering into a short winged petiole; scales of the involucre lanceolate, acuminate, equaling the disk. H. macrophyllus Willd.


5. H. dicaricatus Linn.: stem smooth, simple or dichotomously branched above; leaves sessile, ovate-lanceolate, rounded at base, tapering to the point, serrate, 3-nerved, scabrous above, rough-pubescent beneath; scales of the involucre lanceolate, acuminate, ciliate, spreading.


6. H. decapetalus Linn.: stem erect, smooth below, rough above; leaves ovate or oblong-ovate, on short winged petioles, acuminate, coarsely serrate, 3-nerved, thin and slightly scabrous; scales of the involucre linear-lanceo-


Thin-leaved Sunflower.

7. *H. trachelisifolius* Willd.: stem rough, branched above; leaves ovate-lanceolate, acuminate, serrate, 3-nerved, very scabrous on both sides, contracted into a short petiole, the upper alternate; scales of the involucre linear-lanceolate, ciliate, outer ones large and squarrose.


Wild Sunflower.

8. *H. giganteus* Linn.: stem tall, scabrous; leaves lanceolate, acuminate, somewhat serrate, obscurely 3-nerved, very rough, attenuate and ciliate at base, the upper alternate; scales of the involucre linear-lanceolate, acuminate, ciliate. *H. alitissinus* Willd.


Tall Sunflower.


†† Leaves alternate, sometimes opposite below.

10. *H. multiflorus* Linn.: stem erect, branching, scabrous; leaves alternate, petioloed, toothed, 3-nerved, scabrous, serrate; lower cordate, upper ovate; outer scales of the involucre linear-lanceolate, ciliate, inner lanceolate.


Many-rayed Sunflower.

11. *H. tuberosus* Linn.: root creeping, bearing an oblong tubercle; stem erect, branching, rough; leaves alternate, petiolate 3-nerved, scabrous, serrate; lower cordate-ovate, upper ovate-acuminate; petioles ciliate at base; scales of the involucre linear-lanceolate, ciliate.

Fields and cultivated grounds. N. S. July—Sept. 2. — Stem 4—8 feet high. Leaves large, cuneate at base; the lower ones opposite, rarely ternate. Heads rather large, terminal, on angular pubescent peduncles; rays numerous, yellow. Naturalized in various parts of the U. S. Jerusalem Artichoke.

36. BIDENS. Linn.—Bur-Marigold.

(From the Latin bidens, having two teeth; in allusion to the awns of the achenia.)

Heads many-flowered; the ray-flowers neutral, often wanting; those of the disk tubular, perfect. Involucre double, un-
equal; the outer series often large and leafy. Receptacle flattish, chaffy. Achenia obcompressed, not winged, crowned with 2—5 retrorsely pilose rigid awns.

1. B. cernua Linn.: smooth; leaves undivided, lanceolate, toothed, the upper somewhat connate; heads discoid or radiate, on slender peduncles, usually nodding; outer involucre longer than the head; achenia 4-awned, retrorsely ciliate on the margin.

Near ponds and ditches. Can. to Penn. W. to Oregon. Aug., Sept. 1.—Stem 1—2 feet high. Heads usually discoid, but sometimes more or less radiate; rays, when present, yellow. This plant is sometimes not more than 6 or 8 inches high, with very small erect flowers, when it constitutes the variety minima.

Swamp Beggar-ticks.

2. H. chrysanthemoides Mich.: stem smooth; leaves undivided, oblong-lanceolate, tapering at each end, connate at base, dentate-serrate; heads radiate, somewhat nodding; rays elliptic, longer than the involucre; achenia with 2—4 retrorsely scabrous awns.

Wet places. Can. and throughout the U. S. Aug., Sept. 1.—Stem 1—2 feet high, erect or declined at base, branching. Heads rather large, solitary at the end of the branches, erect or somewhat nodding; rays 8—10, bright yellow. Large-flowered Bur-marigold.

3. B. frondosa Linn.: stem smooth or a little hairy; lower leaves quinata-pinnate, upper 3-parted; the lobes lanceolate, serrate; heads discoid, pedicellate, erect; outer scales of the involucre much longer than the head, ciliate at the base; achenia 2-awned, somewhat ciliate on the margin.

Woods and fields. Can. and throughout the U. S. July—Sept. 1.—Stem 2—5 feet high, striate, often purple, branched. Heads rather small, on long axillary branches or peduncles; rays none; disk flowers yellowish. Leafy Bur-marigold.

4. B. connata Mich.: smooth; lower leaves often ternate, with the lateral lobes decurrent into a petiole and slightly connate; upper undivided, oblone-lanceolate, serrate, attenuate at each end; heads discoid, on short peduncles; scales of the outer involucre longer than the disk; achenia 2—3-awned. B. tripartita Big.


5. B. bipinnata Linn.: smooth; stem erect, 4-angled; leaves petioled, bi-pinnate, the segments lanceolate or oblong-ovate; heads on slender peduncles, with 2—4 small rays; outer scales of the involucre spreading, about as long as the disk; achenia linear, 3—4-awned.


6. B. Beckii Torr.: stem simple or sparingly branched; leaves mostly submerged, divided into numerous capillary segments; the emerged ones few, lanceolate, coarsely serrate or pinnatifidly laciniate; heads solitary, erect, radiate, terminal; rays longer than the involucre; achenia narrow-oblong, 4—6-awned.
In water. Can. Ver. Mass. and N. Y. W. to the sources of the Mississippi. July, Aug. 4. — Stem 2—6 feet long, simple, or with very small and slender branches arising from the axils of the upper leaves. Lower leaves very multifid, capillary, as in Ranunculus aquatilis, but opposite or almost verticillate; upper about an inch and a half long, broad-lanceolate, attenuate at each extremity, deeply serrate or incised. Flower solitary, at the extremity of the stem, rather large, yellow; rays much longer than the involucre. Water Marigold.

37. VERBESINA. Linn.—Verbena.

(Said to be altered from Verbena, on account of the resemblance of one of the species.)

Heads many-flowered, mostly radiate. Involucre in two or more series; the scales nearly equal or imbricated. Receptacle flat or somewhat convex; the chaff concave and embracing the flowers. Achenia flat-compressed, usually winged at the angles, crowned with 2 rigid awns.

1. V. Siegesbeckia Mich.: stem smooth, 4-winged; leaves opposite, decurrent, ovate-lanceolate, acuminate at each end, smoothish, coarsely serrate; panicle trichotomous, corymbose at the summit; scales of the involucre few, obtuse. V. occidentalis Walt. Siegesbeckia occidentalis Linn.


2. V. Virginica Linn.: stem narrowly winged, tomentose-pubescent at the summit; leaves alternate, lanceolate or ovate-lanceolate, serrate, veined, scabrous above, pubescent beneath, acute or acuminate at each end, the lower decurrent; heads in cymose corymbs, crowded.


38. HELENiUM. Linn.—False Sunflower.

(Named, it is said, after Helen, the wife of Menelaus.)

Heads many-flowered, radiate; the ray flowers in a single series, pistillate, ligulate, or rarely tubular, 3—5-cleft; those of the disk perfect, tubular, very short, 4—5-toothed. Involucre in 2 series; the outer scales numerous, leafy, long-linear, reflexed or spreading. Receptacle convex, globose or oblong, naked. Achenia turbinate-obovate. Pappus chaffy; chaff 5—6-awned.

H. autumnale Linn.: smooth; stem erect, branched; leaves lanceolate, serrate, acute, decurrent; disk globose; rays 3—5-cleft, spreading or reflexed.

Low grounds. Hudson's Bay to Flor. W. to Oregon. Aug.—Oct. 7. — Stem 2—3 feet high, winged by the decurrent leaves. Leaves narrowed at base, the upper nearly entire. Heads middle-sized, numerous, in a terminal corymb; rays yellow, cuneate, mostly drooping; disk greenish-yellow. Whole plant intensely bitter.

Sneeze-weed.
39. ANTHEMIS. Linn.—Chamomile.

(From the Greek αὐθεμί, a flower; on account of the profusion of its blossoms.)

Heads many-flowered; the ray flowers in one series, ligulate, pistillate; those of the disk tubular, perfect. Scales of the involucre imbricate, in a few series. Receptacle convex, oblong or conic, with membranous chaff among the flowers. Achenia terete or obtusely 4-angled, striate or smooth. Pappus none or a membranous margin.

A. arvensis Linn.: diffuse, pubescent; leaves pinnately parted; the lobes linear-lanceolate, with very acute teeth; heads solitary at the summits of the leafless branches; receptacle conic; the chaff lanceolate, acuminate. Fields and cultivated grounds. N. Y. to Virg. June—Aug. (J). Stem 9—15 inches high, branched. Leaves grayish-pubescent. Heads large; rays broad, white, spreading; disk yellow, convex. Introduced from Europe. A. nobilis Linn., the common chamomile, is said by Nuttall to be naturalized near Lewistown, Del. Wild or Corn Chamomile.

40. MARUTA. Cass.—May Weed.

(Origin not known.)

Heads many-flowered; the ray flowers ligulate, neutral; those of the disk perfect. Involucre hemispheric, in a few series, shorter than the disk. Receptacle conic or convex, chaffy throughout or only at the top. Achenia ribbed, smooth. Pappus none.

M. Cotula D. C.: smoothish; leaves bi-pinnatifid, the segments subulate-linear; receptacle conic, with narrow acuminate chaff at the summit. Anthemis Cotula Linn.

Road sides, &c. Can. and throughout the U. S. June—Oct. (G).—Stem a foot high, erect, branched. Leaves pale green, more or less pilose; the segments very narrow. Heads on elongated slender peduncles; rays about 12, white; disk convex, yellow. Whole plant strongly fetid. An exotic, now almost everywhere naturalized. Common May-weed.

41. PTARMICA. Tourn.—Sneezewort.

(From the Greek παραμίς, in allusion to its effect upon the nostrils.)

Involucre campanulate; the scales scarious on the margin. Receptacle flat or scarcely convex, broad, chaffy. Rays 5—20, flat, spreading much longer than the involucre. Achenia obcompressed, the outer ones often somewhat winged on the margin.

P. vulgaris D. C.: stem erect, branching above; leaves smooth, sessile, linear-lanceolate, acuminate, coarsely and equally serrate; chaff of the receptacle oblong, pubescent. Achillea Ptarmica Linn.

21. — Stem 1—3 feet high, erect, branched; heads in a rather large terminal corymb; rays 8—12, white, roundish, 3-toothed; disk white. When dried and pulverized the plant has been employed to excite sneezing; whence its common name. Introduced from Europe. *Common Sneezewort.*

42. ACHILLEA. Linn.—Yarrow.

(So named because its healing virtues were said to have been first discovered by Achilles.)

Heads many-flowered; the ray flowers 4—6 pistillate, ligulate, short, or none; those of the disk perfect, tubular, 5-toothed. Involucre ovate-oblong, the scales imbricate. Receptacle small, usually flat, chaffy. Achenia oblong, smooth, somewhat compressed, margined. Pappus none.

*A. Millefolium* Linn.: stem erect, somewhat hairy, sulcate; leaves bipinnate, slightly hairy; the lobes linear, toothed, mucronate.

Fields and woods. Arct. Amer. to Flor. W. to Oregon and Mexico. June—Aug. *L.* — Stem 2—3 feet high, branched at the top. Leaves 2—5 inches long, cut into very numerous narrow segments. Heads numerous, in a dense terminal fastigate corymb; rays about 5, white or rose-colored. It is sometimes employed as a tonic and astringent. Introduced and extensively naturalized. *Common Yarrow or Milfoil.*

43. LEUCANTHEMUM. Tourn.—Ox-eye Daisy.

(From the Greek λευκός, white, and ἄνθος, a flower.)

Heads many-flowered; the ray flowers numerous, pistillate, or rarely neutral; those of the disk perfect, with a fleshy somewhat two-winged tube. Involucre broad, imbricate; the scales with a somewhat scarious margin. Receptacle naked, flat, or convex. Achenia of the ray always without pappus; of the disk sometimes with a short pappus.

*L. vulgare* Lam.: stem erect, somewhat branched; lower leaves petiolate, obovate, toothed; cauline somewhat clasping, serrate, incisely serrate at base; scales of the involucre with a narrow brownish margin. Chrysanthemum Leucanthemum Linn.


44. ARTEMISIA. Linn.—Wormwood.

(Named from Artem’s, the Diana of the Greeks.)

Heads discoid, few- or many-flowered; the outer flowers in one series, often pistillate, 3-toothed, with a long exsert bifid style; those of the disk 5-toothed, perfect, sterile or staminate by abortion of the ovary. Involucre imbricate; the scales dry
and scarios on the margin. Receptacle flattish or convex, naked or villous. Achenia obovate, with a minute epigynous disk. Pappus none.

* Receptacle naked.

1. A. vulgaris Linn.: herbaceous, erect; leaves white-tomentose beneath; cauline pinnatifid; segments incised, coarsely serrate and entire; uppermost nearly linear, entire; heads ovoid, at length erect; outer scales of the involucre white-tomentose.


2. A. Canadensis Mich.: smooth or canescent; lower leaves pinnate, petioled; upper subpinnate, sessile; segments linear or linear-lanceolate; heads hemispheric, in paniculate racemes; scales of the involucre roundish or ovate, scarios on the margin.


3. A. cordata Mich.: stem erect, smooth; radical and lower cauline leaves sub-bipinnate, upper sub-pinnate; segments subsetaceous, alternate, somewhat divaricate; racemes elongated, erect, paniculate; heads subglobose. A. Canadensis Big.


** Receptacle villous.

4. A. Absinthium Linn.: suffr uticose, erect, silky-canesc ent; leaves bipinnatifid; the segments lanceolate, often incised, obtuse; heads hemispheric, in leafy paniculate racemes, nodding.


45. TANACETUM. Linn.—Tansy.

(The name altered from Athanasia; a, not, and thovaros, death; because its flowers do not quickly fade.)

Heads homogamous or heterogamous, with pistillate flowers in a single series in the circumference, often 3—4-toothed. Disk-flowers 4—5-toothed. Receptacle naked, convex. Involucre campanulate, imbricate. Achenia sessile, angular, smooth, with a large epigynous disk. Pappus none or minute, membranaceous and crown-form, entire or toothed.

T. vulgare Linn.: stem herbaceous, erect, smooth; leaves smoothish, bi-
pinnate; rachis and lobes incisely serrate; heads numerous, corymbose; pappus short, equal, 5-toothed.


46. GNAPHALIUM. Linn.—Cud Weed.

(From the Greek γαφαλον, soft down or wool, with which the leaves of many species are clothed.)

Heads many-flowered, heterogamous; flowers all tubular; outer ones in many series, pistillate, very slender; those of the disk perfect. Involucre ovate, with the scales imbricate, appressed and somewhat hyaline. Receptacle flat, naked. Achenia somewhat terete, or more or less obcompressed. Pappus in a single series, of filiform roughish bristles.

* Pistillate flowers in several series. Achenia somewhat terete.

† Leaves decurrent.

1. G. decurrens Lccs.: stem erect, simple, viscid-pubescent, branched at the summit; leaves linear-lanceolate, partly clasping, very acute, decurrent, roughish and green above, white and woolly beneath; heads nearly sessile, in dense roundish clusters at the summits of the branches.


†† Leaves not decurrent.

2. G. polyccephalum Mich.: stem erect, panicle above, tomentose; leaves linear-lanceolate, tapering at base, acute, smoothish above, white-tomentose beneath; heads obovate, crowded in a corymb at the summits of the branches.


3. G. uliginosum Linn.: stem herbaceous, diffusely branched, woolly; leaves linear or linear-lanceolate, tomentose on both sides; heads in dense subglobose terminal clusters, leafy at the base.


4. G. purpureum Linn.: stem erect or ascending, woolly; leaves oblong-spataulate, mostly obtuse, mucronate, tomentose beneath; heads sessile, clustered, axillary and terminal. G. Americanum Willd.

**Pistillate flowers in one series. Achenia obcompressed, obovate.**

5. *G. supinum* Vill.: cespitose; flowering stems simple, slender, woolly above; leaves linear, woolly; heads oblong, solitary, terminal, or few and spicate-racemose; scales of the involucre oblong, acuminate, brown; achenia puberulent. *Omalotheca supina* D. C.

White mountains, N. H. Nutt. N. to Labrador. 2—Stem 2—4 inches high.

47. *FILAGO. Toynn.—Cotton Rose.*

(From the Latin *filum*, a thread; in allusion to the cobweb-like threads which cover the plant.)

Heads many-flowered, heterogamous; the terminal or central flowers numerous, pistillate, perfect or infertile, tubular, 4—5-toothed; the others filiform, pistillate, scarcely-toothed. Scales of the involucre few, the outer ones woolly. Receptacle elongated, filiform, chaffy. Pappus of the central flowers filiform; of the outer none or dissimilar.

*F. Germanica* Linn.: stem dichotomous or proliferously branched at the summit; leaves linear-lanceolate, acute, tomentose; heads few-flowered, in subglobose clusters, terminal and dichotomous; scales of the involucre awned. *Gnaphalium Germanicum* Willd.

Fields and pastures. N. Y. to Virg. July, Aug. 1—Stem 4—8 inches high, more or less branched, woolly-tomentose. Heads small, in roundish capitulate clusters. *Scales of the involucre yellowish, very acute. Introduced.*

48. *ANTENNARIA. Gart.—Antennaria.*

(Named in allusion to the bristles of the pappus, which resemble the *antennae* of some insects.)

Heads many-flowered, dioecious; the corolla tubular; in the pistillate flowers filiform, 5-toothed. Scales of the involucre imbricate, colored, scarious. Receptacle convex, alveolate. Achenia nearly terete. Pappus in a single series; in the pistillate flowers filiform; in the staminate clavate.


Woods. Hudson's Bay to Flor. W. to the Rocky Mountains. April—June. 2—Stem 3—8 inches high, downy. *Radical leaves often large and broad. Heads few, (sometimes a single large one,) oblong, pedicellate, with a white involucre.*


49. ERECHTITES. Raf.—Fire Weed.

(An ancient name of a species of Senecio, from which this genus was separated.)

Heads many-flowered, heterogamous; marginal flowers pistillate, somewhat 3—5-toothed; the central ones perfect, 4—5-toothed. Involucre cylindric, in one series; the scales linear, acute. Receptacle naked, somewhat papillose. Achenia oblong, striate. Pappus in many series, of very fine somewhat roughish hairs.

E. hieracifolia Raf.: stem striate, simple or paniculate above; leaves oblong-lanceolate, sessile, attenuate at base, coarsely and unequally serrate; upper auriculate at base and partly clasping; involucre cylindric, with linear-subulate bracteoles at the base. Senecio hieracifolius Linn.

Road sides and burnt grounds. Can. and throughout the U. S. July, Aug. 1. Stem 2—5 feet high, stout, succulent, more or less hairy. Heads numerous, middle-sized, in a compound terminal panicle; rays none; disk flowers numerous, white or yellowish.

50. ARNICA. Linn.—Arnica.

(Said to be a corruption of Pteramica.)

Heads many-flowered, radiate; ray flowers pistillate; those of the disk tubular, perfect. Involucre campanulate; the scales in two series, linear-lanceolate, equal. Receptacle flat, somewhat hairy. Achenia tapering at each end, somewhat hairy. Pappus in one series of rough rigid bristles.

1. A. nudicaulis Nutt.: hirsute; leaves sessile; the radical clustered, elliptic-ovate, nerved, entire or slightly toothed; cauline 1—2 pairs, lance-ovate; heads terminal, on loosely corymbose peduncles. A. Claytoni Pursh. Doronicum nudicaule Mich.


2. A. mollis Hook.: villous-pubescent; stem leafy, bearing 1—5 heads; leaves lanceolate or oblong, smoothish when old, repand-denticulate; upper ones closely sessile; the lower narrowed at base or tapering into a petiole; scales of the involucre acuminate, hairy.

51. CACALIA. Linn.—Indian Plantain.

(An ancient Greek name, the etymology of which is obscure.)

Heads many-flowered, the flowers all tubular and perfect. Involucre in one series, 5—30-leaved. Receptacle flat, not chaffy. Achenia oblong, smooth, not beaked. Pappus in one series of minute capillary bristles.

1. *C. suaveolens* Linn.: stem erect, smooth, striate and angled; leaves petiolate, hastate-sagittate, serrate, smooth and green on both sides; heads many-flowered; scales of the involucre about 13. *Senecio suaveolens* Ell.


2. *C. atriplicifolia* Linn.: stem erect, smooth; leaves petioled, smooth, glaucous beneath; lower deltoid-cordate, sinuate-angled and toothed; upper rhomboidal, acute, wedgeform at base, coarsely toothed; involucre oblong, 5-leaved, 5-flowered. *Senecio atriplicifolius* Hook.


3. *C. reniformis* Muhl.: stem sulphate-angled; leaves petioled, smooth, hairy on the veins beneath; radical broad-cordate, reniform, repand-toothed; cauleine oblong, toothed, wedgeform and very entire at base; corymb fastigiate; involucre 5-leaved.


52. SENECIO. Linn.—Groundsel.

(From the Latin *senex*, an old man; the pappus resembling a white beard.)

Heads many-flowered, radiate or discoid; rays pistillate. Involucre in one series or calyculate, with smaller accessory scales at base. Receptacle naked or alvealate. Achenia not beaked. Pappus of numerous slender nearly equal bristles.

* Rays none.

1. *S. vulgaris* Linn.: stem erect, often branching; leaves deeply pinnatifid, clasping, toothed; the lower tapering into petioles; heads in a corymb, nodding; rays none; pappus equalling the corolla.


** Heads radiate.

2. *S. aureus* Linn.: smooth or somewhat lanuginous; radical leaves cordate-ovate, obtuse, serrate, on long petioles; cauleine pinnatifid, toothed, sessile, the terminal segments lanceolate; heads few, in a somewhat umbel corymb.
Wet shady woods. Arct. Amer. to Louis. W. to Oregon. June, July. 24.—
Stem 1—2 feet high, branched above, often woolly. Heads middle sized, numerous, on long slender peduncles which are thickened near the involucre; rays 8—12, and with the disk yellow. **Golden Groundsel.** Squaw-weed.

3. **S. Balsamitae** Muhl.: stem erect, villous at base; radical leaves oblong-lanceolate, dentate-serrate, on long petioles; cauline lyrate-pinnatifid, sessile, the segments toothed; heads in a compound umbellate corymb.

Moist grounds. Arct. Amer. to Louis. W. to Oregon. June, July. 24.—
Stem 1—2 feet high, densely woolly at the base. Heads rather small, yellow; rays 8—12, narrow; disk flowers about 20. **Balsamita-like Groundsel.**

4. **S. obovatus** Muhl.: stem erect, smoothish; radical leaves varying from roundish-obovate to oblong-spatulate, crenate-serrate, petiolate; cauline pinnatifid, toothed, sessile; heads in a nearly simple somewhat umbellated corymb, on long peduncles which are scarcely thickened at the summit.

Rocky woods. Arct. Amer. to Louis. W. to Oregon. June, July. 24.—Stem a foot high, branched at the summit. Heads rather small, yellow; rays about 10. Torrey & Gray consider this and the preceding species, as mere varieties of **S. aureus**; to which also they refer **S. lanceolatus** Oakes and **S. gracilis** Pursh. **Obovate-leaved Groundsel.**

5. **S. tomentosus** Mich.: white-tomentose and woolly; radical leaves oval-oblong or oval-lanceolate, serrulate-crenate, toothed at base, on long petioles; cauline oblong, somewhat divided; corymb small, somewhat umbellated. **S. integrifolius** Nutt. **Cineraria integrifolia** and **heterophylla** Pursh.

Dry rocks on the Blue Mountains, Penn. Pursh. S. to Flor. May, June. 24.—Stem 1—2 feet high. Heads yellow, larger than in **S. aureus**; rays 12—15, elongated. **Downy Groundsel.**

6. **S. elongatus** Pursh.: smooth; radical leaves spatulate, serrate, attenuated into a petiole; cauline pinnatifid, toothed, very remote; heads on elongated peduncles, arranged in a somewhat umbellate corymb.

Rocks on banks of streams near Easton, Penn. July, Aug. 24.—Resembles **S. Balsamita**, but is destitute of ray flowers. **Pursh.** **Elongated Groundsel.**

V. **CYNAREZ.** Style in the perfect flowers thickened near the summit, and often fringed at the tumor; its branches distinct or united, pubescent externally.

53. **CENTAUREA.** Linn.—Knap Weed. Blue Bottle.

(From the Centaur Chiron, who is said by this plant to have cured himself of a wound received from Hercules.)


1. **C. Jacea** Linn.: stem erect, branched; leaves linear-lanceolate; lower broader and toothed, petiolated; scales of the involucre scarious and torn, the outer pinnatifid; heads radiate; pappus very short or none.

2. *C. nigra* Linn.: stem erect, branched; leaves scabrous; lower angular-lyrate, petioled; upper lanceolate; scales of the involucre ovate, fringed with capillary teeth; rays none; pappus very short, tufted.


3. *C. Cyanus* Linn.: cottony-tomentose; stem erect, branched; upper leaves linear, entire; lowermost toothed or pinnatifid at base; scales of the involucre serrate; pappus short.

Cultivated grounds. N. S. July, Aug. 1. — Stem 2—3 feet high. *Heads* in terminal peduncles; rays few, spreading, bright blue; *disk flowers* smaller, purple. Introduced from Europe and naturalized in a few places.

54. **CNICUS. Vaill.** — Blessed Thistle.

(From the Greek νειζω, to prick or wound.)

Heads many-flowered; the rays sterile, slender, nearly equal to the disk. *Involucre* ovoid; scales coriaceous, produced into a long hard pinnated spinose appendage. Receptacle bristly. Achenia smooth, striate. Pappus triple; outer series very short; intermediate of 10 long rigid bristles; inner of 10 short bristles.

*C. benedictus* Linn. D. C. *Centaurea benedicta.* Linn. Ed. 2.


55. **ONOPORDON. Linn.** — Cotton Thistle.

(From two Greek words expressive of the effect, ascribed by Pliny, to the ass who eats the plant. *Hook. Br. Fl.*)


*O. Acanthium* Linn.: leaves ovate-oblong, sinuate and spinous, decurrent, woolly on both sides; scales of the *involucre* linear-subulate, the outer spreading and woolly at the base.


Common Cotton Thistle.
56. CIRSIUM. Tourn.—Thistle.

(From the Greek κυπος, a swelled vein; on account of its being supposed to heal that disease.)

Heads many-flowered; the flowers perfect or dioecious. Scales of the involucre more or less spinous at the summit. Receptacle bristly. Corolla with the tube short and the border 5-cleft. Achenia oblong, compressed, smooth, not ribbed. Pappus of numerous plumose bristles, deciduous.

* Leaves decurrent.

1. C. lanceolatum Scop.: stem branched, hairy; leaves decurrent pinnatifid, hispid above, woolly beneath; segments divaricate and spinous; scales of the involucre linear-lanceolate, spinous, outer ones spreading. Carduus lanceolatus Linn. Cnicus lanceolatus Willd.


** Leaves sessile.

2. C. altissimum Spreng.: stem tall, branched, pubescent; leaves ciliate-spinous, scabrous above, tomentose beneath; radical petaled, pinnatifid; cauline sessile, oblong-lanceolate, sinuate-toothed; scales of the involucre ovate-lanceolate, spinous, appressed. Carduus altissimus Linn. Cnicus altissimus Willd.


3. C. discolor Spreng.: stem hairy, divaricately branched; leaves lanceolate, sessile or clasping, more or less deeply pinnatifid, smoothish above, tomentose beneath; segments 2-lobed, ciliate and spinous; involucre subglobose; the scales ovate, spinous. Carduus discolor Nutt. Cnicus discolor Muhl.


4. C. arvense Scop.: stem paniculate; the branches somewhat woolly; leaves oblong-lanceolate, sessile, sinuate-pinnatifid, spinous, undulate, smoothish; involucre ovoid; scales ovate-lanceolate, the outer armed with a short spine. Carduus arvensis Smith. Cnicus arvensis Willd.


5. C. muticum Mich.: stem smoothish, sparingly branched; leaves sessile, deeply pinnatifid, woolly beneath; segments lanceolate, acute, spinnose; involucre subglobose; scales viscid, woolly, unarmed, or the outer ones with a very short spine. C. Bigelowii D. C. Carduus muticus Nutt. C. glutinosus Beck Bot. 1st. Ed.

6. **C. pumilus Spreng.**—stem low, hairy, 1–3-flowered; leaves lance-oblong, pinnatifid, somewhat clasping, green on both sides; segments irregularly lobed, ciliate and spinous; involucre sub-globose; scales appressed, ovate-lanceolate, acuminate, spinous. *Carduus pumilus Nutt.*

Dry fields. N. Y. Mass. and Penn. July, Aug. 2.—Stem 1–2 feet high, (sometimes much taller,) erect or subdecumbent. **Heads** very large. **Flowers** pale purple. *Pappus* more than an inch long. Var. *Hystric* of Nuttall, has the stem simple, 1-flowered, and the leaves densely margined with spines. It occurs on the banks of the Hudson, near the city of New York. **Low Thistle.**

7. **C. Nuttallii D. C.:** stem much branched; leaves sessile, smooth or smoothish on both sides, pinnatifid; lobes lanceolate, acuminate and with the teeth spinous; involucre ovoid; scales lanceolate, appressed, with a short somewhat reflexed spine at the apex, somewhat pubescent and viscid upon the back. *Carduus glaber Nutt.* *Cnicus glaber Ell.*

**Low grounds.** N. J. Nutt. S. to Geor. 2.4.—Stem 4–5 feet high, slenderly branched. **Heads** somewhat paniculate. **Flowers** pale purple. Allied to *C. muticum* and perhaps only a variety. **Nuttall's Thistle.**

8. **C. horridulum Mich.:** stem simple or sparingly branched, arachnoid when young; leaves lanceolate, partly clasping, pinnatifid, acutely divided, very spinous, woolly beneath; heads with a whorl of spinous bracts at base; involucre subglobose; scales linear, acute, scarcely spinous. *Carduus spinosissimus Wall.* *Cnicus horridulus Pursh.*

**Sandy fields.** N. Y. to Flor. and Louis. July—Sept. 2.4.—Stem 2–3 feet high, stout, hollow, lanuginous. **Heads** large, axillary and terminal, with 20–30 bracts at base, the outer of which have spines somewhat in pairs. **Flowers** dull yellow, rarely pale purple. **Yellow Thistle.**

9. **C. Virginianum Mich.:** stem slender, mostly simple, arachnoid; leaves sessile, lance-linear, revolute on the margin, distantly and spinosely serrate, smooth above, white-tomentose beneath; involucre ovate; scales appressed, shortly mucronate, glutinous. *Carduus Virginianus Willd.* *Cnicus Virginianus Pursh.*

**Woods.** Penn. & to Geor. W. to Ken. July—Sept. 2.4.—Stem 2–4 feet high, covered with a white down, especially towards the summit. **Heads** small, mostly solitary. **Flowers** purple. **Virginian Thistle.**

57. **LAPPA.** *Tourn.—Burdock.*

(Said to be derived from the Celtic *lap*, a hand; because it lays hold of everything near it. *Torr.*)

Heads many-flowered; the flowers similar and perfect. **Corolla** 5-cleft; tube 10-nerved. **Involucre** globose; scales imbricate, coriaceous, with a long subulate inflexed point. **Receptacle** flat, covered with bristly chaff. **Achenia** oblong, compressed, smooth, transversely rugose. **Pappus** of numerous short distinct filiform rough bristles, caduceous.
L. major Gært.: scales of the involucre subulate, smooth or with a cobweb-like down; lower leaves cordate, petiolate; cauline ovate. Arctium Lappa Linn.

Waste grounds, road sides, &c. N. S. July—Oc.t. 2. —Stem stout, 3—4 feet high. Radical leaves very large, (often 1—2 feet long and a foot wide,) wavy on the margin. Heads globose, numerous, often clustered. Flowers purple. Involucres with hooked scales, by which they are fastened to clothes and the coats of animals. Introduced from Europe.

Suborder II. LIGULIFLORÆ.

Flowers all ligulate and perfect.

VI. CICHORACEÆ. Style cylindrical above; its branches rather long and obtuse, equally pubescent.

58. CICHORIUM. Tourn.—Succory.

(Said to be derived from the Arabic Chikouryeh.)

Heads many-flowered. Involucre double; the outer of about 5 short scales; inner long, 8—10-leaved. Receptacle flattish, naked or slightly hairy. Achenia somewhat compressed, smooth, striate. Pappus of numerous very short and somewhat obtuse scales, in one or two series.

C. Intybus Linn.: lower leaves runcinate, scarious-hispid on the midrib; upper lanceolate, nearly entire; heads axillary, sessile, mostly 2—3 together.

Old fields and road sides. N. S. July—Sept. —Stem 2—3 feet high, with numerous rough branches. Heads axillary, mostly in pairs, sessile. Flowers bright blue or purplish. The roots are largely used for the purpose of adulterating coffee. Introduced from Europe.

Succory or Chicory.

59. KRI gia. Schreb.—Dwarf Dandelion.

(In honor of David Kreig, a German botanist.)

Heads many-flowered, (15—30). Involucre in a single series, with 8—12 scales. Receptacle naked. Achenia turbinate, somewhat pentagonal, not beaked. Pappus in a double series; the outer of 5 broad, short, chaffy scales; inner of 5 long scabrous bristles, alternating with the scales.

K. Virginica Willd.: somewhat glaucous; primary leaves roundish, entire; the succeeding ones lyrate, nearly smooth; heads solitary, on scapes which are finally longer than the leaves. Cynthia Virginica Beck Bot. 1st Ed. Hyoseris Virginica Linn.

Fields and dry soils. Can. to Flor. W. to Texas. May—Aug. 1. —Scapes 2—10 inches high, often several from one root. Head solitary, terminal, small. Flowers deep yellow. This plant continues in flower for some time; during which it varies greatly in the length of the scape. K. dichotoma of Nuttall, although marked as distinct by De Candolle, can be nothing more than a variety of this species.

Dwarf Dandelion.
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60. CYNTHIA. Don. —Cynthia.

(Supposed to be named from Mount Cynthus; which was sacred to Apollo and Diana. Darlington. Fl. Ces.)

Heads many-flowered. Scales of the involucre numerous, in one or two series. Receptacle naked, dotted. Achenia quadrangular, smoothish, not beaked. Pappus double; the outer of numerous very short chaffy scales; inner hair-like, deciduous.

1. C. Virginica Don.: smooth and glaucous; stem scape-like, often bifid or trifid, few-leaved; radical leaves petioled, lyrate, sinuate-dentate or pinnatifid; caule leaves lanceolate, clasping, nearly entire, smooth. C. amplexicaule Beck Bot. 1st Ed. Krigia amplexicaulis Nutt.

Wet woods. N. Y. to Geor. W. to Miss. May—July. 2. Stems a foot or more high, often 2 or 3 from one root, divided into long slender branches, with a clasping leaf at the forks. Heads solitary, at the extremities of the branches, large, orange-yellow. Virginian Cynthia.

2. C. Dandelion Linn.: scapes usually several from the same root; primary leaves spatulate-oblong; the others linear-lanceolate, elongated, mostly acute, either entire, repand-denticulate, remotely sinuate-toothed or laciniate-subpinnatifid; the triangular-lanceolate divaricate lobes 2—3 on each side (Torr. & Gr.) C. Dandelion and Boscii D. C. Krigia Dandelion Nutt. Gen.


61. OPORINIA. Don.—Hawkbit.

(From the Greek οὐρωπός, autumnal; in allusion to the time of flowering.)

Heads many-flowered. Involucre obconic, in one series; scales lanceolate, acuminate, with numerous accessory ones at the base. Receptacle naked. Achenia oblong, somewhat terete, attenuated at both ends, transversely rugulose. Pappus in one series, persistent, plumose, scarious and dilated at base.

O. autumnale Don.: scape branched, scaly upwards; leaves lanceolate, toothed or pinnatifid, smoothish; peduncles swollen beneath the somewhat downy involucre. Apargia autumnalis Willd.

Fields and road sides. N. S. July—Sept. 4. Scape spreading, branched into a few peduncles which are furnished with remote scales. Heads middle-sized, bright yellow, resembling the Dandelion. Introduced from Europe. Autumnal Hawkbit.

62. LACTUCA. Tourn.—Lettuce.

(From the Latin lac, milk; the plant giving out a milky juice.)

Heads few- or many-flowered. Involucre cylindric; scales calyculate-imbricate, in 2—4 series; the outer short. Receptacle naked. Achenia flat, obcompressed, wingless, abruptly
produced into a filiform beak. Pappus of copious soft and white capillary bristles.

L. elongata Muhl. : stem erect, smoothish, paniculate at the summit; leaves subclasping, pale beneath; the lower runcinate-pinnatifid; upper mostly lanceolate and entire, sometimes elongated; heads in an elongated leafless panicle. G. longifolia Mich.

var. integrifolia Torr. & Gr.: leaves nearly all undivided, lanceolate. 

L. integrifolia Big.

var. sanguinea Torr. & Gr.: leaves nearly all runcinate; flowers purplish or red. L. sanguinea Big. and L. hirsuta Nutt.

Woods and road sides; often growing up from ground newly burnt over. Can. to Geor. W. to Miss. July—Sept. 2.—Stem 2—8 feet high; in var. sanguinea smaller. Heads rather smaller than in garden lettuce. Flowers yellow, purple or red. I follow Torrey and Gray in uniting with this species the three which have heretofore been described as distinct. Wild Lettuce. Fire-weed.

63. TARAXACUM. Haller.—Dandelion.

(From the Greek ῥαπασάω; on account of its medicinal qualities.)

Heads many-flowered. Involucre double; the outer scales small, spreading or reflexed; the inner in a single series, erect. Receptacle naked. Achenia oblong, striate, muricate on the ribs, produced into a long beak. Pappus in many series, white, pilose.

T. Dens-leonis Desf. : smooth; leaves equally and acutely runcinate, the segments toothed; outer scales of the involucre reflexed; achenia muricate at the apex. Leontodon Taraxacum Linn.

Pastures, &c. Throughout Can. and the U. S. April—Nov. 2.—Root thick. Scapes often several from the root, each with one large terminal head. Flowers yellow. In its young state it is used as a potherb. Introduced, but almost everywhere naturalized. Common Dandelion.

64. SONCHUS. Linn.—Sow Thistle.

(An ancient Greek name, the meaning of which is obscure.)

Heads many-flowered, dilated at base. Involucre imbricate. Receptacle naked. Achenia compressed, not winged or beaked, longitudinally ribbed, transversely rugose. Pappus of numerous soft and very white hairs.

1. S. oleraceus Linn.: smooth or with the branches glandular-pilose; cauline leaves runcinate-pinnatifid or the upper undivided, clasping, slightly spinulose-toothed; the auricles acute; peduncles somewhat tomentose when young. S. ciliatus Lam.


2. S. asper Will. : smooth or somewhat glandular hairy at the summit; lower leaves spatulate or oval; cauline undivided, undulate or slightly
uncinate, spinulose-toothed, cordinate-clasping; heads umbellate-corymbose.  

*S. spinulosus*, var. asper *Linn.*  *S. spinulosus* Big.

Fields and waste places. Throughout the U. S. Aug., Sept. 1.—Stem about 2 feet high, smooth or slightly hairy. Heads small, somewhat umbellated.  

Flowers yellow. Introduced from Europe.  

3. *S. arvensis* *Linn.*: root creeping; stem erect, smooth; leaves runcinate-pinnatifid, spinulose-toothed, cordate-clasping; the auricles obtuse; panicle umbellate-corymbose; pedicels and involucres glandular-hispid.

Near cultivated grounds. Ver. to Penn. Newfoundland  


2.—Stem 2—3 feet high. Heads as large as in the *Dandelion*. Flowers yellow.  

Introduced from Europe.  

Large Sow-thistle.

65. HIERACIUM. *Linn.*—Hawk Weed.

(From the Greek *iēpa*, a hawk; because birds of prey were supposed to employ this plant to strengthen their powers of vision. *Hook. Br. Fl.*)

Heads many-flowered. Involucre ovate or cylindric; scales linear-obtuse, imbricate, rarely only in two series. Receptacle alveolate or pitted and fimbrillate. Achenia 5-sided, somewhat striate, mostly clavate, not beaked. Pappus in a single series of very dense dull-white rigid scabrous hairs.

* Stem leafy.

1. *H. Canadense* Mich.: stem erect, simple or sparingly branched above; leaves sessile, oblong-lanceolate, acute, smooth or somewhat pubescent, acutely and divisarily toothed; heads corymbose; involucre smoothish; outer scales mostly spreading in fruit.  

*H. virgatum*, *fasciculatum* and *macrophylldum* *Pursh.*  

*H. Kalmii* Spreng. *not of Linn.* (according to *Torr.* 

4* Gr.*)


4.—Stem stout, smooth, pubescent or hairy. Heads axillary and terminal, on downy or hispid peduncles. Flowers pale-yellow.  

Canadian Hawk-weed.

2. *H. scabrum* Mich.: stem erect, stout, hispid below, rough above; leaves obovate or oval, entire or somewhat denticulate, hairy, the lower narrowed at the base, the upper closely sessile; pedicules and involucre hispid and downy.  

*H. marianum* *Willd.*  

*H. Gronovii*, *b. Hook.*


4.—Stem about 2 feet high, often very rough below. Heads numerous, in a fastigiate corymb. Flowers yellow.  

Rough Hawk-weed.

3. *H. Gronovii* *Linn.*: stem erect, leafless and paniculate above; leaves entire or denticulate, pale, sparingly villous-hirsute; the lower oblong-ovate or spatulate; upper oval or oblong, sessile or clasping; pedicules and involucre glandular-hispid.


4.—Stem about 2 feet high, nearly naked. Heads in a long naked panicle. Flowers yellow. Diffrers from the preceding in its more slender, nearly naked stem and much longer peduncles.  

*Gronovius's Hawk-weed.*

4. *H. paniculatum* *Willd.*: stem erect, loosely paniculate, smooth above,
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whitish tomentose below; leaves lanceolate, oblong, few-toothed, sessile, membranaceous, smooth; peduncles slender, divericate; bracts setaceous.


5. H. Scouleri Hook.: clothed with long brownish rigid and spreading hairs; stem paniculate, branched; leaves broad-lanceolate, somewhat coriaceous, rigid, acute, slightly toothed; radical attenuated into a short petiole; cauleine very remote, sessile; involucre rusty-pubescent, with long scattered hairs.


** Stem naked or nearly so.

6. H. venosum Linn.: stem scape-like, naked or with a single leaf, smooth and branching above; leaves obovate-oblong and lanceolate, entire or obscurely denticulate, hairy on the margin and midrib beneath; veins purple; involucre mostly smooth.

Dry and sandy woods. Can. to Geor. W. to Ken. June—Aug. **.—Stem 1—2 feet high, naked or with 1—2 leaves, branched at the summit. Radical leaves spreading on the ground, colored with dark veins. Heads small, on slender peduncles, forming a loose panicle. Flowers yellow. This is one of the plants in common repute as an antidote or remedy for the poison of the rattlesnake; but we are still in want of proof in regard to its medicinal power. Veiny Hawk-weed.

66. NABALUS. Cass.—Nabalus.

(Origin unknown.)


1. N. Serpentarius Hook.: leaves toothed, rough; radical palmate; cauleine on long petioles, sinuate-pinnatifid, somewhat 3-lobed, the middle segment 3-parted; upper leaves lanceolate; racemes terminal, paniculate, short, nodding; involucre 8-leaved, 12-flowered. N. albus, var. Serpentaria Torr. & Gr. Harpalyle Serpentaria Don. Prenanthes Serpentaria Pursh.

Woods on hill sides. Hudson's Bay to Car. Aug.—Sept. **.—Stem 2—5 feet high, simple or much branched. Heads in loose terminal panicles. Involucre purplish. Flowers white or yellowish. A very variable species, which may perhaps be more properly united with the next, as has been done by Torrey and Gray, and Dr. Darlington. It has gained some notoriety as a cure for the bite of the rattlesnake, but I apprehend that the statements on this point are entitled to very little credence. Rattlesnake Root. Lion's Foot.

2. N. albus Hook.: smooth and somewhat glaucous; stem paniculate at the summit; leaves angular-hastate, irregularly toothed, sinuate-incised or pinnately 3—5-parted; the lower petioled, upper sessile; racemes short, paniculate; involucre about 8-leaved, 8—10-flowered. Harpalyle alba Don. Prenanthes alba Linn.

3. *N. altissimus* Hook.: stem erect, smooth, branched; leaves all peltioed, undivided, or the lower 3—5-cleft or parted; the lobes or leaves acuminated, reptyly toothed or denticulate; heads in small axillary or terminal clusters; involucre 5-leaved, 5—6-flowered. *N. cordatus* and *N. deltoideus* D.C. *Harpalyce altissima* and *cordata* Don. *Prenanthes altissima* and *cordata* Pursh.


5. *N. Fraseri* D.C.: stem erect, slightly pubescent, branched; leaves mostly deltoid, 3—7-lobed, contracted into winged or margined petioles; upper nearly sessile and undivided; involucre smoothish, of about 8 scales, 8—12-flowered. *N. Fraseri*, *trilobatus*, *integrifolius* and *Serpenarius*, β.D.C. *Prenanthes rubicunda* Pursh, (according to Torr. & Gr.)


Fraser’s Nabalus.

6. *N. nanus* D.C.: smooth; stem simple; leaves on slender petioles, varying from undivided and angular or toothed to hastately or palmately 3-lobed or parted; heads clustered, forming a racemose panicle; involucre 10—15-flowered; inner scales about 8; the calyculate scales very short, triangular-ovate. (Torr. & Gr.) *Harpalyce alba*, var. *nana* Beck Bot. 1st Ed. *Prenanthes alba*, var. *nana* Big.


7. *N. Bootii* D.C.: stem simple, pubescent at the summit; leaves peltioed, smooth; lower subcordate or hastate-cordate, obtuse; the middle cordate-lanceolate; upper linear-lanceolate, acuminate and entire; heads in a nearly simple raceme; involucre 10—18-flowered; the inner scales 10—15, obtuse; the calyculate scales linear, lax, nearly half the length of the proper involucr. (Torr. & Gr.) *Prenanthes alba*, var. *nana* Big. (in part)


Booti’s Nabalus.
67. MULGEDIUM. Cass.—Mulgedium.

(From the Latin mulgeo, to milk; on account of its yielding a white juice when cut.)

Heads many-flowered. Involucre calyculate-imbricate, the outer scales much shorter than the inner. Receptacle naked, honey-combed. Achenia smooth, compressed, attenuated into a beak at the summit, appearing as if a part of the achenium, and expanded into a short thick cup-form disk. Pappus in one or a few series of stiff rough white or tawny hairs.


2. *M. Floridanum* D. C.: smooth; stem erect, purplish or somewhat glaucous, paniculate above; cauline leaves runcinate-pinnatifid, petaioed; the lobes few, sinuate-toothed; uppermost triangular, acute; heads in a loose erect panicle. *Sonchus Floridanus* Linn. *Agathyrsus Floridanus* Don. Woods and road sides. N. Y. to Geor. July, Aug. 2.—Stem 3—6 feet high, often purplish. Heads rather small, in an oblong terminal panicle. Flowers blue, Pappus dirty white. Pursh states that this plant is used as a cure for the bite of the rattlesnake in the same manner as *Nabalus Serpenterius*, and is known by the name of Gall of the Earth.


Order LXX. CAMPANULACEÆ.—Bellworts.

Calyx usually 5-lobed, (3—8,) persistent. Corolla usually 5-lobed, (3—8,) withering, valvate. Stamens alternate with the
lobes of the corolla; anthers distinct. Style covered with collecting hairs. Capsule 2—3, several-celled, opening by apertures or valves. Seeds numerous; embryo in the axis of fleshy albumen.—Herbaceous plants, with a milky juice. Leaves alternate, without stipules. Flowers usually showy.

1. CAMPANULA. Linn.—Bell Flower.

(From the Latin campanula, a little bell; in reference to the shape of the flower.)

Calyx 5-cleft. Corolla 5-lobed or 5-cleft, usually campanulate. Stamens 5, free. Filaments broad and membranaceous at base. Stigmas 3 or 5, filiform. Capsule 3—5-celled, opening by 3—5 lateral valves.

1. C. rotundifolia Linn.: radical leaves petioled, reniform-cordate, crenate or cut; cauline linear, entire; segments of the calyx subulate, about one-third as long as the campanulate corolla.

Rocky banks. Arct. Amer. to Penn. W. to the Rocky Mountains. July. | Stem 8—12 inches high, erect or assurgent, sometimes branched from the base, or several from one root. Radical leaves cordate, (withering early.) Flowers few, large, blue, in a loose terminal panicle or raceme.

Flax Bell-flower. Harebell.

2. C. Americana Linn.: leaves ovate-lanceolate, much acuminate, uncinately-serrate; lowest often somewhat cordate, contracted into a petiole at base; flowers in a terminal-leafy spike; segments of the calyx linear-acuminate, shorter than the somewhat rotate corolla. C. acuminata Mich.


American Bell-flower.

3. C. aparinioides Pursh.: stem slender, much branched, acutely-angled; angles with the margin and nerves of the leaves aculate backwards; leaves linear-lanceolate, sessile, somewhat crenate-serrate, smooth above; pedicels slender, flexuous; lobes of the calyx triangular, one-third as long as the campanulate corolla. C. Erinoides Muhl.


2. SPECULARIA. D. C.—Specularia.

(From the ancient name of one of the species, Speculum Veneris.)

Calyx 5-lobed, by abortion 3—4-lobed; the tube elongated, prismatic or obconic. Corolla rotate, 5-lobed. Stamens 5, free. Filaments membranaceous, hairy, shorter than the anthers. Stigmas 3. Capsule elongated, prismatic, 3-celled, opening laterally by 3 valves near the summit.

S. perfoliata D.C.: stem simple, angular; angles hispid; leaves roundish-
cordate, crenate-dentate, clasping; flowers solitary or glomerate in the axils of the leaves. *Campanula perfoliata* Linn. *C. amplexicaulis* Mich.


**Order LXXI. LOBELIACEÆ.—LOBELIADS.**

Calyx 5-lobed or entire. Corolla irregular, 5-lobed or 5-cleft. Stamens 5; anthers cohering. Stigma fringed. Fruit capsular, 1 or more celled, many-seeded, dehiscent at the apex; embryo in the axis of the albumen.—Herbaceous plants or shrubs, often with milky juice. Leaves alternate, without stipules. Flowers axillary or terminal.

**LOBELIA. Linn.**—Lobelia.

(In honor of *Matthius de Lobel*; a Flemish botanist.)

Calyx 5-lobed. Corolla irregular, cleft on the upper side, 2-lipped; lower lip 3-cleft. The two lower anthers, rarely all, bearded at the summit. Capsule inferior or semisuperior, 2 or 3-celled, opening at the summit.

1. *L. Dortmanni* Linn.: stem erect, simple, nearly naked; radical leaves in a cluster, terete, fleshy, 2-celled; cauline few and minute; flowers few, in a terminal raceme, remote, pedicellate, nodding.


2. *L. paludosa* Nutt.: stem erect, angular, smooth, nearly simple and naked; leaves smooth, flat, fleshy, remotely crenulate; radical crowded, linear-oblong, obtuse; cauline remote, erect, linear; flowers few, in a spiked raceme, remote; corolla six times as long as the lobes of the calyx, with the lower lip hairy.

Sphagnous swamps. Del. to Geor. 3.—Stems or scapes several from the same root, 2 feet in length, fistulous, sometimes a little branched. Radical leaves in a large cluster, 4—12 inches long. Flowers small, pale-blue, subtended by minute bracts often nearly 2 inches apart. Resembles the preceding, but probably distinct. Marsh Lobelia.

3. *L. Kalmii* Linn.: smooth; stem mostly branched; leaves remotely toothed; radical oblong-spatulate; cauline linear; racemes terminal, loose, few-flowered, leafy; pedicels longer than the fruit, with 2 minute bracteoles near the flower.

Wet places. Can. to N. Y. July, Aug. 4.—Stem 8—18 inches high, slender, erect or assurgent. Flowers blue, on slender pedicels which are from 6—12 lines long. Kalm's Lobelia.

4. *L. Nuttallii* R. & S.: stem erect, minutely scabrous, simple or with
ERICACEÆ.

filiform branches; leaves remotely denticulate; radical oblong-spatulate; cauleine oblong-linear; racemes viscid; pedicels shorter than the flower, with minute bracteoles near the base; capsule obtuse below. L. gracilis Nutt. L. Kalmii, var. Bart. Ell.

Sandy swamps and near salt marshes. N. Y. to Car. Aug., Sept. 2.—Stem 1–2 feet high, filiform, erect or flexuous. Flowers in a slender raceme, pale-blue, smaller than in the preceding; the bracteoles near the base of the pedicels and often colored. Nuttall's Lobelia.

5. L. spicata Lam.: stem erect, simple, pubescent; leaves pubescent, obtuse, nearly entire; radical spatulate; cauleine oblong; raceme viscid, naked; segments of the calyx subulate, nearly as long as the tube of the corolla. L. Claytoniana Mich. L. pallida Muhl.


6. L. puberula Mich.: pubescent; stem erect, simple; leaves oblong-ovate, obtuse, repand-serrulate; flowers nearly sessile, in a 1-sided spike; calyx hisrute at base, the lanceolate ciliate segments as long as the tube of the corolla.

Moist low grounds. Penn. to Geor. Sept. 4.—Stem 2 feet high. Lower leaves obovate; upper lanceolate. Flowers rather large, in a second spike or raceme, nearly sessile, bright blue. Allied to the next, but smaller in all its parts. Pubescent Lobelia.

7. L. syphilitica Linn.: stem erect, somewhat hairy; leaves closely sessile, ovate-lanceolate, unequally serrate, with scattered hairs on the upper surface; raceme leafy, with the flowers on short pedicels; calyx hispidly-ciliate, with the auricles reflexed and 2-cleft.

Bogs and low wet grounds. Can. to Car. Aug., Sept. 4.—Stem 2–3 feet high, simple, hairy on the margin. Flowers on short pedicels, in a long leafy raceme, large, blue. This plant was formerly supposed to be medicinal. Blue Cardinal Flower.

8. L. inflata Linn.: stem erect, hairy, branched; leaves ovate-lanceolate, sessile, crenate-dentate, hairy; racemes leafy, somewhat paniculate; capsule ovoid, inflated.


9. L. cardinalis Linn.: stem erect, simple, pubescent; leaves oblanceolate, acute at each end, unequally dentate-serrate, minutely pubescent; raceme somewhat secund and leafy below; stamens longer than the corolla.

Low wet grounds. Can. to Car. W. to Ohio. July, Aug. 4.—Stem 2–3 feet high. Flowers very large, bright scarlet, in a terminal raceme which is from 8–10 inches long. One of the most splendid plants in the Northern States. Cardinal Flower.

ORDER LXXII.—ERICACEÆ.—HEATHWORTS.

Calyx 4 or 5-cleft, nearly equal, persistent. Corolla 4 or 5-cleft, regular or irregular. Stamens definite, equal in number
to the segments of the corolla, or twice as many. Ovary many-celled; style 1. Fruit capsular, baccate or drupaceous. Seeds indefinite, minute; embryo in the axis of fleshy albumen.—Shrubs or under shrubs. Leaves evergreen, rigid, without stipules.

1. ARCTOSTAPHYLOS. Adams.—Bear Grape.
(From the Greek apxTos, a bear, and srapvXri, a grape.)

Calyx 5-parted, persistent. Corolla ovate-urceolate; the orifice 5-toothed, revolute. Stamens 10, included. Anthers compressed, with two pores at the summit, laterally 2-awned, the awns reflexed. Berry drupaceous, globose, mostly 5-celled; cells 1-seeded.

1. A. Uva-ursi Spreng.: procumbent, smooth; leaves petioled, cuneate-ovate, very entire, coriaceous, shining; flowers in small terminal racemes; fruit smooth. *Arbutus Uva-ursi* Linn.

On mountains and in sandy soils. Subarct. Amer. to N. Y. W. to Rocky Mountains. April, May.  

1. A. alpina Spreng.: procumbent; leaves membranaceous, deciduous, obovate, acute, serrate, ciliate when young; bracteoles broad-ovate, ciliate, about as long as the pedicels.


2. GAULTHERIA. Linn.—Partridge Berry.
(In honor of M. Gautier, a French physician of Quebec. The original name of Kalm, seems to have been Gautiera.)

Calyx 5-lobed, bi-bracteate at base. Corolla ovate, the orifice 5-toothed. Stamens 10, with the filaments hairy. Anthers two-horned at the summit. Capsule 5-celled, invested by the calyx which becomes a berry.

*G. procumbens* Linn.: stem procumbent, with the branches erect; leaves obovate, wedgeform at the base, ciliate-denticulate; flowers few, subterminal, nodding.


2. OXYDENDRUM. D. C.—Sorrel Tree.
(From the Greek oξος, an acid, and δέντρον, a tree; on account of the sour taste of its leaves.)

Calyx 5-parted, the lobes acuminate. Corolla ovate, 5-

*O. arboreum* D. C.: smooth; branches terete; leaves petioled, oblong, acuminate, serrate; panicles terminal, many-spiked; corolla ovate, pubescent on the outside. *Andromeda arborea* Linn.

Mountain valleys. Penn. and Ohio to Flor. June, July.—A beautiful tree 40–50 feet high. *Leaves* large, shining above, paler beneath, having an acid taste. *Flowers* white, in large terminal panicles consisting of numerous second racemes or spikes. *Sorrel Tree.*

4. ANDROMEDA. Linn.—Andromeda.

(Thus named in allusion to the fabled exposure of *Andromeda*; from the place of growth of some species.)

Calyx 5-parted, the segments acute. Corolla ovate, globose or somewhat campanulate, 5-cleft. Stamens 10. Capsule 5-celled, 5-valved.

*Leaves evergreen.*

1. *A. hypnoides* Linn.: leaves imbricate, subulate, smooth; pedicels terminal, 1-flowered; corolla nodding, globose-campanulate, deeply 3-cleft. *Cassiope hypnoides* D. C.


2. *A. polyfolia* Linn.: leaves linear-lanceolate, revolute on the margin, whitish-glansceous beneath; flowers in short terminal racemes.


3. *A. calyculata* Linn.: leaves elliptic-oblong, rather obtuse, subrevolute, ferruginous beneath; racemes terminal, leafy; corolla ovate-oblong, with the orifice contracted; calyx bi bracteate. *Cassandra calyculata* Don.


*Leaves deciduous.*

4. *A. Mariana* Linn.: leaves oval, somewhat acute, entire, smooth above, pale and somewhat pubescent beneath, subcoriaceous; flowering branches nearly naked; pedicels fasciculate; calyx leafy; corolla ovoid-cylindric; filaments hairy. *Leucothoe Mariana* D. C.


5. *A. racemosa* Mich.: leaves oblong, serrulate, membranaceous, smooth above, somewhat pubescent beneath; racemes terminal, secund, simple or branched; corolla oblong-cylindric, contracted at the mouth; anthers awned at the summit. *A. paniculata* Walt. *Zeonobia racemosa* D. C.
Swamps and wet woods. Can. to Flor. June, July. 12.—Stem 4—6 feet high, irregularly branched. Leaves on short petioles. Flowers white, in racemes which are 3 or 4 inches long. Racemed Andromeda.

6. A. ligustrina Muhl.: pubescent; leaves obovate-oblong, acuminate, minutely serrulate; flower-bearing branches terminal, paniculate, naked; corolla nearly globose, pubescent; anthers awnless. A. paniculata Pursh. Vaccinium ligustrinum Linn. Lyonia paniculata Nutt.


Privet Andromeda.

5. CLETHRA. Linn.—Sweet Pepper Bush.

Calyx 5-parted, persistent. Corolla 5-parted, almost 5-talled; the petals ovate-oblong. Stamens 10. Filaments subulate. Style straight. Capsule 3-celled, 3-valved, enclosed by the calyx.

C. alnifolia Linn.: leaves cuneate-obovate, acute, serrate, smooth, green on both sides; racemes spiked, simple, bracteate, hoary tomentose.


6. MENZIESIA. Smith.—Menziesia.

(Named in honor of Archibald Menzies, a botanist and physician who accompanied Vancouver in his voyage around the world.)

Calyx campanulate, 4-cleft or 4-toothed. Corolla tubular or globose; limb very short, 4-toothed, revolute. Stamens 8, included. Filaments subulate, smooth. Stigma obtuse. Capsule 4-celled, 4-valved.

M. globularis Salisb.: branches and pedicels somewhat hairy; leaves oval-lanceolate, ciliate, pubescent except on the nerves beneath, with a sharp glandular point; calyx 4-cleft; corolla globose. M. Smithii Mich.


7. PHYLLODOCE. Salisb.—American Heath.

(From the Greek φυλλος, a leaf; and οικος, to see; in allusion to its peltate stigma.)

Calyx 5-parted, the lobes often acuminate. Corolla ovate, the orifice contracted, 5-toothed. Stamens 10, included. Filaments smooth, slender. Anthers awnless. Stigma peltate. Capsule 5-celled, 5-valved, many-seeded.

P. taxifolia Salisb.: stem branched; leaves linear, toothed; peduncles terminal, 1-flowered, glandular-pilose; lobes of the calyx lanceolate, acu-
minate; anthers smooth, one-third the length of the filaments. *Andromeda corulea* Linn. *Menziesia corulea* Swartz.

White Mountains, N. H. N. W. Coast and Labrador. July.—An evergreen shrub, resembling a heath in its foliage and flowers. *Leaves* one-third of an inch long. *Flowers* large, purple, on long red peduncles. **American Heath.**

8. **KALMIA.** Linn.—American Laurel.

(In honor of Peter Kalm, a Swedish botanist, who travelled in this country about the middle of the last century.)

Calyx 5-parted. *Corolla* salver-form; border on the under side producing 10 corymbose protuberances and as many cavities in which the anthers are concealed. Stamens 10. *Capsule* globose, 5-celled, 5-valved, many-seeded.

1. *K. glauca* Ait.: branches anepicidal; leaves opposite, subsessile, oblong, smooth, glaucous beneath, revolute on the margin; corymbs terminal, bracteate; peduncles and calyx very smooth.

var. *rosmarinifolia* Pursh.: leaves linear, conspicuously revolute, nearly green beneath.

Sphagnous swamps. Arct. Amer. to Penn. W. to Lake Superior. June, July. 12.—*Stem* 12—18 inches high, with opposite lanceolate leaves. *Flowers* pale rose-color, in terminal corymbs or umbels. Var. *rosmarinifolia* is found in a swamp two miles east of Albany, N. Y. **Glaucous Kalmia. Swamp Laurel.**

2. *K. angustifolia* Linn.: branches terete; leaves scattered or ternate, petiolate, oval-oblong, obtuse, smooth, sometimes slightly ferruginous beneath; corymbs lateral; peduncles and calyx glandular-pubescent.

Sandy woods. Can. to Car. W. to Ohio. June, July. 12.—*Stem* 12—18 inches high. *Leaves* on short petioles, somewhat glaucous beneath. *Flowers* small, deep rose-color, in lateral corymbs, forming a kind of whorl around the stem. **Sheep Laurel.**

3. *K. latifolia* Linn.: branches terete; leaves on long petioles, scattered and ternate, oval-lanceolate, acute at each end, green on both sides; corymbs terminal, viscidly pubescent.


9. **EPIGEEA.** Linn.—Ground Laurel.

(From the Greek επί, upon, and γη, the earth; in allusion to its prostrate habit.)

Calyx deeply 5-parted, colored, with 3 bracts at the base. *Corolla* salver-form; the border 5-parted, spreading. Stamens 10. *Capsule* subglobose, depressed, 5-celled, surrounded by the persistent calyx.

*E. repens* Linn.: stem decumbent, creeping; leaves cordate-ovate, petiolate, very entire; corolla hairy inside.

Side hills, roots of trees, &c. Can. to Del. April. 12.—A small trailing and creeping evergreen. *Stem* and *leaves* hirsute with coarse hairs. *Flowers* white
tinged with red, very fragrant. It is said, but perhaps incorrectly, to be injurious to cattle, when eaten by them. It is sold by the Shakers under the name of *Gravel Plant.*

**ERICACEÆ.**

10. RHODORA. *Linn.*—Rhodora.

(From the Greek ποδόν, a rose.)

Calyx 5-toothed, persistent. Corolla adnate to the calyx, ringent, the upper lip 2—3-parted, the lower one 2-lobed. Stamens 10, declined. Filaments unequal. Capsule 5-celled, 5-valved, opening at the top.

*R. Canadensis Linn.* **Rhododendron Rhodora Don. Torr.**

Mountain bogs. Can. and N. S. May. ß. Stem 2 feet high, with smooth erect branches. Leaves alternate, oval, very entire, nearly smooth above, pubescent and glaucous beneath. Flowers purple, in terminal clusters or umbels, appearing before the leaves.

*Rhodora.* **False Honeysuckle.**

11. RHODODENDRON. *Linn.*—Rose-bay.

(From the Greek ποδόν, a rose, and δέσπον, a tree; in allusion to the color of the flowers.)


*Stamens 5—10.*

1. *R. Lapponicum Wahl.*: procumbent and divaricately branched; leaves elliptic, obtuse, rigid, covered with minute scales on both sides; flowers few, terminal, umbellate; corolla campanulate. **Azalea Lapponica Linn.**


**Low Alpine Rose-bay.**


**Stamens 5.**

3. *R. nudiflorum Torr.*: oblong, acute, ciliate, pubescent above and on the veins and midrib beneath; flowers in rather naked corymbs, slightly viscid; tube of the corolla a little longer than the lobes; stamens exerted. **Azalea nudiflora Linn. A periclymenoides Mich.**

Woods. Can. to Geor. April, May. ß. Stem 2—6 feet high, much branched above. Leaves crowded at the ends of the branches. Flowers reddish, in terminal clusters, appearing a little before the leaves. Of this species there are a number of varieties. Among others mentioned by Pursh, is one which has from 10—20 stamens. **Upright Wild Honeysuckle. Finzier Blom.**
4. *R. viscosum* Torr.: branchlets hispid; leaves oblong-ovate, acute, smooth and green on both sides, ciliate on the margin, the midrib bristly; flowers glutinous, hairy, appearing with the leaves; tube as long again as the segments; stamens scarcely longer than the corolla. *Azalea viscosa* Linn. and *A. glauca* Pursh.


White Wild Honeysuckle.

5. *R. calendulaceum* Torr.: branchlets somewhat villous; leaves oblong, pubescent on both sides, at length hirsute; flowers large, in rather naked corymbs, not viscid; teeth of the calyx oblong; tube of the corolla hairy, shorter than the segments. *Azalea calendulacea* Mich. *A. nudiflora* var. *coccinea* Ait.

Penn. to Car. May. On Clear Creek, Ohio, Dr. J. M. Bigelow. 12.—Stem 2—6 feet high. Flowers yellow or flame-color. One of the handsomest shrubs in the U. S. *Yellow-flowered Rose-bay.*

6. *R. arborescens* Torr.: branchlets smooth; leaves obovate, somewhat obtuse, smooth on both sides, glaucous beneath, ciliate on the margin, midrib almost smooth; flowers in leafy corymbs, not viscid; tube longer than the segments; calyx leafy, with the segments oblong, acute; filaments exserted. *Azalea arborescens* Pursh.


*Arborescent Azalea.*

7. *R. nitidum* Torr.: branches somewhat smooth; leaves oblanceolate, submucronate, coriaceous, smooth on both sides, shining above; midrib bristly beneath, margin revolute-ciliate; flowers viscid, in leafy corymbs; tube a little longer than the segments; calyx very short. *Azalea nitida* Pursh.

Mountain swamps. N. Y. to Virg. June, July. 12.—Leaves dark green and shining, smaller than in any other species. Flowers white, with a reddish tinge. *Pursh.*

*Shining Rhododendron.*

8. *R. hispidum* Torr.: branches straight, very hispid; leaves long-lanceolate, hispid above, smooth beneath, glaucous on both sides, ciliate on the margin, the midrib bristly; flowers very viscid, appearing with the leaves; tube scarcely longer than the segments; teeth of the calyx oblong, rounded; filaments exserted. *Azalea hispida* Pursh.

Margins of lakes, on high mountains. N. Y. and Penn. Pursh. July, Aug. 12.—Stem 10—15 feet high. Flowers white, with a red border. *Stamens often 10. This shrub is said by Pursh to have a bluish appearance, by which it may be distinguished from all others at a great distance; but Dr. Torrey thinks it is scarcely distinct from *R. viscosum.* *Hispid Rhododendron.*

12. *AZALEA.* Linn.—Azalea.

(Supposed to be derived from the Greek *αζαλευς,* dry, from its habitat.)

Calyx 5-parted. Corolla short, campanulate, 5-cleft. Stamens 5, equal, shorter than the corolla; anthers opening longi-
tudinally. Style straight, included. Capsule 5-celled, 5-valved, opening at the top.

A. procumbens Linn.: stem procumbent, diffusely branched; leaves opposite, elliptic, smooth, revolute on the margin; stamens included. Loisi-leuria procumbens R. & S. D. C.


13. LEDUM. Linn.—Labrador Tea.

(From the Greek λάδων, a shrub; which this resembles.)


1. L. latifolium Ait.: leaves elliptic-oblong, revolute on the margin, ferruginous tomentose beneath; stamens 5, as long as the corolla. L. palustre var. latifolium Mich. Torr.

Sphagnous swamps. Arct. Amer. to Penn. June.—An evergreen shrub about 2 feet high and with the stem irregularly branched; the branches woolly. Leaves alternate, broad-oblong, obtuse. Flowers in terminal corymbs, white. Broad-leaved Labrador Tea.

2. L. palustre Linn.: leaves linear, revolute on the margin, ferruginous tomentose beneath; stamens 10, longer than the corolla.

Swamps. Arct. Amer. to Penn. June.—A shrub smaller than the last and with narrower leaves. I have found both species in a sphagnous swamp near Fairhaven, Vt. They have both been used as substitutes for tea, but the latter is said to be preferable for this purpose. Narrow-leaved Labrador Tea.

14. LEIOPHYLLUM. Pers.—Sleek Leaf.

(From the Greek λεύς, smooth, and φύλλον, a leaf; in allusion to its foliage.)

Calyx deeply 5-parted, persistent. Corolla 5-petalled. Stamens 10, longer than the corolla. Anthers lateral, opening on the inside longitudinally. Capsule globose, 3-celled, 3-valved, opening at the top. Seeds many, ovate.

L. buxifolium Ell.: stem erect; leaves oval or obovate, nearly sessile, alternate; capsule smooth. Ledum buxifolium Ait. Ammyrsine buxifolium Pursh.

Pine barrens, N. J. and high mountains, S. Car. May, June.—A small evergreen shrub 6–18 inches high, branching, smooth. Leaves small, entire, smooth, coriaceous, with the margin revolute. Flowers numerous, white, in small terminal corymbs. Sleek Leaf. Sand Myrtle.

ORDER LXXIII. VACCINIACEÆ.—CRANBERRIES.

Calyx entire, or 4–6-lobed. Corolla with as many lobes as the calyx. Stamens distinct, double the number of the lobes
of the corolla. Ovary inferior, 4—5-celled; style and stigma simple. Berry crowned with the persistent limb of the calyx, succulent, many-seeded. Seeds minute.—Shrubs or small trees, with the leaves often evergreen.

1. VACCINIUM.—Linn. Whortleberry.

(Etymology unknown.)

Calyx adherent to the ovary, 4—5-toothed. Corolla urceolate, cylindric, campanulate or somewhat rotate, 4—5-cleft. Stamens 8—10, inserted on the ovary. Berry globose, 4—10-celled, many-(or by abortion few.)—seeded.

* Leaves deciduous.

† Corolla campanulate.

1. V. stamineum Linn.: much branched, the younger branches pubescent; leaves ovate or oval, acute, very entire, glaucous beneath; pedicels solitary, axillary, filiform, nodding; corolla campanulate, spreading; anthers exerted, with two awns on the back. V. album Pursh.

Dry woods. Can. to Flor. W. to Miss. May, June. f2.—Stem 2—3 feet high, diffusely branched. Flowers white, on the lateral branches of the stem which appear like leafy racemes. Berry large, pale green or purplish, scarcely eatable.

Deerberry.

2. V. dumosum Curt.: minutely pubescent; younger branches, leaves and racemes sprinkled with resinous dots; leaves obovate-oblong, mucronate, entire, green on both sides; racemes with large foliaceous bracts; pedicels short, axillary, subsolitary; corolla campanulate. V. hirtellum Ait. Gaylussacia hirtella Torr. & Gr.

Wet sandy soils. N. J. to Flor. June. f2.—Stem 12—18 inches high. Flowers large, white, nodding, in leafy racemes. Berry large, globose, black and shining; tasteless.

Low Swamp Whortleberry.

3. V. frondosum Linn.: smooth; leaves obovate-oblong, obtuse, very entire, sprinkled with resinous dots, glaucous beneath; racemes lateral, loose, bracteate; pedicels filiform, bracteolate in the middle; corolla globose-campanulate. V. glaucum Mich. Gaylussacia frondosa Torr. & Gr.


Whortleberry. Blue-tangle.

†† Corolla urceolate, ovoid, oblong or cylindric.

a. Flowers racemose or fasciculate.

4. V. resinosum Ait.: younger branches pubescent; leaves petiolate, oblong-ovate, mostly obtuse, very entire, sprinkled with resinous dots beneath; racemes lateral, secund, bracteate; corolla ovoid-conic, pentagonal, at first contracted at the mouth, at length open. Gaylussacia resinosà Torr. & Gr.

Woods and hills. Can. to Car. W. to Ohio. May, June. f2.—Stem 2—4 feet high. Flowers reddish-green, in short lateral racemes or fascicles. Berry globose, black, slightly acid, but agreeable.

Black Whortleberry.
5. *V. vaccillans* Kalm: branches angular, smooth; leaves oval, elliptic or obovate, serrulate, smooth on both sides, acute or rather obtuse, mucronulate; racemes very short, clustered; corolla campanulate-cylindric. (Torr. N. Y. Fl.)

Woods and thickets. N. Y. Torr. May. 12.—Stem 1—2 feet high, much branched. Leaves an inch or more long, deciduous. Flowers greenish-white tinged with red, on short pedicels. Berry dark-blue, glaucous, very sweet. It has probably been confounded with *V. Pennsylvanicum*.

Sugar Whortleberry.

6. *V. Pennsylvanicum* Lam.: branches angular, (green;) leaves sessile, ovate-lanceolate or elliptic-lanceolate, mucronate, serrulate, smooth and shining on both surfaces; fascicles of flowers subterminal; corolla ovoid. *V. virgatum* Ait. *V. tenellum* Pursh.

Dry hills. N. Y. to Geor. May, June. 12.—Stem 12—18 inches high, much branched. Flowers pale red, 6—8 in a fascicle. Berry large, bluish-black, somewhat glaucous, sweet. 

Low Blue Whortleberry.

7. *V. corymbosum* Linn.: flower-bearing branches almost leafless; leaves oblong-oval, rather acute at each end, nearly entire, the young ones pubescent; racemes short, sessile, bracteate; corolla cylindric-ovoid. *V. amianum* Pursh. *V. disomorphum* Mich.

Swamps and wet woods. Can. to Virg. June. 12.—Stem 4—8 feet high, with a few straggling branches. Flowers purplish-white, in racemes which are crowded near the summit of the naked branches. Berry large, purplish-black, subacid. 

High Swamp Whortleberry.

8. *V. Canadense* Kalm: flower-bearing branches leafy; leaves oblong-lanceolate, very entire, acute, and with the branches covered with a white pubescence; flowers in crowded racemes; corolla ovoid-campanulate. (Torr. N. Y. Fl.) *V. disomorphum* Big. not of Mich.

Swamps. Can. and Western N. Y. May, June. 12.—Stem 1—2 feet high, with numerous warty branches. Leaves about an inch and a half long. Racemes numerous, few-flowered. Corolla reddish-white. Berry bluish-black, sweet. Resembles the preceding, for which it has probably been mistaken. 

Black Bilberry.


Dwarf Whortleberry.

10. *V. ligustrinum* Mich.: branches angular and erect; leaves subsessile, erect, lanceolate, mucronate, serrulate; fascicles gemmaceous, sessile; flowers nearly sessile; corolla oblong-ovoid.

Dry woods. Penn. and Virg. May, June.—A small shrub with straight and slender branches. Flowers purplish-red. Berry black. It is said to vary very much in the shape and size of its leaves. Privet-like Whortleberry.

b. Flowers solitary and axillary.

11. *V. uliginosum* Linn.: procumbent; branches rigid; leaves obovate, very obtuse, entire, smooth above, vened and glaucous beneath; flowers subsolitary, octandrous; corolla short, urceolate, 4—5-cleft; anthers awned on the back. *V. uliginosum* var. *alpinum* Big.

White Hills, N. H. Essex county, N. Y. N. to Aret. Amer. July.—A procumbent shrub with numerous erect branches 6—12 inches high. Leaves about
half an inch long. Flowers single or in pairs, nearly sessile. Berry oblong, deep blue, crowned with the style.

Alpine Marsh Whortleberry.

**Leaves evergreen.**

12. *V. Vitisidea Linn.*: stem creeping; branches erect; leaves obovate, evergreen, dotted beneath, subentire and revolute at the margin; flowers in terminal drooping racemes; corolla cylindric-campanulate.


**Red Whortleberry. Cowberry.**

2. OXYCOCCUS. Pers.—Cranberry.

(From the Greek ὀξυς, acid, and κόκκος, a berry.)

Calyx adnate to the ovary, with the limb 4-cleft. Corolla 4-parted, with the segments somewhat linear and revolute. Stamens 8. Filaments connivent. Anthers tubular, 2-parted. Berry 4-celled, many-seeded.

1. *O. macrocarpus Pursh*: stem creeping, with the branches ascending; leaves oblong, nearly flat, obtuse, glaucous beneath; pedicels elongated, 1-flowered. *Vaccinium macrocarpon Ait.*


2. *O. palustris Pers.*: stem filiform, creeping; leaves ovate, acute, entire, with revolute margins; pedicels elongated, terminal, 1-flowered; segments of the corolla oval. *O. vulgaris Pursh. Vaccinium Oxycoccus Linn.*


3. PHALEROCARPUS. G. Don.—Snowberry.

(From the Greek φάλερος, white, and κάρπος, fruit.)

Calyx bi-bracteate, adhering to the ovary; the limb 4-parted, thin and membranaceous. Corolla short-campanulate, 4-cleft. Stamens 8. Filaments short and dilated. Anthers awnless. Berry globose-ovoid, white, crowned with the teeth of the calyx, 4-celled; the cells many-seeded.

*P. serpillifolia G. Don*: stem filiform, creeping, hispid; leaves roundish-ovate, acute, with slightly revolute margins, smooth above, paler and somewhat hispid beneath; flowers solitary, axillary, subsessile. *Gaultheria serpillifolia Pursh. Vaccinium hispidulum Linn.* Chiogenes hispidula Torr. & Gr.

Alpine swamps. Mass. Conn. and N. Y. May, June. 12. — Stem creeping, much branched. Leaves evergreen, small. Flowers solitary, on recurved pedicels. Corolla and berry white; the taste of the latter resembling that of *Gaultheria procumbens.*
Order LXXIV. PYROLACEÆ.—Wintergreens.

Sepals 5, persistent. Corolla regular, deciduous, 4—5-parted. Stamens twice as numerous as the divisions of the corolla; anthers 2-celled, opening by pores. Ovary superior, 4—5-celled; style 1; stigma indusiate. Fruit capsular, 4—5-celled. Seeds many, minute, winged.—Herbaceous plants, rarely under shrubs, with simple leaves.

1. PYROLA. Linn.—Wintergreen.

(A diminutive of the Latin pyrus, a pear; from the resemblance of its leaves.)


* Flowers in racemes. Sutures of the capsules woolly.
† Stamens ascending. Style declined. Stigma annulate.

1. P. rotundifolia Linn.: leaves roundish, entire or slightly crenulate, coriaceous and shining, scarcely as long as the dilated petiole; scape many-flowered, bracteate; calyx 5-parted, the segments ovate-lanceolate; stigma obtusely 5-toothed.

var. asarifolia Hook.: leaves larger, reniform-roundish. P. asarifolia Mich.

Woods. Can. to Car. W. to Mich. July. 4.—Leaves all radical, 1½—2 inches in diameter, on petioles as long or longer. **Flowers** nodding, white, fragrant, 8—20 in a raceme. The largest of the species. **Round-leaved Wintergreen.**

2. P. chlorantha Swartz: leaves orbicular, retuse, obsoletely crenulate, half as long as the narrow petiole; scape nearly naked; raceme few-flowered; segments of the calyx very short, obtuse; stigma with the disk 5-lobed.

Woods. Can. and N. Y. June. 2½.—Leaves about an inch long, varying from orbicular to broad-ovate. **Scape** 6—8 inches high. **Flowers** 5—3 in a raceme, greenish-white, odorous. **Greenish-flowered Wintergreen.**

3. P. elliptica Nutt.: leaves elliptic-ovate, membranaceous, serrulate, longer than the dilated petiole; scape naked or with a single subulate bract; calyx 5-cleft, very short, the segments ovate; stigma clavate, 5-lobed.

Dry woods. Can. to Virg. July. 2½.—Leaves all radical, membranaceous, finely serrate, with an attenuated base, much longer than the petiole. **Scape** 6—10 inches high, about 5-angled. **Flowers** 8—12 in a raceme, greenish-white, fragrant. Distinguished from P. rotundifolia, by its longer, thin and dull leaves, and shorter calyx. **Thin Leaf.**

4. P. uliginosa Torr. & Gr.: leaves nearly orbicular, obscurely crenate-denticulate, coriaceous, longer than the petiole; scape bracteate; raceme many-flowered; calyx one-fourth as long as the petals; the segments broad-ovate, acute; stigma with 5 small erect teeth.
Sphagnum swamps. Oneida county, N. Y. June. 27. — Leaves 1½—2 inches in diameter, abruptly decurrent on the petiole. Scape 6—12 inches high, with 2—4 bracts. Flowers dull purple, 7—12 in a raceme. Intermediate between P. rotundifolia and P. chlorantha: differing from the former in its smaller, less coriaceous and nearly dull leaves, smaller purplish-flowers and much shorter calyx; from the latter in its larger leaves, bracteate scape and acuminate calyx-segments, as well as in the color of the flowers. (Torrey.) I have met with the same plant in the vicinity of Albany, but supposed it to be a variety of P. rotundifolia. It may still prove to be not distinct. Swamp Wintergreen.

†† Stamens erect. Style straight. Stigma not annulate.

5. P. minor Linn.: leaves roundish or oval, coriaceous, repandly crenate, longer than the somewhat dilated petiole; raceme spiked; bracts as long as or longer than the pedicels; lobes of the calyx very short; style included; stigma 5-lobed.

Western N. Y. Pursh. Penn. Muhl. N. to Arct. Amer. June. 24. — Leaves on short petioles, mucronate at the apex. Scape angular. Flowers in crowded or lax racemes. Corolla globose, white, or very pale rose-color. It is still doubtful whether this plant is a native of the northern states. P. minor of Pursh and Muhlenberg, may be our P. chlorantha; from which, however, the true Linnean plant is quite distinct. Small Wintergreen.

6. P. secunda Linn.: leaves ovate, acute, membranaceous, serrate, longer than the narrow petiole; raceme many-flowered, secund; segments of the calyx rounded; petals oblong; style exserted; stigma depressed, 5-lobed.


** Flowers solitary, in corymbs or umbels. Sutures of the capsules not woolly.

7. P. uniflora Linn.: leaves orbicular, serrate; scape 1-flowered; style straight; stigma 5-rayed. Moneses grandiflora D. C.


8. P. umbellata Linn.: leaves cuneate-lanceolate, serrate, in fours or sixes; peduncle pubescent, corymbed; bracts linear-subulate; appendages of the filaments ciliate; style immersed in the ovary. Chimaphila umbellata Nutt.


9. P. maculata Linn.: leaves lanceolate, acuminate, incisely serrate, discolored, opposite or in threes; peduncles pubescent, corymbed; bracts linear; appendages of the filaments woolly; style very short. Chimaphila maculata Pursh.

Sandy woods. Can. to Car. July. 24.—This species may be distinguished by its variegated leaves. Stem 3—5 inches high. Peduncles 1—2, puberulent, 3—5 inches long. Flowers large, reddish-white, nodding, fragrant, 2 or 3 in a corymb or umbel. Spotted Wintergreen.

10*
2. MONOTROPA. Linn.—Bird’s Nest.

(From the Greek μυρος, one, and τριπτω, to turn; from its flowers turning chiefly to one side.)


* Stem many-flowered. HYPOPITHYS Nutt.


Roots of trees. Can. to Car. July, Aug. *4.—Stems clustered, erect, 4—8 inches high, simple. Leaves merely scales, lanceolate-ovate, crowded near the root, scattered above. Flowers in a terminal raceme, which is at first nodding but finally erect. Whole plant of a yellowish-brown color (rarely reddish), turning black by decay or drying.*

Pine-sap. *False Beachdrops.*

** Stem 1-flowered. MONOTROPA. Nutt.


Indian Pipe.

3. PTEROSPORA. Nutt—Tall Bird’s Nest.

(From the Greek πτεροσ, a wing, and σπορα, a seed.)


*P. Andromeda* Nutt.

Clayey and limestone soils. Can. Ver. and N. Y. W. to the Columbia river; not common. July. *4.—Plant covered with brownish viscid hairs. Stem 1—2 (sometimes more than 3) feet high, straight, simple, grooved, brownish-red or purplish, clothed at the base with imbricate lanceolate scales. Flowers very numerous, in a long terminal raceme, rose-red and white. Pedicels filiform, nodding, longer than the flowers.*

Tall Bird’s Nest.

Subclass III. COROLLIFLORALS.

Petals united into a hypogynous corolla, or not attached to the calyx. Stamens inserted into the corolla.
Order LXXV. EBENACEÆ.—EBENADS.

Flowers usually polygamous. Calyx in 3—7 nearly equal divisions, persistent. Corolla 3—7-divided, deciduous, somewhat coriaceous. Stamens twice to four times as many as the segments of the corolla. Ovary sessile, many-celled; style divided, seldom simple; stigmas bifid or simple. Fruit fleshy, few-seeded. Embryo in the axis of cartilaginous albumen.—Trees or shrubs, without milky juice. Leaves alternate, mostly entire, without stipules.

Diospyros. Linn.—Persimmon.

(From the Greek Δίς, dios, Jupiter, and νύξ, grain or fruit; the application obscure.)


D. Virginiana Linn.: leaves oval or ovate-oblong, acuminate, reticulately veined, nearly smooth; petioles pubescent; buds smooth.

Woods. N. Y. to Geor. and throughout the Western States. May.—A small tree, seldom more than 30—40 feet high. Leaves alternate. Flowers 1—3 together, axillary, on short peduncles, greenish-yellow. Fruit as large as a common plum, reddish-orange, well flavored when fully ripe, but very astringent before that time. Common Persimmon.

Order LXXVI. AQUIFOLIACEÆ.—HOLLYWORTS.

Sepals 4—6, imbricated in aestivation. Corolla 4—6-parted, the stamens as many as the segments and alternating with them. Ovary 2—6 or more-celled; stigma subsessile, lobcd. Fruit fleshy, with 2—6 or more stones or nucules. Seed suspended, with large fleshy albumen and small embryo.—Trees or shrubs, often with angular branches, and mostly with leathery evergreen leaves. Flowers small, by abortion often polygamous.

1. ILEX. Linn.—Holly.

(ETYmology uncertain.)

Flowers mostly perfect. Calyx 4—5-toothed, persistent. Corolla 4—5-parted nearly to the base, rotate. Stamens 4—5, alternating with the petals. Ovary sessile, 4-celled. Stigmas subsessile, 4—5, sometimes distinct, sometimes united. Fruit with 4—5 ribbed or veined nucules.
1. *I. opaca* Ait.: leaves ovate, flat, coriaceous, acute, smooth, their margins with sharp spines; flowers scattered at the base of the young branches; teeth of the calyx acute. *I. aquifolium* Walt.

Sandy woods. Can. to Flor. W. to Ark. June.—An evergreen tree 10—15 feet high. Leaves tough, smooth and shining, with rigid spines at the edges. Flowers growing in bunches around the branches, small, white. It is stated by the younger Michaux, that birdlime may be extracted from the bark. The wood is fine grained and compact, and is employed by cabinet makers and turners. **American Holly.**

2. *I. ambiguus* Torr.: leaves deciduous, ovate, acuminate, obtuse or acute at the base, thin, smooth, serrate; flowers tetrandrous, on short pedicels, aggregated at the extremity of short lateral branches. *Prinos ambiguus* Mich. not of Ell. or Nutt.

On the Catskill Mountains, N.Y., and on the mountains near Bethlehem, Penn. Torr.—A shrub about 6 feet high. Leaves about 3 inches long, clustered at the ends of the branches. Flowers polygamous, white. Dr. Torrey thinks that if this plant is not the *P. ambiguus* of Michaux, it must be undescribed. He has placed it under *Ilex* on account of its sulcate nucules. **N.Y. Fl. Ambiguous Ilex.**

2. NEMOPANTHES. Raf.—Mountain Holly.

(From the Greek νεμός, a grove, ὀψ, an eye, and αὐδός, a flower. Lind.)


Swamps in low grounds or on mountains. Can. to Car. May, June. 12.—A shrub 3—6 feet high. Leaves ovate or oval, entire or slightly denticulate, smooth, petioled. Flowers on slender pedicels of about an inch in length, small, green. Fruit about as large as a pea, scarlet.

**Mountain Holly.** Black Alder.

3. PRINOS. Linn.—Winterberry.

(Said to be derived from the Greek πρῶς, to saw; in allusion to its serrated leaves.)


1. *P. verticillatus* Linn.: leaves deciduous, oval or obovate, acuminate, serrate, pubescent beneath; sterile flowers axillary, subumbellate; fertile flowers aggregated. *P. Gronovii* Mich.


2. *P. lavigatus* Pursh: leaves deciduous, lanceolate, with appressed
serratures, smooth on both sides, shining above; nerves beneath scarcely pubescent; flowers 6-cleft; fertile ones axillary, subsessile; sterile scattered, pedunculate.

In swamps. N. Y. W. to Miss. July. \( \frac{1}{2} \).—Stem 6–8 feet high. Leaves 2\( \frac{1}{2} \) inches long. Fruit large, red. The characters of this species do not seem yet to be well ascertained. Smooth Winterberry.

3. *P. glaber* Linn.: leaves evergreen, wedgeform, lanceolate, coriaceous, smooth and shining, somewhat toothed at the extremity; pedicels axillary, subsessile, mostly 3-flowered.

Swamps. N. Y. to Car. July. \( \frac{1}{2} \).—Stem 3–4 feet high, much branched. Leaves crowded, about an inch and a half long. Flowers white. Fruit globose, black and shining. Evergreen Winterberry. Inkberry.

**Order LXXVII. OLEACEÆ.—Oliveworts.**

Flowers monoeious, sometimes dioecious. Calyx 4-lobed or 4-toothed, persistent. Corolla 4-cleft, sometimes of 4 petals, rarely wanting. Stamens 2, alternate with the segments of the corolla. Ovary free, 2-celled; style 1 or none; stigma entire or bifid. Fruit often by abortion 1-seeded. Seeds with dense albumen.—Trees or shrubs. Leaves opposite, simple, sometimes pinnatifid. Flowers in racemes or panicles.

1. LIGUSTRUM. *Linn.*—Privet.

(Said to be derived from the Latin *ligo*, to bind; in allusion to the use made of its branches.)

Calyx minutely 4-toothed. Corolla funnel-form, the limb 4-cleft. Stamens 2, included. Style very short. Stigma 2-cleft. Berry globose, 2-celled; cells 2-seeded, or by abortion 1-seeded.

*L. vulgare* *Linn.*: leaves elliptic-lanceolate, somewhat acute, smooth; panicles crowded.

Woods. N. Y. to Virg. W. to Miss. May, June. \( \frac{1}{2} \).—Stem 4–6 feet high, with numerous opposite branches. Leaves varying from elliptic to obovate, and from acute to obtuse. Flowers white, in terminal thyrsoid panicles. Berry black, globose. Common Privet or Prim.

2. CHIONANTHUS. *Linn.*—Snowdrop Tree.

(From the Greek *χιων*, snow, and *αυς*, a flower; in allusion to its snow-white flowers.)

Calyx 4-parted. Corolla with the tube very short, the limb deeply 4-parted; the lobes long and linear. Stamens 2. Anthers nearly sessile on the tube. Drupe 1-seeded. Nut striate.

*C. Virginica* *Linn.*: panicle terminal; peduncles 3-flowered; leaves acute.

var. 1. *montana* *Pursh*: leaves oval-lanceolate, coriaceous, smooth; panicles dense; drupe oval.
var. 2. *maritima* Pursh: leaves obovate-lanceolate, membranaceous, pubescent; panicles very loose; drupe elliptic.

Var. 1, on mountains; var. 2, on the sea coast. Penn. to Car. May, June.—A small tree, 6—10 feet high, with opposite branches. Flowers white, in pendulous panicles. Drupe purple. The corolla is sometimes 5 or 6-cleft.

**3. FRAXINUS.** Linn.—Ash.

(Supposed to be derived from the Greek φλαξ, a hedge; in allusion to the use sometimes made of it.)

Flowers polygamous or dioecious. Calyx small, 4-cleft or none. Corolla none or 4-petalled; the petals cohering at the base in pairs, oblong or linear. Stamens 2. Stigma 2-cleft. Samara 2-celled, compressed, winged at the apex, by abortion 1-seeded. Seeds pendulous, compressed.

* Flowers naked.

1. *F. sambucifolia* Lam.: leaves pinnate; leaflets in 4—5 pairs, sessile, ovate-lanceolate, somewhat rounded and unequal at the base, acuminate, serrate, smooth above, somewhat villous on the veins beneath; samara elliptic-oblong, obtuse at both ends.

River banks and swamps. Can. to Virg. W. to Miss. April.—A tree 30—40 feet high; the young branches smooth, sprinkled with black dots; buds blue. Leaflets rugose and shining above, with a somewhat villous tuft at the base of the midrib beneath. Samara broadish, of nearly uniform width. The wood is less valuable than that of either of the following species.


** Flowers calyculate, apetalous.


Woods. Can. to Geor. and Louis. May.—A large tree 50—60 feet high; the bark light-gray; the young branches smooth and marked with white dots. Leaves at first downy, but finally almost smooth and green above, pubescent and glaucous beneath. Flowers mostly triandrous, in loose compound axillary panicles. Petals none. The wood of this tree is highly valuable, being much used, on account of its toughness and elasticity, by wheelwrights, coach-makers, &c.

White Ash.


Moist woods. Can. to Car. April, May.—A tree 30 to 40 feet high, with slender branches. Leaflets narrower, longer, more acuminate and pubescent than in the preceding. This tree is generally smaller than *F. Americana*, but its wood is used for the same purposes.

Red Ash.

4. *F. juglandifolia* Lam.: branches smooth; leaves pinnate; leaflets in 3—4 pairs, on short petioles, ovate, opaque, serrate, glaucous beneath; axils of the veins pubescent; samara cuneate-lanceolate, obtuse. *F. concolor* Muhl.
**APOCYNACEÆ.**

Wet woods. Can. to Car. May.—Said to be a small tree, but there is still some doubt in regard to its being a distinct species. Swamp Ash.

***Flowers calyculate, 4-petalled. Ornus. Pers.***

5. *F. Ornus Linn.*: leaves pinnate; leaflets in 3–4 pairs, somewhat petioled, lanceolate, attenuate, serrate at the apex, entire at the base, pubescent on the veins beneath; samara linear-lanceolate, obtuse, attenuated at each end.

var. *latifolia Ait.*: leaflets ovate-oblong. *Ornus Americana Pursh.*


**ORDER LXXVIII. APOCYNACEÆ.—Dogbanes.**

Calyx 5-parted, persistent. Corolla regular, 5-lobed, twisted in aestivation. Stamens 5, with the filaments distinct and the anthers 2-celled; pollen granular. Ovaries 2, distinct or rarely united; styles 2 or 1; stigma 1. Fruit usually a follicle, single or double. Seeds with fleshy albumen.—Trees or shrubs, usually milky. Leaves entire, mostly opposite, without stipules. Flowers in cymes or panicles.

**APOCYNUM. Linn.—Dog's Bane.**

(From the Greek ἀπόκυνος, far from, and κυνός, a dog; it being supposed to poison that animal.)


1. *A. androsamifolium Linn.*: leaves ovate, mostly obtuse at base, smooth above, slightly pubescent beneath; cymes lateral and terminal, few-flowered; tube of the corolla longer than the calyx.


2. *A. cannabinum Linn.*: leaves on short petioles, lanceolate or lance-oblong, acute at each end, smooth above, slightly pubescent beneath; cymes paniculate, many-flowered; calyx as long as the tube of the corolla; limb erect.

Fields and woods. Can. to Car. W. to Miss. July, Aug. 2.—Stem 2–4 feet high, mostly erect, branched. Lower leaves sometimes cordate at base. Flowers small, greenish-white, in terminal cymes. It has the leaves narrower and the flowers smaller than in the preceding. Indian Hemp.
3. *A. hypericifolium* Ait.: leaves oblong, smooth, on very short petioles, mucronate, obtuse and subcordate at base; cymes shorter than the leaves; calyx nearly as long as the tube of the corolla.

Gravelly banks of streams. Can. to Virg. W. to Miss. June, July. 24.—

*Hypericum-leaved Dog's Bane.*


Fields. Can. to Car. July, Aug. 24.—*Stem 2—3 feet high. Flowers small, greenish-white. It is perhaps nothing more than a variety of *A. cannabinum.* *Pubescent Dog's Bane.*

**Order LXXIX. ASCLEPIADACEÆ.—Milkweeds.**

Calyx 5-divided, persistent. Corolla 5-lobed, regular, deciduous; aestivation imbricate, rarely valvate. Stamens 5, inserted into the base of the corolla; filaments usually connate; anthers 2-celled or incompletely 4-celled; pollen, when the anther bursts, coalescing into masses which are as numerous as the cells, or sometimes confluent by pairs, and sticking to the 5 processes of the stigma. Ovaries 2; styles 2, close to each other; stigma 1, common to both styles, 5-cornered. Follicles 2, 1 of which is sometimes abortive. Seeds numerous, comose, with thin albumen.—Shrubs or herbaceous plants, almost always milky and often twining. Leaves entire, having ciliate between their petioles instead of stipules. Flowers somewhat umbelled, fascicled or racemose, proceeding from between the petioles.

1. **ASCLEPIAS. Linn.—Milkweed. Silkweed.**

(The Greek name of Ἀσκλεπιδᾶς; to whom this genus is dedicated.)

Calyx small, 5-parted; segments lanceolate. Corolla 5-parted; the lobes lanceolate, reflexed. Staminal crown (nectary) 5-leaved; leaflets opposite the anthers, each mostly producing from its base a subulate averted process or little horn. Pollen-masses 5 distinct pairs, compressed, affixed by their attenuated summits in the cells of the anthers. Stigma depressed. Follicles ventricose, smooth or muricate. Seeds comose.

* Nectary or Staminal crown with horns.
† Follicles muricate.

1. *A. Syriaca* Linn: stem sub-simple, smoothish; leaves oblong-lanceo-
late, acute or shortly acuminate, petiolate, tomentose beneath; umbel sub-terminal, many-flowered, somewhat nodding; leaflets of the crown ovate, the margin 2-toothed. *A. Cornuti Decaisne*.

Fields and road sides. Can. to Virg. W. to Miss. July, Aug. 2—4 feet high. Leaves 6—8 inches long. Umbels lateral and terminal, 15—20-flowered. Flowers large, pale purple. Follicles 2—5 inches long, covered with soft flexible spines. The leaves are said to be used in preparing the indigo dye in woollen manufactories. The reasons given for changing the old name of this plant do not appear to me to be satisfactory. *Common Milkweed.*

† Follicles smooth.

a. Leaves opposite.

2. *A. phytoleacoides Pursh* : stem erect, simple; leaves broad-lanceolate, acuminate, smooth above, paler and somewhat pubescent beneath; umbels many-flowered, lateral and terminal, solitary, on long peduncles, nodding; leaflets of the crown truncate, the inflexed margin 2-toothed at the summit; horn much exserted, subfalcate. *A. exalata* and *acuminata Muhl. A. nivea Hook.*


3. *A. incarvata Linn.* : stem erect, branched above, more or less pubescent; leaves lanceolate, subsessile, somewhat tomentose; umbels numerous, erect, mostly in pairs and terminal; leaflets of the crown not toothed; horn exserted, subulate. *A. pulchra Wild.*


4. *A. purpurascens Linn.* : stem simple, with two pubescent lines; leaves ovate-elliptic or ovate, mucronate, abruptly attenuated into a short petiole, smoothish above, pubescent and paler beneath; leaflets of the crown oblong; horn falcate, horizontal, acute. *A. amana Mich.*


5. *A. obtusifolia Mich.* : stem simple, erect, smooth; leaves closely sessile, somewhat cordate and clasping, oblong, obtuse, undulate on the margin, very smooth, glaucous beneath; umbel terminal, long peduncled, generally solitary, many-flowered; leaflets of the crown slightly 2-toothed; horn exserted. *A. purpurascens Walt.*


6. *A. variegata Linn.* : stem simple, with 2 pubescent lines; leaves ovate or obovate, attenuated at base into a petiole, smooth, at length somewhat waved; umbels on short peduncles; the peduncles and pedicels woolly; leaflets of the crown without teeth; horn broad, with a horizontal point. *A. hybrida Mich.*

7. A. laurifolia Mich.: stem erect, simple, slightly pubescent; leaves ovate-lanceolate, very acute, subcordate or often rounded at base, subsessile, somewhat distant, smooth, scabrous-serrate on the margin; umbels mostly terminal; leaflets of the crown acute, with the horns scarcely as long. A. acuminata Pursh. A. periplocefolia Nutt.


8. A. quadrifolia Jacq.: stem simple, slender, smooth; leaves lance-ovate, acuminate, petiolate, smooth, 4 larger ones in a whorl near the middle of the stem; umbels 2, terminal, erect, loose; pedicels capillary; leaflets of the crown 2-toothed; horn very short.

Stony woods. Can. to Car. W. to Miss. June. |—Stem 1—2 feet high. Leaves thin and membranaceous, the upper and lower ones opposite. Umbels mostly 2, sometimes solitary, on long slender peduncles. Flowers small, white or pale purple.

b. Leaves alternate or verticillate.

9. A. verticillata Linn.: stem simple, marked with pubescent lines; leaves mostly whorled, narrow-linear, revolute on the margin; umbels terminal and axillary; leaflets of the crown short, obtuse, 2-toothed; horn falcate, much exserted.


10. A. tuberosa Linn.: hairy; stem erect, oblique or decumbent, with spreading branches; leaves oblong-lanceolate, linear-lanceolate or linear, mostly alternate, subsessile; umbels numerous, often forming corymb; horn subulate, rather erect. A. decumbens Willd.


** Nectary or stamineal crown without horns. Acerates. Ell.

11. A. viridisflora Raf.: stem erect or ascending, hairy; leaves oval, ovate and obovate, on short pedioles, tomentose-pubescent on both sides, obtuse; umbels subglobose, many-flowered, subsessile, nodding; pedicels tomentose. A. nutans Muhl. A. lanceolata Ives. Acerates viridisflora and obovata Ell.


Green-flowered Silkweed.
2. GONOLOBUS. Mich.—Gonolobus.

(From the Greek γωνία, an angle, and ὁμός, a pod; on account of its angular follicles.)


1. G. macrophyllus Mich.: stem hirsute with long hairs; leaves broadly ovate-cordate, with the sinus nearly closed, acuminate, finely pubescent, at length smoothish above; segments of the corolla linear or linear-oblong, with the margin reflexed; follicles ribbed and angled. *G. obliquus* Brown. Cynanchum obliquum Muhl.


2. G. hirsutus Mich.: stem twining; younger branches very hairy; leaves cordate-ovate, or ovate-roundish, attenuate or somewhat obtuse, hairy on both sides; peduncles shorter than the petiole, few-flowered; segments of the corolla oblong; follicles muricate. *Gonolobium hirsulum* Pursh.


Order LXXX. LOGANIACEÆ.—LOGANIADS.

Calyx inferior, 4—5-parted. Corolla regular or irregular, 4—5 or 10-cleft. Stamens 5, arising from the corolla. Ovary 2-celled; style continuous; stigma simple. Fruit capsular, drupaceous or berried. Seeds usually peltate, sometimes winged, with fleshy or cartilaginous albumen.—Shrubs, herbaeaceous plants or trees. Leaves opposite, entire, usually with stipules in the form of interpetiolar sheaths.

SPIGELIA. Linn.—Worm Grass.

(In honor of Adam Spigelius, an old botanist of considerable note.)


S. Marylandica Linn.: stem simple, square, smooth; leaves opposite,
ovate-lanceolate, sessile, acute or acuminate, the margin and nerves rough, hairy; lobes of the corolla four times as long as the calyx; anthers exserted.


ORDER LXXXI. GENTIANACEÆ.—GENTIANWORTS.

Calyx divided, persistent. Corolla usually regular, with an imbricate, twisted, rarely induplicate, aestivation; its lobes of the same number as those of the calyx, generally 4 or 5, (rarely 6—10.) Stamens inserted upon the corolla and equal in number to its lobes. Ovary composed of 2 carpels, 1- or partly 2-celled; style 1, continuous; stigmas 2. Capsule or berry many-seeded. Seeds small; albumen fleshy.—Herbaceous plants, rarely shrubs, sometimes twining. Leaves almost always opposite and entire. Flowers showy.

I. GENTIANÆ. Corolla imbricate.

1. GENTIANA. Linn.—Gentian.

(Named from Gentius, king of Illyria, who, according to Pliny, brought into use the species so much valued in medicine.)


* Corolla somewhat tubular; intermediate lobes or plaits large.

1. G. Andrewsii Griseb.: stem ascending; leaves ovate-lanceolate, acuminate, 3-nerved, rough on the margin; flowers aggregated, subsessile, bracteate; lobes of the calyx shorter than the tube; corolla convivent; the lobes very short, smaller than the somewhat 2-lobed plaits. (D. C.) G. Saponaria Fræl. not of Linn.


3. *G. ochroleuca Frew.*: stem ascending; leaves ovate-lanceolate and obovate, rough on the margin; flowers aggregated, subsessile, bracteate; lobes of the calyx unequal, as long as the tube; corolla with the lobes acute, and the plaits very short and entire. *G. Sapona...* Linn.

Sandy fields. N. J. to Flor. Aug., Sept. 2. —Stem 9—15 inches high, simple, somewhat angular, the angles a little rough. *Flowers* yellowish-white, tinged with green and purple, in a terminal bracteate fascicle. *Yellowish Gentian.*

4. *G. angustifolia Mich.*: stem terete, simple, slender, 1-flowered; leaves linear, obtuse, smooth on the margin; calyx deeply 5-cleft, with the lobes linear; lobes of the corolla ovate-oblong, obtuse, twice as long as the calyx, the plaits many-cleft or lacerate. *G. purpurea Wall.*


**Corolla funnel-form, without plaits.**

5. *G. quinqueflora Lam.*: stem square, branched; leaves ovate-lanceolate, subclasping, acute, 5-nerved; flowers somewhat in fives, axillary and terminal, pedicellate; corolla 5-cleft, the lobes triangular and setaceousy acute. *G. amarrelloides Mich.* *G. quinqueflora Linn.*


***Corolla fimbriate on the margin, without plaits.***

6. *G. detonsa Fries*: stem erect; leaves oblong-lanceolate or linear, scabrous on the margin, spatulate at the base; corolla 4—5-lobed; the lobes oblong, obtuse, ciliate at base, crenate at the summit. (D. C.)


7. *G. crinita Willd.*: stem erect, branched above; branches elongated, 1-flowered; leaves lanceolate, rounded or cordate at base; the lower ones obovate, obtuse; corolla 4-cleft; the lobes cuneate-obovate, fringed at the top.


2. HALENIA. *Borkh.*—Halenia.

(Etymology unknown.)

H. deflexa Griseb.: stem erect, leafy; leaves 3—5-nerved; lower ones oblong-spatulate, attenuated into a petiole as long as the lamina; cauline oblong-lanceolate, subsessile, acute; spurs cylindric, obtuse, deflexed, half as long as the corolla. (D. C.) Swertia deflexa Smith. S. corniculata Mich.


3. SWERTIA. Linn.—Swertia.

(In honor of Emanuel Sweert, gardener to the Emperor Rudolphus II.)

Calyx 4—5-parted. Corolla rotate, 4—5-parted; the segments with 2 glanduliferous fimbriate pores at the base of each. Stamens 4—5. Stigmas reniform, mostly 2-lobed (rarely 2, distinct.) Style none. Capsule 1-celled, 2-valved, many-seeded.

S. pusilla Pursh: stem simple, 1-flowered; leaves few, small, oblong; corolla twice as long as the calyx; the segments oblong, acuminate.

White Hills, N. H. June. Pursh. (1)? N. to Labrador.—Stem about an inch high. Leaves 1 or 2 pairs, small. Flowers large, blue. It is still doubtful whether it belongs to this genus. Small Swertia.

4. FRASERA. Walt.—Frasera.

(In honor of John Fraser, a collector of North American plants.)


F. Caroliniensis Walt.: stem smooth; leaves opposite and whorled; panicle elongated; glands oval-orbicular, one on each lobe of the corolla. F. Walteri Mich. F. verticillata Muhl.


5. SABBATIA. Adans.—Sabbatia.

(In honor of Liberatus Sabbati, an Italian botanist.)


1. S. stellaris Pursh: stem slightly angular, dichotomously branched; branches elongated, 1-flowered; leaves sessile, ovate-lanceolate, somewhat
acute; segments of calyx linear-subulate, half as long as the obovate lobes of the corolla. *S. gracilis* Ell.


2. *S. angularis* Pursh: stem erect, square, somewhat winged; leaves ovate, clasping; peduncles elongated, corymbed; segments of the calyx lanceolate, much shorter than the obovate-elliptic lobes of the corolla. *Chironia angularis* Linn.


3. *S. gracilis* Salisb.: stem teretish; branches alternate; leaves linear, the lower ovate or lanceolate; calyx as long as the corolla, the tube very short; lobes of the corolla elliptic-oblong, obtuse. *S. campanulata* Torr. *Chironia campanulata* Linn.


5. *S. chloroides* Pursh: stem weak, somewhat angled, with few 1-flowered branches; leaves lanceolate, erect; branches few, 1 flowered; flowers 7—12-parted; segments of the calyx linear, much shorter than the elliptic-lanceolate lobes of the corolla. *Chironia chloroides* Mich. *Chlora dodecan-dra* Linn.

Salt bogs. N. Y. to Car. Aug. 2. —Stem 1—2 feet high. *Leaves* closely sessile, without nerves, the lower ones ovate-spatulate. *Flowers* large, bright rose-color. This and the preceding are very variable. *Large-flowered Sabbatia.*

6. *S. corymbosa* Bald.: stem erect, nearly square, with opposite branches; leaves ovate-lanceolate, 3-nerved, sessile; flowers corymbed; segments of the calyx linear, much shorter than the obovate oblong lobes of the corolla. *S. paniculata* var. *a.* Pursh. *Chironia lanceolata* Wall.


6. ERYTHRÆA. Rich.—Centaury.

(From the Greek ἐρυθρός, red; the prevailing color of the flowers.)


1. *E. Centaurium* Pers.: stem erect, nearly simple; leaves ovate-oblong, nerved; flowers subsessile, fasciculate-cymose; calyx half as long as the tube of the corolla. *Chironia Centaurium* Willd.


2. *E. Muhlenbergii* Griseb.: stem simple or branching; leaves ovate-oblong, somewhat obtuse; flowers in loose dichotomous cymes, the central ones pedicellate; corolla after flowering twice the length of the calyx; the lobes oblong-lanceolate. ①.—Stem 2—6 inches high, sharply 4-angled. Flowers smaller than in the preceding; limb bright-purple. It is perhaps not distinct from the preceding. *Muhlenberg's Centaury.*

7. **EXACUM.** Linn.—Exacum.

(From the Latin ex, out, and ago, to drive; it being supposed to have the power of expelling poison from the stomach.)


*E. pulchellum* Pursh: lower leaves roundish, the rest subulate; panicle corymbose; peduncles filiform; calyx 4-parted, segments subulate. *Cicendria pulchella*? Griseb. in D. C.


8. **CENTAURELLA.** Mich.—Centaurella.

(A diminutive of Centaurea.)

Calyx 4-parted, appressed. Corolla subcampanulate, 4-parted; segments somewhat erect. Stamens 4. Stigma thick, glandulous and partly bifid. Capsule 1-celled, 2-valved, many-seeded, surrounded by the persistent calyx and corolla.

*C. paniculata* Mich.: stem somewhat branched, smooth; peduncles opposite, the lower ones branched; leaves minute, subulate, alternate below, nearly opposite above; flowers in panicles; corolla as long as the calyx; style very short. *C. autumnalis* Pursh. *Bartonía tenella* Muhl.

Damp grounds. N. Y. to Car. Aug., Sept. ①.—Stem 4—8 inches high, square, often twisted. Leaves scarcely 2 lines in length. Flowers small, greenish-white, on the ends of the branches. *Late-flowered Centaurella.*
II. MENYANTEÆ. Corolla induplicate.

9. LIMNANTHEMUM. Gmel.—Limnanthemum.

(From the Greek λίμνας, inhabiting a lake, and αὐθεν, a flower.)


*L. lacunosum* Griseb.: floating; leaves reniform-cordate, obscurely crenate, smoothish above, spongy beneath; segments of the calyx ovate-oblong, one-third as long as the corolla. *(D. C.) Villarsia lacunosa* Pursh.

Ponds and lakes. Can. to Car. July, Aug. 2.—Stem long, filiform, rooting in the mud. *Leaves* about an inch long, on elongated petioles, somewhat fleshy, greenish above and mostly purplish and spongy below. *Flowers* white, fasciculate, on peduncles produced from the petiole about half an inch below the leaf. Abundant in Sand Lake, N. Y. *Floating Heart.*

10. MENYANTHES. Linn.—Buckbean.

(From the Greek μήν, the moon, (a month,) and αὐθεν, a flower; because the plant continues in flower about that time. Eaton.)

Calyx 5-parted. Corolla funnel-form; limb spreading, 5-lobed, equal, hairy within. Stamens 5. Style 1, filiform. Stigma 2-lobed, persistent. Capsule 1-celled, with the axis of the valves seminferous.

*M. trifoliata* Linn.


ORDER LXXXII. BIGNONIACEÆ.—BIGNONIADS.

Calyx divided or entire, sometimesspathaceous. Corolla usually irregular, 4—5-lobed. Stamens 5, unequal, always 1, sometimes 3, sterile; when 4 are fertile, they are didynamous. Ovary seated in a disk, 2-celled, or spurious 4-celled. Style 1; stigma of 2 plates. Capsule 2-celled, sometimes spuriously 4-celled, 2-valved. Seeds transverse, compressed, often winged, without albumen.—Trees or shrubs, often twining or climbing. Leaves opposite, rarely alternate, without stipules. Flowers somewhat paniced.
1. **TECOMA. Juss.—Trumpet Flower.**

(Etymology unknown.)

Calyx campanulate, 5-toothed. Corolla with the tube short; the limb 5-lobed, equal or somewhat 2-lipped. Stamens 4, didynamous, with the rudiment of a fifth. Capsule 2-celled, 2-valved; dissepiments contrary to the valves. Seeds winged.

*T. radicans* Juss.: stem creeping; leaves pinnate; leaflets in 4—5 pairs, ovate, acuminate, toothed-serrate, pubescent on the nerves beneath; tube of the corolla three times as long as the calyx. *Bignonia radicans* Linn.


2. **CATALPA. Juss.—Catalpa.**

(Said to be a corruption of *Catawba*, the Indian name of this tree.)


*C. cordifolia* Ell.: leaves roundish-cordate, acuminate, entire, petiolate; flowers panicled. *C. syringafolia* Sims. *Bignonia Catalpa Linn.*

Fields, near houses, &c. N. Y. to Flor. and throughout the Western and Southwestern States. July.—A large tree with irregular branches. **Leaves** large, smooth above, somewhat pubescent beneath, on long petioles. **Flowers** large, white, variegated with yellow and purple, in large pyramidal panicles. Probably introduced, as it is generally found in the vicinity of habitations, Indian encampments, &c. **Common Catalpa. Bean Tree.**

**Order LXXXIII. PEDALIACEÆ.—Pedaliads.**

Calyx divided in 5 nearly equal pieces. Corolla irregular; the throat ventricose, the limb somewhat 2-lipped. Stamens 4, didynamous, (2 sometimes sterile,) with the rudiment of a fifth. Ovary seated in a glandular disk, 1 or 2-celled, sometimes with spurious cells; style 1; stigma divided. Fruit drupaceous or capsular. Seeds usually few, wingless, without albumen.—Herbaceous plants, mostly covered with glandular hairs. Leaves opposite or alternate, often angular or lobed, without stipules. **Flowers** usually large, axillary.

**MARTYNIA. Linn.—Martynia.**

(In honor of John Martyn, Professor of Botany in Cambridge, Eng.)

Calyx 5-cleft, campanulate, gibbous at base; the limb un-
equally 5-lobed. Stamens 4, didynamous, with the rudiment of a fifth. Capsule ligneous, corticate, 4-celled, with a long hooked beak which at length splits into two horns.

*M. proboscidea Linn.*: stem viscid, pubescent, branched, mostly decumbent; leaves alternate, cordate, nearly round, very entire, villous; flowers axillary, on long peduncles. *M. alternifolia Lam.*

River banks, N.Y. to Car. W. to Miss. Aug., Sept. ①.—Stem 1—2 feet long. Leaves 3—5 inches in diameter. Flowers dull yellow, large, spotted. Whole plant fetid. The fruit is esteemed as a pickle. Probably introduced into the Northern States from the Southwest.

**ORDER LXXXIV. POLEMONIACEÆ.—PHLOXWORTS.**

Calyx 5-parted. Corolla regular, 5-lobed. Stamens 5, inserted into the tube of the corolla. Ovary superior, 3-celled; style simple; stigma trifid. Capsule 3-celled, 3-valved, with a loculicidal dehiscence; the valves separating from the axis. Seeds angular or oval, sometimes mucilaginous and furnished with spiral threads; albumen horny.—Herbaceous plants, with opposite or alternate simple or compound leaves.

1. **PHLOX. Linn.**—Phlox.

(From the Greek φλοξ, flame; a name which is said to have been originally applied to a species of *Lychnis*, and transferred to this genus by Linnaeus.)

Calyx prismatic, the segments erect. Corolla salver-form; tube long, somewhat curved; the limb flat, 5-lobed. Stamens inserted about the middle of the tube of the corolla, very unequal. Capsule roundish-ovoid, 3-seeded.

1. *P. paniculata Linn.*: stem erect, smooth, paniculately branched above; leaves oblong or ovate-lanceolate, acuminate; panicle pyramidal, corymbose, many-flowered; teeth of the calyx setaceous-acuminate; lobes of the corolla obovate.

Meadows. Penn. to Car. W. to Miss. June, July. ④.—Stem 2—3 feet high. Leaves opposite, rough on the margin, the upper ones slightly cordate at base. Flowers numerous, crowded at the summits of the branches, purple. *Panicled Phlox.*

2. *P. maculata Linn.*: stem erect, simple, and somewhat scabrous; leaves oblong-lanceolate, smooth, with the margin scabrous; panicle oblong, thyrsoid or somewhat pyramidal; teeth of the calyx lanceolate, acute; lobes of the corolla rounded. *P. pyramidalis Smith. P. suaveolens Ait.*

Moist meadows. N.J. to Car. June. ④.—Stem 2—3 feet high, mostly simple, roughish pubescent above, sometimes spotted with dark purple. Upper leaves ovate, and somewhat cordate at base. Flowers in pedunculate axillary corymbs at and near the summit of the stem, varying from deep purple to nearly white. I follow De Candolle in uniting the above species, as it is difficult to point out the distinctive characters. *Spotted Phlox.*
3. *P. aristata* Mich.: stem erect, weak, viscid-pubescent; leaves linear or linear-lanceolate, pubescent; corymb crowded, few-flowered; teeth of the calyx pubescent, very long, awn-like; lobes of the corolla obovate, entire. *P. pilosa* Linn.


4. *P. divaricata* Linn.: stem decumbent, pubescent; leaves oval-lanceolate or lance-ovate, acute, membranaceous, ciliate on the margin; panicle loose, corymbose, few-flowered; teeth of the calyx linear-subulate; lobes of the corolla slightly obcordate.


5. *P. reptans* Mich.: stem erect, with procumbent suckers at base, pubescent; radical leaves spatulate-obo vate; cauline oval-lanceolate, sessile; corymb few-flowered, divaricate; teeth of the calyx subulate, reflexed; lobes of the corolla obovate, entire. *P. stolonifera* Pursh.


6. *P. subulata* Linn.: stem procumbent, cespitose, much branched, pubescent; leaves linear-subulate, rigid, ciliate; corymb few-flowered; teeth of the calyx short, subulate; lobes of the corolla wedgeform, emarginate. *P. setacea* Linn.

Rocky places. N. J. to Car. April, May. [*Pl.] — Root creeping. Stems 6—12 inches long, with numerous assurgent branches 2 or 3 inches high. Leaves half an inch long, with the rudiments of smaller ones or of branches in the axis. Flowers pink or nearly white, with a purple centre. Very abundant near New Brunswick, N. J. *Mountain Pink.*

2. **POLEMONIUM.** Linn.—Greek Valerian.

(From the Greek παλέος, war; which is said by Pliny to have been waged by two kings for the honor of its discovery.)

Calyx campanulate, 5-cleft. Corolla campanulate-rotate; tube very short, closed by the dilated bases of the filaments. Capsule ovoid, obtuse, the cells many-seeded. *P. reptans* Linn.: stem weak, erect or declined; leaves pinnate; leaflets 7—9, (rarely 11,) ovate-lanceolate, acute; flowers terminal, nodding.


**ORDER LXXXV. CONVOLVULACEÆ.—BINDWEEDS.**

Calyx persistent, in 5 divisions, remarkably imbricated. Corolla regular, deciduous; the limb 5-lobed, plaited; the tube
without scales. Stamens 5, inserted into the base of the corolla. Ovary simple, mostly 2—4-celled; styles united or more or less distinct; stigmas obtuse or acute. Capsule 1—4-celled. Seeds with a small quantity of mucilaginous albumen, a curved embryo and leafy shrivelled cotyledons.—Herbaceous plants or shrubs, usually twining and milky. Leaves alternate, very often cordate, entire or lobed. Flowers large and showy.

**CONVOLVULUS. Linn.—Bindweed.**

(From the Latin _convolve_, to entwine.)

Calyx 5-parted, naked or with 2 bracts at base. Corolla funnel-form or campanulate, with 5 plaits. Stamens 5, shorter than the limb. Style undivided. Stigma capitate or lobed. Capsule 2—3-celled, 2—3-valved.

1. **C. arvensis Linn.**: stem twining, angular; leaves sagittate-hastate, with acute lobes; peduncles mostly 1-flowered; bracts minute, remote from the flower; sepals roundish-ovate.

Fields. Maine to Car.; rare. June, July. **2.**—Root long, creeping. Stem 2—3 feet long, climbing, somewhat hairy. Leaves small, ovate-oblong, on short petioles. Flowers white, an inch long, on axillary peduncles which are longer than the leaves. Introduced, and, on account of its deep and spreading roots, becoming in many places a troublesome weed. **Common or Corn Bindweed.**

2. **C. Sepium Linn.**: stem twining; leaves sagittate, very acute, with the lobes truncate; peduncles square, 1-flowered; bracts large, cordate, close to the flower. **Calystegia Sepium Brown.**

Most grounds. Can. to Car. W. to Miss. June, July. **2.**—Stem 3—12 feet long, climbing or trailing, nearly smooth. Flowers large, white, on peduncles which are longer than the leaves.

3. **C. panduratus Linn.**: stem twining; leaves cordate or panduriform, acuminate, the lobes rounded; peduncles long, with small bracts at the base; flowers in fascicles; corolla tubular-campanulate.

Sandy fields. N. Y. to Flor. W. to Ohio. July. **2.**—Root very large and thick. Stem 4—6 feet long, mostly trailing, at length nearly smooth. Flowers mostly 2—5 in a fascicle, on peduncles 3 or 4 inches long. Corolla white, the tube purple. **Medicinal.**

4. **C. spithamceus Linn.**: stem erect or oblique; leaves oval or oblong, subcordate, pubescent, hoary; peduncles 1-flowered, about as long as the leaves; bracts close to the flower, much larger than the calyx. **C. stans Mich.** Calystegia lomentosa and _spithamceus Pursh._

Sandy woods. Can. to Virg. June. **2.**—Stem 8—18 inches long, sometimes nearly procumbent. Leaves varying from acute to obtuse and rounded. Flowers white, on peduncles which are about as long as the leaves. A variable species. **Upright Bindweed.**

5. **C. purpureus Linn.**: stem twining and climbing; leaves cordate, acuminate, undivided, entire; peduncles 2—3-flowered; pedicels thickened, nodding; capsule smooth. **Ipomoea purpurea Pursh.** _Pharbitis hispida._ Choisy, in D. C.
CUSCUTACEÆ.

Fields, &c. July, Aug. ①.—Stem hairy, climbing to a great height. Leaves 2–6 inches long, on petioles of about the same length. Flowers large, blue, purple or nearly white. Introduced. Common Morning Glory.

6. C. lacunosus Spreng.: stem smooth, twisted; leaves cordate acuminated, angled at base; peduncles short, 1–3-flowered; calyx hairy; corolla tubular, short; capsule hairy. Ipomaea lacunosa Linn.


7. C. nil Linn.: stem hairy, twining; leaves cordate, 3-lobed, the intermediate lobe dilated at the base, the lateral ones shorter, acute; peduncles short, 2–3-flowered; segments of the calyx ovate-lanceolate, hairy at the base. Ipomaea nil Pursh. Pharbitis nil Choisy in D. C.

Penn. Muhl. S. to Car. Aug. ①.—Flowers 2 or 3, on peduncles shorter than the petioles. Corolla white at base, blue near the border. Morning Glory.

ORDER LXXXVI. CUSCUTACEÆ.—DODDERS.

Calyx 4—5-parted, persistent, with an imbricate aestivation. Corolla cut round at the base; the limb 4—5-cleft, with alternating scales. Stamens as many as the segments of the corolla. Ovary 2-celled; styles 2, or none; stigmas 2. Fruit capsular or baccate, 2-celled; cells 1—2-seeded. Seeds with a fleshy albumen and a spiral acotyledonous embryo.—Leafless climbing colorless parasites, with the flowers in dense clusters.

CUSCUTA. Linn.—Dodder.

(ETYMOLOGY UNCERTAIN.)


1. C. Epilinum Weih.: heads of about 5 sessile flowers; calyx 5-parted, the lobes obtuse; corolla globose cylindrical, about as long as the calyx; styles erect, at length divergent. (D. C.) C. Europaea. Beck Bot. 1st Ed.

Parasitic on flax. Schenectady, N. Y. Mass. Dewey. Chester county, Penn. Darlingt. July. ①.—Stem filiform, long and climbing, orange-colored, leafless. Flowers in small dense heads, pale-yellow or rose-color. Introduced! Dr. Darlington's C. Europaea, which seems to be identical with the New York plant, is referred to this species by the author above quoted. Flax Dodder.

2. C. Gronovii Willd.: stem branched; flowers pedunculate or more lax, generally 5-parted; corolla deeply campanulate, open, pellucid-punctate, longer than the roundish obtuse calyx-segments; scales convergent, fimbriate. C. Americana Linn.

3. *C. umbrosa* Beyrich: stem low, branching; flowers 5-parted, somewhat pedunculate, at length in spikes; corolla campanulate, longer than the obtuse calyx-segments; stamens as long as the limb; scales pinnatifid-laciniate, convergent. (Torr. *N. Y. Fl.* )

Western part of N. Y. Dr. Gray.—Distinguished from the preceding by the more open campanulate corolla, which is destitute of pellucid glands, and the form of its lobes as well as those of the calyx. Torr. 

**Smooth-flowered Dodder.**

**Order LXXXVII. DIAPENSIACEÆ.—DIAPENSIADS.**

Calyx of 5 imbricate sepals, with 3 bracts at the base. Corolla somewhat salver-form, 5-lobed. Stamens 5, equal; filaments petaloid. Ovary superior, 3-celled; style single, continuous; stigma sessile. Capsule membranous or papery. Seeds pitted, with a very small embryo in a mass of fleshy albumen.—Prostrate under-shrubs, with small densely imbricate leaves and solitary terminal flowers.

**DIAPENSIA.** Linn.—Diapensia. 

(Said to be an ancient Greek name for the Sanicle, applied to this plant by Linnaeus.)

Calyx with the sepals unequal, smooth. Corolla 5-lobed. Stamens 5. Filaments broad-linear, inserted into the throat of the corolla. Capsule 3-celled, 3-valved, many-seeded.

1. *D. Lapponica* Linn.: cespitose; leaves spatulate, smooth; flower terminal, solitary, on a short peduncle; anthers simple. *D. obtusifolia* Pursh.


Pine barrens. N. J. to Car. May, June. 24.—*Plant small, creeping, forming dense mats; branches assurgent. 1-flowered. Upper leaves crowded near the base of the flower, which is small and white. Very abundant in New Jersey. Beaked Diapensia.*

**Order LXXXVIII. BORAGINACEÆ.—BORAGEWORTS.**

Calyx persistent, 5-divided. Corolla 5-lobed, generally regular, and sometimes with a row of scales in the throat. Stamens 5, inserted in the corolla and alternate with its lobes. Ovary 4-parted; style simple; stigma simple or bifid. Fruit consisting of 4 little nuts or achenia. Seed without albumen.—
Herbaceous plants or shrubs, with round stems. Leaves alternate, often rough, without stipules. Flowers usually in one-sided spikes or racemes.

1. **LITHOSPERMUM** Linn.—Gromwell.
(From the Greek λθις, a stone, and σπεμα, seed; on account of the stony hardness of its seeds or nuts.)

Calyx 5-parted. Corolla funnel-form, 5-lobed; the throat naked, rarely with minute scales. Nuts imperforate at base, shining, smooth or rugose.

1. **L. arvense** Linn.: stem erect, branched; leaves sessile, linear-lanceolate, rather acute, veinless, rough, hairy; calyx a little shorter than the corolla, at length spreading; nuts rugose.

   Fields, N. Y. and Mass. to Del. W. to Ohio. May. 1.—Plant hispid-pilose. Stem 12—18 inches high, more or less branched. Flowers solitary, axillary, white. Calyx with the segments thrice as long as the fruit. Introduced from Europe. **Corn Gromwell.**

2. **L. officinale** Linn.: stem erect, much branched, covered with rigid hairs; leaves broad-lanceolate, acute, nerved, rough above, hairy beneath; tube of the corolla as long as the calyx; nuts smooth.

   Dry waste places. N. Y. and Mass. to Penn. and Ohio. May. 2.—Stem 12—18 inches high, often branched and diffuse. Flowers pale yellow, in leafy spike-like racemes. Nuts whitish-brown, highly polished. Introduced from Europe. **Common Gromwell.**

2. **BATSCHIA** Gmel.—Puccoon.
(In honor of John George Batsch, a German botanist of the last century.)

Calyx 5-parted. Corolla salver-form, rather large; tube straight, much longer than the calyx, closed at the base by a bearded ring; orifice naked or partially closed; the limb nearly flat, with 5 rounded lobes. Stamens very short. Nuts smooth and shining, not perforate at the base.

1. **B. canescens** Mich.: stem erect, simple, villous; leaves oblong-lanceolate, obtuse, slightly mucronate, silky above, subvillous beneath; tube of the corolla as long again as the calyx. **Anchusa canescens** Muhl. **Lithospermum canescens** Lehmn.


2. **B. Gmelini** Mich.: plant hirsute; stem simple; leaves linear-lanceolate, hairy on both sides, ciliate; floral ones ovate-lanceolate; segments of the calyx linear, hairy, scarcely as long as the tube of the corolla. **B. Carolinensis** Gmel. **Anchusa hirta** Muhl. **Lithospermum hirtum** Lehmn.

3. **ONOSMODIUM.** Mich.—Onosmodium.  
(So named from its resemblance to *Onosma*, another genus of this order.)  
Calyx deeply 5-parted; segments linear. Corolla tubular-campanulate; throat naked; limb 5-cleft, the lobes acute and connivent. Anthers sessile, included. Style much exserted. Nuts imperforate, shining, ovoid.  

Fields, &c. N. Y. to Car. W. to Ohio. Aug. 4.—Stem 1—2 feet high. *Flowers* white, in simple leafy secund racemes, which at first are recurved and afterwards straight. *Hairy Onosmodium.*  

Sandy grounds, near Albany, N. Y. G. A. Clinton. Penn. to Tenn. July, Aug. 4.—Differs from the former in its soft white pubescence, and in the broader segments of its corolla.  

4. **SYMPHYTUM.** Linn.—Comfrey.  
(From the Greek συμφύτος, to unite; on account of its reputed healing powers.)  
Calyx 5-parted, 5-cleft or 5-toothed. Corolla tubular-campanulate; throat closed with 5 connivent subulate scales; limb with 5 broad and short lobes. Nuts ovoid, rugose.  
*S. officinale* Linn.: stem hispid, winged above; radical leaves on long petioles, rough; cauline ovate-lanceolate, attenuated at base and very decurrent.  

5. **ECHIUM.** Linn.—Viper's Bugloss.  
(From the Greek ἕχιον, a viper; on account of the fancied resemblance of the seed to the head of that animal.)  
Calyx 5-parted; the lobes linear-lanceolate, erect. Corolla subcampanulate; tube very short; throat open; the limb unequally and obliquely 5-lobed. Stamens unequal. Nuts imperforate at base, tuberculate.  
*E. vulgare* Linn.: stem simple, hispid with tubercles; leaves linear-lanceolate, hispid; radical ones petiolate, spreading, very long; flowers in lateral spikes; stamens longer than the corolla.  
Fields and road sides. N. Y. to Virg.; common in New Jersey. June, July. 2.—Stem 2—3 feet high, branched above. *Flowers* large, blue, in lateral
spikes which are at first recurved but gradually become erect. Introduced. A very showy plant when in full flower, but in many places becoming troublesome.

6. LYCOPSIS. Linn.—Bugloss.

(From the Greek λυκός, a wolf, and ψις, a face; from a fancied resemblance to the head of that animal.)

Calyx 5-cleft. Corolla funnel-form, with a curved tube; the mouth closed with convexit connivent scales. Nuts perforate at the base.

*L. arvensis* Linn.: leaves lanceolate, repand-denticulate, very hispid; lower ones tapering into a petiole; upper sessile, subclasping; calyx erect while in flower, about as long as the tube of the corolla. *Anchusa arvensis* Lehm.


7. MYOSOTIS. Linn.—Scorpion Grass.

(From the Greek μυς, μύς, a mouse, and ους, ως, an ear; in allusion to the shape of the leaves.)

Calyx 5-cleft or 5-parted. Corolla salver-form; tube short; limb flat; orifice closed with short connivert scales. Nuts smooth or rugose, with a cavity at the base.

1. *M. caespitosa* Schultz: stem terete, erect, branching, appressed pubescent; leaves linear-oblong, obtuse; calyx 5-cleft, appressed-hairy, shorter than the pedicels, spreading when in fruit; style very short. (D.C.)


   Ditches and wet grounds. Can. to Virg. W. to Miss. May—Sept. (2)?—Plant 12—18 inches high, slender, erect or oblique, branching above, smooth or sprinkled with a few appressed hairs. Leaves 1—3 inches long, the upper sessile, the lower often petiolated. Flowers very small, bright blue, in racemes which are at length elongated. Marsh Scorpion Grass.

2. *M. stricta* Link: stem erect, simple or branched, hispid-villous; leaves oblong, obtuse; racemes leafy at base; fruit-bearing pedicels erect, shorter than the calyx; calyx 5-parted, closed when in fruit, clothed with divaricate hairs; tube of the corolla included. (D. C.) *M. arvensis* Reich. *M. verna* Nutt.

   Sandy fields. Can. to Virg. W. to Miss. May, June. (1)—Plant grayish-pubescent. Stem 4—10 inches high, at length branching. Flowers very small, white, in terminal racemes which are elongated when in fruit. Field Scorpion Grass.

8. ECHINOSPERMUM. Lehm.—Stickseed.

(From the Greek χεινός, a hedgehog, and σπόρα, seed; the fruit being covered with prickles.)

Calyx 5-parted. Corolla salver-form; throat closed by short
scales; the limb with obtuse lobes. Nuts fixed to a central column, imperforate at base, aculeate on the margin.

E. Lappula Linn.: stem branched above; leaves lanceolate or linear-lanceolate, hairy; corolla longer than the calyx; border erect, spreading; nuts with two rows of hooked prickles on the margin. Myosotis Lappula Linn. Rockelia Lappula R. & S.


9. CYNOGLOSSUM. Linn.—Hound’s-Tongue.

(From the Greek κτων, a dog, and γλωσσα, a tongue; in allusion to the shape of the leaves.)

Calyx 5-parted. Corolla short, funnel-form; orifice closed with convex connivent scales; limb with 5 obtuse lobes. Nuts depressed, affixed to the styles by their inner margin, echinate.

1. C. officinale Linn.: silky-pubescent; lower leaves lanceolate, oblong, attenuated into a petiole; upper lanceolate, somewhat cordate or clasping at base; racemes without bracts; lobes of the calyx oblong, obtuse, shorter than the corolla.


Common Hound’s-tongue.

2. C. Virginicum Linn.: hairy; lower leaves oval-oblong, petiolate; upper lanceolate-oblong, sessile, clasping and cordate at base; racemes somewhat corymbose, naked; pedicles elongated, recurved-spreading; lobes of the calyx acute, villous, about half as long as the tube of the corolla. C. amplexicaule Mich.

Shady woods. Can. to Car. W. to the Rocky Mountains. May, June. 3.—Stem 2—3 feet high, very hairy. Radical leaves 6 inches long; upper ones smaller. Flowers blue or nearly white, in a terminal corymbose panicle consisting of 2 or 3 divisions.

Wild Comfrey.

3. C. Morisoni D. C.: stem erect, somewhat hairy, divaricately branched; leaves ovate or lanceolate-oblong, acute, attenuate at base, scabrous above, pubescent beneath; racemes forked, bracteate; pedicels at length deflexed; fruit covered with hooked bristles. Echinopspermum Virginicum Linn. Myosotis Virginiana Linn.

Borders of woods, &c. Can. to Car. W. to Ken. July. 4.—Stem 2—3 feet high. Leaves thin and membranaceous; lower ones petiolate. Flowers small, pale blue or white, in forked terminal racemes.

Small-flowered Hound’s-tongue.

10. MERTENSIA. Roth.—Mertensia.

(In honor of F. C. Mertens, a German botanist who wrote upon the Algae.)

Calyx short, 5-cleft or 5-parted. Corolla with the tube cylindric, the limb somewhat campanulate, 5-cleft; throat naked
or with 5 plaits. Stamens inserted into the upper part of the tube. Nuts somewhat drupaceous, smooth, or reticulate and rugose.

1. *M. Virginica* D. C.: smooth; stem erect; radical leaves obovate-oblong, obtuse; cauline narrower; calyx three or four times shorter than the tube of the corolla. *Pulmonaria Virginica* Linn. *Lithospermum pulchrum* Lehm.


2. *M. maritima* G. Don: stem procumbent or ascending, branched; leaves ovate, rough with callous dots, fleshy; glaucous; upper lanceolate; calyx about half as long as the corolla. (D. C.) *Pulmonaria maritima* Linn. *Lithospermum maritimum* Lehm.


3. *M. denticulata* G. Don: stem erect; leaves nerved, somewhat glaucous, margin rough with minute teeth; radical ones ovate, petiolate; cauline elliptic, sessile; segments of the calyx denticulate on the margin, three or four times shorter than the corolla. (D. C.) *Pulmonaria Sibirica* Pursh App. *Lithospermum denticulatum* Lehm.


**Order LXXXIX. HYDROPHYLLACEÆ.—HYDROPHYLs.**

Calyx deeply 5-cleft, the sinuses often with appendages, persistent. Corolla regular, shortly 5-cleft, mostly between campanulate and rotate. Stamens 5, inserted into the corolla. Ovary simple, 1—2-celled; styles 2, united into 1; stigma bifid. Fruit a capsule. Seeds few, reticulated, with abundant cartilaginous albumen.—Herbaceous plants, often hispid, with alternate lobed or pinnatifid leaves. Flowers in cymose clusters, or in one-sided racemes.

1. **HYDROPHYLLUM.** Linn. *Water Leaf.*

(From the Greek ὑδρός, water, and φύλλον, a leaf.)

Calyx 5-parted, the lobes subulate and the sinuses mostly naked. Corolla campanulate, 5-cleft, with 5 longitudinal margined grooves on the inside alternating with the lobes. Stamens exserted. Filaments bearded in the middle. Stigma
bifid. Capsule globose, 2-valved, 1-seeded, 3 other seeds mostly abortive.

* Sinuses of the calyx naked.

1. H. Virginicum Linn.: stem nearly smooth; leaves pinnatifid and pinnate; the lobes oval-lanceolate, with deep serratures; clusters of flowers crowded; peduncles longer than the petioles; segments of the calyx lance-linear, hispid-ciliate.


2. H. Canadense Linn.: somewhat hairy; leaves angularly sub-5-lobed, mostly cordate at base, coarsely toothed; flowers in crowded fascicles; peduncles shorter than the petioles; segments of the calyx narrow-linear, slightly hairy.


3. H. macrophyllum Nutt.: leaves oblong, pinnately divided at base, with the segments towards the apex pinnatifid or subpinnate, hairy on both sides; the lobes ovate, with coarse ovate mucronulate teeth; peduncles very long and with the calyx hairy; segments of the calyx ovate at base, long-acuminate. (D. C.) Phacelia bipinnatifida Frank not of Mich.

Alleghany Mountains, Penn.? Short. Ohio. Gray.—Leaves a foot or more in length. Corolla white, scarcely longer than the calyx. Large Waterleaf.

** Sinuses of the calyx appendiculate.

4. H. appendiculatum Mich.: stem hairy; leaves hairy above, pubescent beneath; lower pinnately divided; upper palmately 5-lobed; sinuses of the calyx with minute oval appendages. Nemophila paniculata Spreng.

Moist woods. Can. to Virg. W. to Miss. May. 21?—Stem about a foot high, branching at the summit. Leaves on long petioles, the lobes toothed. Flowers blue, on short peduncles, in somewhat paniculate racemes. Hairy Waterleaf.

2. PHACELIA. Juss.—Phacelia.

(From the Greek φακλος, a bundle; in allusion to its fascicled spike.)

Calyx 5-parted, the sinuses naked. Corolla tubular-campanulate, caducous, 5-cleft or half 5-cleft, with 10 plaits or scales on the inside. Stamens often exserted. Style bifid. Capsule ovoid, 2-valved. Seeds 4, oblong.

P. bipinnatifida Mich.: stem somewhat erect, hairy; leaves pinnately divided, on long petioles; lateral segments 2—4, ovate, acute, incisely-lobed; terminal one 3—5-cleft; racemes elongated, mostly bifid; lobes of the calyx linear-acuminate, half as long as the corolla.
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SOLANACEÆ.


3. COSMANTHUS. Nolte.—Cosmanthus.

(Etymology uncertain.)

Calyx 5-parted; the sinuses naked. Corolla broadly campanulate, caducous, 5-cleft; tube without scales. Filaments slender, about as long as the corolla. Style bifid. Capsule 2-valved, septiciferous in the middle. Seeds 4—10, ovoid-angular.

* Lobes of the corolla naked.

1. C. parviflorus D.C.: stem diffuse, pubescent; leaves subsessile, pinnatifid or trifid, hairy on both sides, the uppermost sometimes undivided; lobes of the lower ones ovoid or oblong, entire; racemes solitary. Phacelia parviflora Pursh. Polemonium dubium Willd.


** Lobes of the corolla fimbriate.

2. C. fimbriata Nolte: whole plant hairy; stem ascending; lower leaves petiolate, pinnately divided, the segments few and entire; upper sessile, pectinate-pinnatifid; the lobes oblong and entire; racemes terminal, elongated, few-flowered; lobes of the calyx linear-lanceolate, half as long as the corolla. (D.C.) Phacelia fimbriata Mich.

Low grounds. Penn. to Geor. W. to Miss. May, June. 1.—Stem 8—12 inches high, ascending, slender, branched. Radical leaves with the lobes very obtuse. Flowers pale-blue, in a simple terminal raceme, at first revolute, afterwards erect.

Fimbriate Cosmanthus.

Order XC. SOLANACEÆ.—Nightshades.

Calyx 5- seldom 4-parted, persistent. Corolla with the limb 5- seldom 4-cleft, mostly regular, deciduous. Stamens inserted upon the corolla, as many as the segments of the limb. Ovary 2-celled; style continuous; stigma simple. Fruit a capsule or berry. Seeds numerous, with the embryo straight or curved, in fleshy albumen.—Herbaceous plants or shrubs, with alternate undivided or lobed leaves. Inflorescence various.

* Fruit a berry.

1. SOLANUM. Linn.—Nightshade.

(Etymology uncertain.)

Calyx 5—10-parted. Corolla rotate or subcampanulate; limb plaited, 5—10-cleft. Stamens 5. Filaments very short;
Anthers erect, large, connivent, opening at the top by two pores. Berry 2—6-celled. Seeds numerous.

1. *S. Dulcamara* Linn.: stem shrubby, flexuous, climbing, without thorns, smooth or pubescent; leaves ovate-cordate, smooth; upper ones hastate; flowers in lateral clusters.

Low grounds. N. S. July, Aug. 12.—Stem 6—8 feet long, somewhat pubescent. Flowers purple, with 2 green tubercles at the base of each segment. Berry bright red, oval. Introduced from Europe.

Woody Night-shade. Bitter-sweet.

2. *S. nigrum* Linn.: stem herbaceous, without thorns, angular, rough on the angles; leaves ovate, obtusely toothed and waved; flowers subumbelbed. *S. nigrum* var. *Virginianum* Linn.


Common Night-shade.

3. *S. Carolinense* Linn.: herbaceous, prickly; leaves ovate-oblong, acute, sinuate-angular, often subhastate, stellate-pubescent; raceme simple, loose.

Road sides, &c. N. Y. to Car. W. to Miss. June, July. 24.—Stem erect, branched, a foot high, armed with short prickles. Leaves aculeate on the midrib and larger nerves on both sides. Flowers white, in lateral racemes. Berry globose, orange-yellow.

Horse Nettle.

2. PHYSALIS. Linn.—Ground Cherry.

(From the Greek φύσα, a bladder or bag; in allusion to the inflated calyx.)


1. *P. viscosa* Linn.: herbaceous, pubescent and more or less viscid; stem dichotomously branched, with the branches at length spreading; leaves solitary or in pairs, varying from roundish-ovate to lanceolate-ovate, subcordate at base, mostly acute, more or less repand-toothed; flowers solitary, axillary, pendulous. *P. obscura* Mich. and *P. Pennsylvanica* Linn.


Clammy Ground Cherry.

2. *P. lanceolata* Mich.: stem herbaceous, dichotomously branched, densely pubescent; leaves mostly in pairs, ovate-lanceolate, entire, acuminate, narrowed at the base into a petiole; flower solitary, nodding; calyx villous.

Penn. Muhl. & Darlingt.; rare. S to Car. July. 24.—Stem 1—2 feet high, angular. Leaves often very unequal at base. Flowers usually in the upper axils, pale greenish-yellow, with fuscous spots at base.

Spear-leaved Ground Cherry.
3. NICANDRA. Adans.—Nicandra.
(In honor of Nicander, an ancient Greek physician.)

Calyx 5-parted, 5-angled, the angles compressed, segments sagittate. Corolla campanulate, dry; the limb plaited and nearly entire. Stamens incurved. Berry 3—5-celled, covered by the calyx.

*N. physaloides* Gart.: stem herbaceous; leaves sinuate-angled, glabrous; flowers solitary, axillary, on short peduncles; calyx closed, with the angles very acute. *Atropa physaloides* Linn.

Cultivated grounds, road sides, &c. N.Y. to Geor. July, Aug. **—Stem 2—3 feet high, much branched. Leaves 2—4 inches long, alternate. Flowers solitary, axillary, on short peduncles, pale-blue. Introduced. Originally from Peru, where it is said to be much used as a narcotic. **Nicandra.**

**Fruit a capsule.**

4. NICOTIANA. Linn.—Tobacco.

(After John Nicot, who introduced tobacco into Europe.)


*N. rustica* Linn.: plant viscid-pubescent; stem terete; leaves petioled, ovate, very entire; tube of the corolla cylindrical, longer than the calyx, the lobes rounded.

Western part of New York. *Nutt.* Long Island. *Torr.* **—Stem 12—18 inches high. Flowers greenish-yellow, in a terminal panicle or raceme. According to Mr. Nuttall it has been introduced by the Indians. It contains the same poisonous principle as the common tobacco. **Wild Tobacco.**

5. DATURA. Linn.—Thorn Apple.

(Supposed to be derived from Tatorah, the Arabic name of the plant.)

Calyx tubular and usually 5-angled, separating from the persistent base. Corolla funnel-form, the tube long, the limb 5-angled and plaited. Stamens 5. Stigma bilamellate. Capsule usually prickly or muricate, 2-celled, 4-valved; cells 2—3-parted, many-seeded.


OROBANCHACEÆ.

6. HYOSCYAMUS. Linn.—Henbane.

(From the Greek ἵος, ἦς, a hog, and κυάος, a bean; because hogs are said to eat without injury the fruit, which bears some resemblance to a bean.)


H. niger Linn.: stem erect, very leafy; leaves sinuate and angularly toothed, clasping; flowers sessile, arranged in terminal recurved leafy spikes; corolla reticulate.


ORDER XCI. OROBANCHACEÆ.—BROOMRAPES.

Calyx divided, persistent. Corolla irregular, persistent, with an imbricate aestivation. Stamens 4, didynamous. Ovary superior, 1-celled, seated in a fleshy disk, with 2 or more parietal placentae; style 1; stigma 2-lobed. Fruit a capsule, enclosed within the withered corolla. Seeds numerous, very minute.—Herbaceous leafless parasites. Stem covered with brown or colorless scales.

1. OROBANCHE. Linn.—Broom Rape.

(From the Greek ῤοῦς, a pea-like plant, and ἀγγεῖω, to strangle; from its supposed injurious effect.)

Flowers perfect. Calyx 2—5-cleft, segments often unequal. Corolla tubular, the limb somewhat ringent; upper lip entire or 2-lobed, the lower 3-lobed. Stamens 4, didynamous. Stigma mostly 2-lobed. Capsule ovoid, 2-valved, many-seeded.

1. O. Americana Linn.: stem clothed with ovate-lanceolate imbricate scales; spike terminal, smooth; corolla slightly curved; stamens exserted, Shady woods. Can. to Geor. June. 7—.—Plant 6—8 inches high, mostly growing in clusters. Flowers sessile, with lanceolate bracts at the base, dirty white or pale brown. Squaw-root.

2. O. uniflora Linn.: stem very short, often branched at base, clothed with oblong scales; flowers solitary, on scape-like pubescent peduncles; calyx equally 5-cleft; lobes of the corolla oblong-oval, with a pubescent colored margin; stamens included, smooth.

2. EPIPHAGUS. *Nutt.*—Beech Drops.

(From the Greek ἐπί, upon, and φύος or φύος, a beech tree.)

Flowers polygamous; the upper complete but sterile; the lower imperfect, fertile. **Sterile Fl.** Calyx 5-toothed. Corolla tubular, compressed, curved; upper lip emarginate; the lower 3-toothed. Stamens as long as the corolla. *Style* exserted. Ovary abortive. **Fertile Fl.** Calyx 5-toothed. Corolla small, rarely expanding, 4-toothed, deciduous. Stamens 4, 3 usually sterile. *Style* short. Capsule roundish-ovoid, gibbous, opening on the upper side.

*E. Americanus* Nutt. *Orobanche Virginiana* Linn.


3. OBOLARIA. *Linn.*—Obolaria.

(From the Greek ὀβόλος, a small Athenian coin, which the leaves are said to resemble.)

Calyx 2-parted, in the form of bracts. Corolla campanulate, 4-cleft; the lobes entire, sometimes crenulate. Stamens 4, subdidynamous, proceeding from the clefts of the corolla. *Stigma* emarginate. Capsule ovoid, 1-celled, 2-valved, many-seeded.

*O. Virginica* Linn.

Woods. Penn. and Ohio to Ala. April, May. *Plan.* Plant 4—6 inches high, cespitose, nearly simple, smooth. *Leaves* opposite, rather fleshy, cuneate-obovate, sessile, glaucous. *Flowers* in pairs or threes towards the top of the stem, white or pale red. **Pennywort.**

**Order XCII. SCROPHULARIACEÆ.—Figuworts.**

Calyx of 4 or 5 more or less united sepals, persistent. Corolla with the limb 2-lipped or more or less irregular, with an imbricated aestivation. Stamens didynamous, rarely equal; the uppermost or fifth stamen altogether deficient, or sterile, or very rarely fertile, and shorter than the rest; sometimes the two lower ones are sterile or deficient. Ovary 2-celled; style mostly simple. Fruit capsular, 2-valved. Seeds numerous.—Herbs or sometimes shrubs, usually with opposite or whorled, but occasionally alternate leaves.
Suborder I. Antirrhinideæ.

Inflorescence entirely centripetal or compound. Estivation of the corolla bilabially imbricated, the two upper segments being external.

I. Verbeææ.


(Name altered from Barbascum; the leaves being covered with a barba or beard.)

Calyx deeply 5-cleft or 5-parted. Corolla rotate, 5-lobed, the lobes nearly equal. Stamens 5, all perfect, declined, often hairy; the anterior longer. Style compressed-dilated at the apex. Capsule globose, ovoid or oblong, dehiscent.

1. V. Thapsus Linn.: densely woolly; stem simple; leaves ovate-oblong, decurrent; flowers in a long dense terminal spike; stamens unequal, two smooth.


2. V. Blattaria Linn.: stem nearly smooth, angled; leaves oblong, clasping, crenate-serrate; the radical ones petioled, sinuate-pinnatifid; flowers pedicellate, in an elongated raceme.

Road sides, &c. N. Y. to Car. June, July. 2.—Stem 2 feet high, angular. Leaves acute, serrate or toothed. Flowers yellow or white, with a purplish tinge. Considered by some as a variety of the preceding. Introduced from Europe. Moth Mullein.

3. V. Lychnitis Linn.: stem angular; leaves oblong, wedgeform, nearly smooth above, white and woolly beneath; flowers numerous, in a pyramidal panicle; filaments white-woolly.


II. Antirrhineæ.

2. Linaria. Tourn.—Toad Flax.

(From the Latin línnum, flax; on account of the resemblance of the leaves in many species.)

Calyx deeply 5-parted. Corolla personate; tube with a spur at base; upper lip 2-cleft, erect; throat closed by the prominent palate. Stamens 4, didynamous. Capsule ovoid or globose, 2-celled, usually opening at the summit by several valves. Seeds ovoid.

1. L. Elatine Mill.: stem procumbent, hairy; leaves broad-hastate,
Acute; the lowest ovate, slightly toothed and opposite; peduncles solitary, axillary, very long. *Antirrhinum Elatine Linn.*

Sandy fields. N.Y. to Virg. July. 1.—Stem 1—2 feet long, with spreading branches. *Flowers* small, yellowish, the upper lip purple. Introduced!

2. *L. vulgaris Mill.*: stem erect, mostly simple; leaves linear-lanceolate, scattered, crowded; flowers imbricated in a terminal spiked raceme; calyx smooth, shorter than the spur. *Antirrhinum Linaria Linn.*

Road sides. Can. to Virg. June—Oct. 2.—Stem 1—2 feet high, somewhat glaucous, sometimes a little branched. *Flowers* large, yellow, in a dense terminal bracteate raceme, rarely with 3 or 5 spurs. A very troublesome weed.Introduced from Europe.

3. *L. Canadensis Spreng.:* stem erect or assurgent, mostly simple; leaves scattered, erect, linear, obtuse; flowers racemose; sterile branches procumbent. *Antirrhinum Canadense Linn.*

Low grounds. Can. to Car. May—Aug. 3.—Stem about a foot high, slender, often throwing out suckers at base. *Flowers* very small, blue, in a naked terminal raceme.

III. Cheloneae.

3. SCROPHULARIA. *Linn.—Figwort.*

(So named from its being supposed to cure the scrophula.)

Calyx deeply 5-cleft or 5-parted. Corolla subglobose; limb contracted, with 2 short lips; upper lip 2-lobed, frequently with a scale or abortive stamen within; lower lip 3-lobed. Capsule 2-celled, 2-valved; valves opening at the apex.

*S. Marylandica Linn.:* stem angled, smoothish; leaves ovate or ovate-lanceolate, acute, coarsely serrate, mostly rounded or cordate at base; petioles ciliate; panicle thyrse-like, the branches composed of loosely flowered clusters. *S. nodosa* Benth. in D. C. *S. nodosa* var. *Americana Mich.* *S. lanceolata Pursh.*


4. COLLINSIA. *Nutt.—Collinsia.*

(In honor of the late *Zaccheus Collins*, of Philadelphia.)

Calyx 5-cleft. Corolla bilabiate, the orifice closed; upper lip bifid, lower trifid; intermediate segment carinally saccate and closed over the declinate style and stamens. Capsule globose, partly 1-celled and imperfectly 4-valved. Seeds 2—3, umbilicate.

*C. verna Nutt.:* assurgent, nearly smooth; leaves remotely and somewhat obtusely serrate; radical ones oblong or cordate and petiolate; cauline ovate-oblong, sessile or clasping; uppermost ternate
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5. CHELONE. Linn.—Shell Flower.

(From the Greek χέλων, a tortoise; the flower resembling the head of that animal.)

Calyx 5-parted. Corolla ventricose-tubular; upper lip broad, concave, emarginate or shortly bifid; lower one spreading, 3-cleft. Stamens 4, didynamous, with a fifth shorter sterile filament. Anthers woolly. Capsule 2-celled, 2-valved. Seeds membranaceousy margined.

C. glabra Linn.: smooth; leaves opposite, lanceolate or oblong-lanceolate, acuminate, serrate; flowers in dense spikes.

Wet grounds. Can. to Car. W. to Miss. Aug.—Oct. 2—Stem 2 feet high, simple. Leaves thick and somewhat coriaceous. Flowers large, white or reddish, in compact terminal or subaxillary spikes. Snake-head.

6. PENTSTEMON. Linn.—Pentstemon.

(From the Greek πέντε, five, and στέμα, a stamen; in allusion to the fifth large abortive stamen.)


1. P. pubescens Linn.: stem pubescent; leaves lanceolate-oblong, serrulate, sessile, clasping; sterile filament bearded from the top to below the middle.


2. P. lavigatus Ait.: smooth; leaves ovate-oblong, clasping at base, slightly toothed, the lower entire; sterile filament bearded near the top. Chelone Pentstemon Walt. P. pubescens Benth. in D. C.


IV. GRATIOLEÆ.

7. MIMULUS. Linn.—Monkey Flower.

(From the Greek μύμω, a monkey; in allusion to its grinning-flowers.)

1. *M. ringens* Linn.: erect, smooth; leaves sessile, lanceolate, acuminate, serrate; peduncles axillary, opposite, longer than the flowers; teeth of the calyx oblong, acuminate.


2. *M. alatus* Linn.: erect, smooth; stem winged; leaves petioled, ovate, acuminate, toothed-serrate; peduncles axillary, opposite, shorter than the flowers; teeth of the calyx round, mucronate.


*Stem-winged Monkey-flower.*

8. HERPESTIS. Gart.—Herpestis.

(From the Greek ἵπποστήριον; a creeper.)

Calyx 5-parted, unequal. Corolla bilabiate; upper lip emarginate or 2-lobed; lower one 3-lobed. Stamens 4, didynamous, ascending. Capsule bisulcate, 2-celled, 2-valved. Seeds numerous, small.

1. *H. Monniera* Humb.: creeping, smooth; leaves cuneate-obovate, entire or obscurely crenate near the summit; pedicels with two bracteoles near the end; lower segment of the calyx ovate. *H. cuneifolia* Pursh. *Monniera cuneifolia* Mich.


*Wedge-leaved Herpestis.*

2. *H. amplexicaulis* Pursh: stem villous; leaves clasping, ovate, obtuse, entire, nerved, smooth or sparingly pubescent beneath; pedicels solitary, shorter than the calyx. *Monniera amplexicaulis* Mich.


9. GRATIOLA. Linn.—Hedge Hyssop.

(From the Latin gratia, grace or favor; in allusion to its supposed medicinal virtues.)

Calyx 5-parted, often with 2 bracts at the base. Corolla tubular, subbilabiatoe; upper lip entire or shortly bifid; lower one 3-lobed, the palate not prominent. Stamens 4, 2 sterile. Stigma 2-lobed. Capsule ovate, 2-celled, 2-valved, the valves at length 2-cleft. (4-valved. *D. C.*)


Sandy swamps. Mass to Flor. July, Aug. 24.—*Root* creeping. *Stem* assur-
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gent, 4—8 inches high, 4-angled, branching. Leaves nerved and marked with pellucid dots. Flowers bright yellow, on axillary peduncles.

Golden Hedge Hyssop.

2. G. Virginica Linn.: stem assurgent, terete, pubescent above; leaves smooth, lanceolate, sparingly dentate-serrate, attenuate and connate at the base; segments of the calyx linear-lanceolate, equal; sterile filaments nearly wanting.


Common Hedge Hyssop.

3. G. megalocarpa Ell.: leaves lanceolate, serrate, pubescent; peduncles opposite, longer than the leaves; segments of the calyx linear, as long as the globose capsule. G. acuminata Pursh. (excl. syn.)


Large-fruited Hedge Hyssop.

10. LINDERNIA. Linn.—Lindernia.

(In honor of F. B. Von Lindern, a German botanist.)

Calyx 5-parted, naked at base. Corolla tubular, gent; upper lip short, reflexed, emarginate; lower one trifid, unequal. Stamens 4, 2 longer forked and sterile. Stigma emarginate. Capsule ovoid-oblong, 2-celled, 2-valved; dissepiment parallel with the valves.

1. L. dilatata Muhl.: leaves ovate or oblong, dilated at the base, clasping, remotely toothed; peduncles longer than the leaves. L. Pyxidaria Pursh.

Gratiola anagalloidea Mich.

Inundated banks. Can. to Car. W. to Miss. July, Aug. (1).—Stem 6 inches high, erect or assurgent, 4-sided, smooth, often much branched. Leaves 6—7 lines long. Flowers pale-purple, on alternate and opposite peduncles.

Long-stalked Lindernia.

2. L. attenuata Muhl.: leaves lanceolate and obovate, serrate-toothed, narrowed at the base; peduncles shorter than the leaves, erect. L. Pyxidaria var. major Pursh.


3. L. monticola Nutt.: stem slender, dichotomous; radical leaves spatulate; cauline ones linear, small and remote; peduncles very long, at length deflected.


11. HEMIANTHUS. Nutt.—Hemianthus.

(From the Greek ἑμι, (or ἡμιεως,) half, and ανθος, a flower; on account of the form of the flower.)

Calyx tubular, cleft on the under side; border 4-toothed. Corolla with the upper lip obsolete; the lower 3-parted; inter-


Suborder II.—RHINANTHIDEÆ.

Inflorescence entirely centripetal or compound. Estivation irregularly imbricated, one of the lateral segments being generally external, while the two upper are always internal.

I. SIBTHORPEÆ.

12. LIMOSELLA. *Linn*—Mudwort.

(From the Latin *limus*, mud; in allusion to its place of growth.)


*L. subulata* Ives: leaves linear, very narrow, scarcely dilated at the apex; scape 1-flowered, as long as the leaves. *L. tenuifolia* Nutt.

Muddy shores. N. Y. and Penn. Aug. —Plant rooting and creeping in the mud. Leaves about an inch long. Flowers bluish-white, minute, on peduncles a little longer than the leaves.

Common Mudwort.

II. VERONICEÆ.

13. VERONICA. *Linn*.—Speedwell.

(Name of doubtful origin.)

Calyx 4- rarely 5-parted. Corolla rotate, unequally 4-lobed; the lower segment narrower. Stamens 2, inserted into the tube, exserted. Capsule 2-celled, mostly emarginate or obtuse. Seeds few.

* Spikes or racemes terminal.

1. *V. serpyllifolia* *Linn*.: stem ascending; leaves broadly ovate or elliptic, slightly crenate, smoothish; raceme elongated, many-flowered; capsule inversely reniform, as long as the style.


** Spikes or racemes axillary.

2. *V. scutellata* *Linn*.: stem slender, nearly erect; leaves linear or lance-linear, sessile, somewhat toothed; racemes lateral, alternate; pedicels divaricate in fruit.

3. \(V. \text{ Anagallis Linn.}\): stem erect; leaves lanceolate, clasping, serrate; racemes opposite.


4. \(V. \text{ Americana Schwein.}\): smooth; stem decumbent at base, erect above; leaves mostly petioloed, ovate or oblong, acute or slightly obtuse, serrate, somewhat cordate at base; capsule roundish, turgid, emarginate, (D.C.) \(V. \text{ Beccabunga var. Americana Torr.}\)

Wet grounds. Can. to Car. W. to Oregon. July. \(4\).—Intermediate between \(V. \text{ Anagallis} \) and \(V. \text{ Beccabunga}\), but probably distinct. It has the habit of the former, but the leaves are mostly petioloed, shorter and broader. The capsule and seeds are similar to those of the latter. Intermediate Speedwell.

5. \(V. \text{ Beccabunga Linn.}\): stem procumbent at the base and rooting; leaves elliptic, obtuse, somewhat serrate, smooth; racemes opposite.


6. \(V. \text{ officinalis Linn.}\): stem procumbent, downy; leaves broad-ovate and obovate, serrate, roughly-pubescent; racemes spiked; capsule obovate, deeply notched.


Flowers axillary, solitary.

7. \(V. \text{ agrestis Linn.}\): stem procumbent, hairy; leaves all petioloed, cordate-ovate, incisely-serrate, as long as the peduncles; capsule of 2 rounded keeled lobes.

Sandy fields. Can. to Car. May. \(1\).—Stem 3–4 inches long, hairy. Peduncles rather longer than the leaves and recurved when in fruit. Flowers small, pale blue or whitish. Introduced from Europe. Procumbent Speedwell.

8. \(V. \text{ peregrina Linn.}\): stem erect; leaves oblong, rather obtuse, dentate-serrate; flowers solitary, sessile. \(V. \text{ Caroliniana Walt.}\) \(V. \text{ Marilandica Linn.}\)

Clay grounds. Arct. Amer. to Car. W. to Miss. May–July. \(1\).—Whole plant smooth. Stem simple, or branched only at base. Flowers very small, white or pale blue, nearly or quite sessile.

9. \(V. \text{ arvensis Linn.}\): stem ascending; leaves cordate-ovate, serrate; the lower ones petioloate; the upper or bracts sessile, lanceolate, alternate, nearly entire; flowers subsessile.

Fields, &c. N. Y. to Car. April, July. \(1\).—Stem somewhat branched at base. Flowers nearly sessile, very small, pale blue. Capsule compressed and ciliate. Introduced from Europe. Small Speedwell.

10. \(V. \text{ hederifolia Linn.}\): stem procumbent; leaves all petioloate, cordate, 5–7-lobed; segments of the calyx cordate, ciliate, acute; capsule of two turgid lobes.
Scrophulariaceæ.

Shady rocks. N. Y. and Penn. March, April. (1)—Stem slender, 4—10 inches long, somewhat pubescent. Peduncles longer than the leaves. Corolla shorter than the calyx.

14. LEPTANDRA. Nutt.—Leptandra.
(From the Greek λεπτός, slender, and ἄνθος, a man; in allusion to the stamens.)

Calyx 5-parted; segments acuminate. Corolla tubular-campanulate; border 4-lobed, a little ringent, the lower segment narrower. Stamens 2, and with the pistil at length much exserted. Capsule ovoid, acuminate, 2-celled, many-seeded, opening at the summit.

L. Virginica Nutt.: stem erect; leaves whorled in fours or fives, lanceolate, serrate, petiolate; spikes aggregated. Veronica Virginica Linn, Pedocera Virginica Torr.


III. Buchnerææ.

15. BUCHNERA. Linn.—Buchnera.
(In honor of John Gottfried Buchner, a German botanist.)

Calyx tubular, shortly 5-toothed. Corolla somewhat salverform; tube slender; limb almost equally 5-lobed; the lobes oblong or obovate. Stamens 4, didynamous. Capsule straight, 2-celled, opening elastically.

B. Americana Linn.: hairy-hispid; stem simple; leaves lanceolate, sessile, somewhat toothed, scabrous and hairy; spike long, with the flowers at length remote.


IV. Gerardieææ.

16. GERARDIA. Linn.—Gerardia.
(In honor of John Gerard, an old English botanist.)

Calyx campanulate, 5-toothed or 5-cleft. Corolla tubular-funnel-form or somewhat campanulate; the border unequally 5-lobed, the lobes broad and entire. Stamens 4, didynamous, included. Capsule obtuse or shortly acuminate; the valves coriaceous, usually entire. Seeds numerous.
* Flowers purple.

1. *G. purpurea* Linn.: stem angular, much branched; leaves linear, long, very rough; flowers nearly sessile; teeth of the calyx lanceolate-subulate.

Swamps and low grounds. Can. to Car. Aug.—Oct. \(\text{1} \).—Stem 1—2 feet high, much branched above, rough on the angles. *Flowers* large, axillary, purple, pubescent.

Rough-leaved Gerardia.

2. *G. tenuifolia* Vahl: stem much branched, smooth; leaves linear, acute at each end, smoothish; peduncles axillary, opposite, longer than the flowers; teeth of the calyx short, acute. *G. erecta* Wall.

Fields and woods. N. Y. to Car. W. to Miss. July—Sept. \(\text{1} \).—Stem 6—12 inches high, 4-angled, much branched. *Flowers* small, purple. Differs from the preceding in its more slender growth, its smoother leaves, larger flowers and longer peduncles.

Slender Gerardia.

3. *G. maritima* Raf.: stem angular; leaves linear, fleshy, short, rather obtuse; peduncles much shorter than the flowers; calyx truncate, the teeth short and somewhat obtuse; corolla smooth. *G. purpurea* var. *crassifolia* Pursh.


Salt-marsh Gerardia.

4. *G. auriculata* Mich.: stem subsimple, roughly hirsute; leaves ovate-lanceolate, auriculate at base, sessile, very entire; flowers sessile. *Oto-phylla* Michauxii D. C.


Auriculate Gerardia.

**Flowers yellow.** DASYSTOMA.—Raf.

5. *G. flava* Linn.: pubescent; stem mostly simple; leaves lanceolate or oblong-lanceolate; the upper pinnatifid, nearly sessile; the lower incised or somewhat pinnatifid, on longer petioles; flowers axillary, opposite, nearly sessile.


6. *G. glauca* Eddy: stem paniculately branched, smooth, glaucous; leaves ovate-lanceolate, petiolate, smooth, the lower ones pinnatifid; flowers on pedicels, axillary; calyx smooth, the segments lance-linear. *G. quercifolia* Pursh.


7. *G. Pedicularia* Linn.: stem much branched, pubescent; leaves oblong, smoothish, pinnatifid; segments incinate, serrate; flowers axillary, on pedicels; segments of the calyx leafy, notched and toothed.


Bushy Gerardia.
V. Euphrasieae.

17. SCHWALBEA. Linn.—Schwalbea.

(In honor of Christian Schwalbe; a German botanist.)

Calyx declined, very oblique, tubular, 10—12-ribbed, 5-toothed; the upper tooth much smaller; the 2 lower connate. Corolla bilabiata; upper lip oblong, obtuse, entire; the lower short, erect, with 3 very short obtuse lobes. Stamens didymous. Capsule ovoid-roundish, 2-celled, 2-valved. Seeds numerous, winged.

S. Americana Linn.

Pine barrens. N. Y. to Flor. and Louis. July, Aug. 4.—Stems several from the same root, 12—18 inches high, and with the rest of the plant somewhat viscid-pubescent. Leaves alternate, sometimes nearly opposite, lanceolate or ovate-lanceolate, obscurely 3-nerved. Flowers in a terminal raceme, large, dark purple; upper lip villous. Found in the sandy plains near Albany, N. Y.

18. RHINANTHUS. Linn.—Yellow Rattle.

(From the Greek piv, a nose, and avdog, a flower; its ringent corolla resembling the snout of an animal.)

Calyx inflated, 4-toothed. Corolla ringent; upper lip ovate, obtuse, compressed laterally; lower one of 3 nearly equal lobes. Stamens inserted into the throat of the corolla. Capsule orbicular, compressed, 2-celled. Seeds numerous, margined.

R. minor Ehrh.: smooth or a little pubescent; leaves varying from oblong to lanceolate, serrate; calyx smooth; upper lip of the corolla broad-ovate. R. Crista-galli Linn.

Meadows. Arct. Amer. Can. N. Y. and Mass. W. to Oregon. June, July. 1.—Stem 1—2 feet high, branching, sometimes not more than a few inches high and simple. Leaves opposite, veiny, varying in width. Flowers axillary, but somewhat spiked, yellow. When the fruit is ripe, the seeds rattle in the husky capsule, whence its English name. Common Yellow Rattle.

19. PEDICULARIS. Linn.—Lousewort.

(From the Latin pediculus, a louse; supposed to be because it produces the lousy disease in sheep that feed upon it.)

Calyx ventricose, unequally 5-toothed or 2-lipped; upper lip 2-toothed or entire; lower 3-toothed or sometimes obliquely truncate. Corolla ringent; upper lip compressed, galeate and often rostrate, emarginate; lower 3-lobed, the middle lobe smaller. Capsule ovate or lanceolate, compressed, more or less falcate or oblique, 2-celled, 2-valved, opening at the top.

1. P. lanceolata Mich.: stem erect, somewhat branched, smoothish; leaves subopposite, lanceolate, crenately incised, with the segments toothed-serrate,
rough on the margin; calyx bifid, with the segments roundish-ovate, leafy and dentate; helmet of the corolla truncate at the apex. *P. pallida Pursh.*


**Tall Lousewort.**

2. *P. Canadensis Linn.*: stem simple, oblique, pubescent; leaves pinnatifid, the segments notched and toothed; spike leafy at the base, hairy; calyx obliquely truncate; helmet of the corolla with two setaceous teeth. *P. gladiata Mich.*


20. **EUPHRASIA** Linn.—Eye-bright. *(From Euphrasyne, expressive of joy and pleasure, in allusion to its properties. Hook. Brit. Fl.)*

Calyx tubular, 4-cleft, rarely with a fifth tooth. Corolla bilabiate; upper lip bifid; lower of 3 obtuse or emarginate lobes. Anthers with their lobes mucronate at base. Capsule ovate-oblong, 2-celled. Seeds striate.

*E. officinalis Linn.:* leaves ovate, deeply toothed, furrowed; flowers axillary towards the summit; calyx 4-toothed, hairy; lobes of the lower lip of the corolla emarginate.


21. **CASTILLEJA.** Mutis.—Painted Cup.

(Named by Mutis after his friend Castillejo.)


1. *C. coccinea Spreng.:* pubescent; radical leaves rosulate; cauline lanceolate, pinnatifidly incised; floral trifoíd or incised, colored at the summit; lobes of the calyx truncate, retuse or entire, nearly as long as the corolla. *Euchroma coccinea Nutt.* Bartisia coccinea Linn.

Wet grounds. Can. to Flor. W. to Miss. April, May. 24.—Stem 8—15 inches high, simple, reddish or purple, pubescent. Floral leaves scarlet towards the summit. Flowers in a crowded spike, greenish-yellow. The variety palens of Pursh, having the floral leaves yellow, and the whole plant of a pale yellowish-green, has been found by Dr. Darlington at Downington, Penn. Scarlet Painted Cup.

2. *C. septentrionalis Lind.:* smooth or hispid-hairy; leaves lanceolate, the upper or all incised; floral oblong or obovate, colored, incised; lobes of the
LABIATÆ.

calyx bifid; the teeth ovate-oblong, acute, about as long as the corolla. *Bartsia pallida* Pursh not of *Linn*.

White Mountains, N. H. N. to Subarct. Amer. Aug. 22.—*Stem* about 12 inches high. *Flowers* yellow, pubescent, in a terminal spike. I follow Bentham in referring the New Hampshire plant to this species, although the description given by Lindley does not entirely warrant such a union.

Yellow Painted Cup.

22. MELAMPYRUM. *Linn.*—Cow Wheat.

(From the Greek μέλας, black, and πυρός, wheat; the seeds resemble grains of wheat, and are said, when mixed with flour, to make black bread. *Hook. Br. Fl.*)

Calyx tubular, 4-cleft or 4-toothed. Corolla ringent or personate; upper lip compressed, with the margins folded back; the lower lip a little longer, bi-convex, shortly 3-lobed. Stamens 4. Capsule compressed, ovate, oblique or falcate, 2-celled. Seeds usually 2 in each cell.

*M. Americanum* Mich.: lower leaves lanceolate or linear-lanceolate; floral ones lanceolate, toothed at the base; flowers axillary, distinct. *M. lineare Lam.* and *M. latifolium* Muhl.

Woods. Can. to Car. June, July. 1.—*Stem* 8–12 inches high, branched at the upper part. *Flowers* yellow. It varies considerably in the form of the leaves.

American Cow-wheat.

Order XCIII. LABIATÆ.—Labiates.

Calyx tubular, persistent, 2-lipped or regularly 5- or 10-toothed. Corolla bilabiate; the upper undivided or bifid, overlapping the lower, which is larger and 3-lobed. Stamens 4, didynamous, the 2 upper sometimes wanting. Ovary deeply 4-lobed; style 1, proceeding from the base of the lobes; stigma bifid. Fruit 1–4 small nuts or achenia enclosed within the persistent calyx. Seeds with little or no albumen.—Herbaceous plants or under shrubs. Stem 4-cornered. Leaves opposite, without stipules. Flowers usually in opposite nearly sessile axillary cymes resembling whorls.

I. Menthoideae. *Corolla* somewhat campanulate or funnel-form; the tube scarcely longer than the calyx; the limb almost equally 4–5-cleft. Stamens distant, straight or diverging, nearly equal, or the upper pair sometimes wanting.

1. LYCOPUS. *Linn.*—Water Horehound.

(From the Greek λύκος, a wolf, and πυρός, a foot; on account of the fancied resemblance in the cut leaves to a wolf’s paw.)

Calyx tubular, 5-cleft, mouth naked. *Corolla* tubular-cam-
LABIATÆ.

panulate, nearly equal, 4-lobed; upper segments broader and notched. Stamens 2, distant, simple. Achenia 4, smooth.

1. _L. sinuatus_ Ell.: stem erect, acutely 4-angled, smoothish; leaves petiolate, oblong-lanceolate, sinuate-toothed, the lower pinnatifid in the middle; whorls many-flowered; calyx with 5 acute spinous teeth. _L. Europæus_ Pursh not of Linn. _L. Americanus_ Muhl.


Common Water Horehound.

2. _L. Virginicus_ Linn.: stem stoloniferous at base, smoothish; leaves oblong or ovate-lanceolate, remotely toothed, tapering at each end; calyx with 4 ovate spineless teeth. _L. uniformis_ Mich.


Bugle Weed.

2. ISANTHUS. Mich.—_Isanthus._

(From the Greek _isos_, equal, and _auros_, a flower; the corolla being nearly regular.)

Calyx campanulate, 10-nerved, deeply 5-toothed; the throat naked inside. Corolla scarcely longer than the calyx; tube straight and short; limb campanulate; of 5 equal rounded lobes. Stamens 4, nearly equal, erect, about as long as the corolla. Style 2-cleft at the summit. Achenia obovate.

_I. caruleus_ Mich.


False Pennyroyal.

3. MENTHA. Linn.—_Mint._

(From _mu Gord or muvand, an ancient Greek term.)

Calyx tubular or campanulate, 5-toothed, equal or somewhat 2-lipped. Corolla nearly regular, 4-lobed, the upper lobe broader and emarginate. Stamens 4, equal, distant. Achenia smooth.

* Flowers in spikes.*

1. _M. piperita_ Linn.: stem smooth; leaves ovate-lanceolate, petiolate, acute, serrate, smoothish; spikes interrupted; pedicels and base of the calyx smooth; calyx-teeth hispid.

Marshy grounds on the Hudson and in Western part of N.Y. July. — _Plant_ ascending, 12—15 inches long, branched, often purplish. Leaves rounded at base. _Flowers_ pale purple, in spikes which consist of a few whorls. Introduced from Europe.


**Flowers in axillary whorls.**

3. *M. Canadensis* Linn.: stem ascending, pubescent; leaves lanceolate or oval-lanceolate, petiolate, serrate, acute at each end; whorls many-flowered, remote; stamens exerted. *M. borealis* Mich.


II. **MONARDEZ.** Corolla 2-lipped. Stamens 2, fertile, (rarely 4,) ascending. Anthers linear and confluent at the summit or halved, the cells separated by a long linear connective, which is transversely articulated to the top of the filament.

4. **SALVIA.** Linn.—Sage.

(From the Latin *salvo, to save or heal; in allusion to its supposed healing properties.*

Calyx subcampanulate, 2-lipped; upper lip mostly 3-toothed; lower bifid, the throat naked. Corolla 2-lipped; upper lip erect, straight or falcate and vaulted. Stamens 2. Anthers dimidiate.

1. *S. lyrata* Linn.: stem nearly leafless, retrosely pubescent; radical leaves lyrate-toothed, hispid on both sides; cauline oblong-lanceolate; up-poromb oblong-linear; upper lip of the corolla very short.

Woods. Penn. to Geor. June. 24.—*Stem about a foot high, densely covered with reflexed hairs. Leaves mostly radical, more or less lyrate or pinnatifid, very obtuse. Flowers purple, about 6 in a whorl. *Lyre-leaved Sage.*


3. *S. urticaefolia* Linn.: viscous and villous; leaves ovate, rhomboid, petiolated, somewhat acute, crenate; floral ones broad-ovate; whorls many-flowered, distant; calyx 3-cleft, upper segment 3-toothed.


5. **MONARDA.** Linn.—Monarda.

(In honor of Nicholas Monardes, a Spanish botanist.)

Calyx tubular, elongated, 15-nerved, nearly equal, 5-toothed. Corolla ringent, with a long cylindric tube; upper lip linear,
nearly straight and entire, involving the filaments; lower reflexed, broader, 3-lobed, the middle lobe longer. Stamens 2, exserted from the upper lip of the corolla.

1. *M. didyma* Linn.: leaves ovate or ovate-lanceolate, acuminate, mostly rounded or somewhat cordate at base, mucronate, serrate, a little hairy, on ciliate petioles; floral ones and exterior bracts oblong-lanceolate, nearly sessile, colored; calyx incurved, smooth, naked in the throat; corolla smoothish. *M. purpurea* Lam., *M. coccinea* Mich., *M. Kalmiana* Pursh.

Moist grounds. Can. to Car. July, Aug. 4. — Stem 2—3 feet high, acuteangled, simple or branched at the top, somewhat pubescent. Leaves quite variable, sometimes tapering at base as in Pursh’s figure of *M. Kalmiana*, but usually rounded or even subcordate. Flowers scarlet or crimson, in 2 very rarely 3 terminal whorls which resemble proliferous heads. *Oswego Tea*.

2. *M. fistulosa* Linn.: leaves ovate-lanceolate, rounded and somewhat cordate at base, acuminate, coarsely toothed, thin and nearly smooth, on slightly pubescent petioles; floral ones and outer bracts slightly colored; calyx somewhat curved, with the throat bearded; corolla pubescent.

Rocky banks. N. Y. to Car. July, Aug. 2. — Stem 2 feet high, obtuse-angled, simple, usually hollow. Leaves yellowish-green and somewhat membranaceous; petioles about half an inch long. Flowers pale yellow, in 1 or 2 whorled heads which are smaller than in the preceding. Abundant near Rochester, N. Y. *Pale Monarda*.


Rocky banks. Can. to Car. W. to Miss. July. 2. — Stem 3—4 feet high, obtuse-angled, much branched and hairy above. Leaves tapering or slightly rounded at base, with a few coarse teeth, varying in the degree of pubescence. Flowers pale violet or bluish, in simple heads which are about as large as in the preceding. The habit of this plant is entirely different from that of *M. fistulosa*; the stem is taller and constantly much branched, the leaves are thicker and more hairy, and the color of the flowers is uniformly different. It is also, I think, more common. *Horse Mint. Wild Bergamot*.

4. *M. punctata* Linn.: minutely pubescent; leaves lanceolate, petiolate, remotely serrate, narrowed at base; flowers in dense remote capitulate whorls; bracts lanceolate, colored; calyx pubescent, with 5 unequal teeth; corolla smooth. *M. lutea* Mich.

Sandy fields. N. Y. to Flor. W. to Miss. Aug., Sept. 4. — Stem 2—3 feet high, obtuse-angled, branched, with a minute pubescence. Flowers in several whorled heads. Corolla dull yellow; the upper lip villous at the tip; the lower spotted. It contains an essential oil, which is sometimes used medicinally. See Philad. Med. Recorder, ii. 494. *Horse Mint*.

6. BLEPHILIA. Raf.—Blephila.

(From the Greek βλεφάρις, eye-lash; probably in allusion to the fringed calyx-teeth.)

Calyx ovoid-tubular, 13-nerved, 2-lipped, throat naked; upper lip of 3 awned teeth; lower 2-toothed. Corolla 2-lipped; 12*
upper lip entire; lower 3-lobed; tube dilated. Stamens 2. Style bifid at the summit.

*B. hirsuta* Benth.: plant hairy; leaves on long petioles, ovate, rounded and somewhat cordate at base, hairy on both sides; lower teeth of the calyx short, without awns. *Monarda hirsuta* Pursh.

Low woods. Mass. and N. Y. to Car. W. to Miss. June, July. 2. —Stem 2—3 feet high, branched. Leaves usually with a tuft of down near the midrib beneath. Whorls 2—4, on the upper part of each branch. Corolla small, pale blue, dotted with purple. *Hoary Blephilia*.

III. *Saturejineae*. Corolla somewhat 2-lipped; the lips flat. Stamens 4, (sometimes 2,) straight, diverging; the lower pair longer. Anthers not diliminate.


(From the Greek πυκνός, dense, and ανθομον, a flower; in allusion to the inflorescence.)

Heads of flowers surrounded by an involucre of many bracts. Calyx ovoid or tubular, about 13-nerved, 5-toothed, more or less 2-lipped. Corolla somewhat 2-lipped; upper lip nearly entire; lower trifid, the lobes ovate and obtuse. Stamens 4, nearly equal, distant. Anthers with the cells parallel.

1. *P. ineanum* Mich.: leaves oblong-ovate, petiolate, acute, remotely serrate, tomentose-pubescent beneath; the upper ones hoary on both sides; heads compound, pedunculate, cymose; bracts linear-subulate. *Clinopodium ineanum* Linn.


2. *P. clinopodioides* Torr. & Gr.: leaves oblong-lanceolate, on short petioles, acute at each end, slightly serrate, smooth above, villous-pubescent beneath; heads cymose, contracted; teeth of the calyx short, subulate. Dry rocky hills Kingsbridge on the Island of New York. Torr. Aug., Sept. 4. —Stem 1½—2 feet high, sparingly branched. Leaves pale-green, but never hoary, (the floral ones slightly,) Heads more than half an inch in diameter. Distinguished from the preceding principally by the want of hoariness in the foliage, and the small size of the heads. (Torr.) *Basil-leaved Pycnanthemum*.

3. *P. aristatum* Mich.: leaves lanceolate-ovate, subserrect, on very short petioles, nearly smooth on both sides; heads dense, sessile; bracts acuminate, subulate; corolla pubescent within. *Nepeta Virginica* Linn.


4. *P. Torrei* Benth.: stem strict, pubescent; leaves varying from linear-lanceolate to oblong-linear, smoothish, acute, remotely toothed, tapering
into a petiole; cymose heads contracted, depressed-hemispheric; calyx with nearly equal lanceolate acuminate teeth. *P. Virginicum Nutt.*


Moist woods. N. Y. to Car. W. to Miss. July, Aug. 24.—Stem 12–13 inches high, fastigintely branched. Flowers white with purple spots, in numerous crowded hemispheric heads which are about 4 lines in diameter. *Narrow-leaved Virginian Thyme.*


7. *P. muticum* Pers.: stem pubescent, paniculate at the summit; leaves subsessile, ovate-lanceolate, acute, subserrate, veined, obtuse or rounded at the base, smoothish, the upper ones canescent; whorls dense, mostly in terminal heads; outer bracts ovate-lanceolate, acuminate. *Brachystemum muticum* Mich.

Dry hills. N. Y. to Geor. July, Aug. 24.—Stem 2 feet high, with widely spreading branches. Flowers reddish-white with purple spots, in dense terminal heads which are about half an inch in diameter. *Veiny-leaved Mountain Mint.*

8. **THYMUS. Linn.—Thyme.**

(From the Greek ὃψ, strength; in allusion to its cordial qualities.)

Flowers whorled or capitate. Calyx ovoid, 13-nerved, bilabiate; upper lip 3-toothed; lower bifid, the throat hairy. Corolla with the upper lip erect, nearly flat, emarginate; the lower longer, spreading and 3-cleft.

*T. Serpyllum* Linn.: stem branched, decumbent; leaves flat, ovate, obtuse, entire, petioled, more or less ciliate at base; flowers capitate.


9. **ORIGANUM. Linn.—Marjoram.**

(From the Greek ὁρά, a hill, and γάμος, joy; in allusion to its fragrance and beauty in its native habitat.)

Flowers collected into 4-sided dense spikes or heads. Calyx ovoid-tubular, 5-toothed. Corolla somewhat 2-lipped; upper
LABIATÆ.

lip erect, nearly flat, emarginate; lower spreading, almost equally 3-cleft. Stamens 4, the lower ones longer.

_O. vulgare_ Linn.: erect, villous; leaves broad-ovate, petiolate, obtuse, nearly entire; spikes roundish, panicked, clustered, smooth; bracts ovate, longer than the calyx.

Rocky fields. N. S. July—Sept. _Stem_ 8—12 inches high, hairy. _Flowers_ pale-purple, in numerous small spikes which are crowded together so as to form a terminal head. Introduced _Common Marjoram._

10. COLLINSONIA. Linn.—Horse Balm.

(In honor of Peter Collinson, of London, a patron of botany.)

_Calyx_ ovoid, about 10-nerved, 2-lipped; upper lip 3-toothed; lower lobe longer than the rest, toothed or fimbriate; throat dilated. Stamens mostly 2, much exserted, diverging.

_C. Canadensis_ Linn.: stem smoothish; leaves broad-ovate, acuminate, coarsely serrate, thin and smoothish; flowers diandrous, in a loose terminal panicle.

Woods. Can. to Car. July, Aug. _Stem_ 2—3 feet high, somewhat branched, 4-angled. _Leaves_ large, cordate or obtusely cuneate at base. _Flowers_ large, greenish-yellow. Sold by the Shakers under the name of _Stone-root._ _Common Horse-balm._

11. CUNILA. Linn.—Dittany.

(A name borrowed from the ancient Roman naturalists.)

_Calyx_ ovoid-tubular, about 13-nerved, 5-toothed; throat densely villous. Corolla 2-lipped; upper lip flat and emarginate; lower 3-lobed. Stamens 2, erect, exserted, distant. Style bifid at the summit.

_C. Mariana_ Linn.: herbaceous; leaves subsessile, ovate, somewhat cordate at base, serrate; cymes pedunculate, loosely corymbose.


IV. MELISSINEÆ. _Calyx_ mostly 13-nerved, 2-lipped. _Corolla_ 2-lipped; the divisions flattish, or the upper lip rarely galeate. _Stamens_ 4, or sometimes 2, ascending.

12. HEDEOMA. Pers.—Pennyroyal.

(From the Greek _μήλις_ , sweet, and _οὖρον_ , odor; in allusion to its fragrance.)

_Calyx_ ovoid-tubular, gibbous on the under side at the base, 2-lipped; upper lip 3-toothed or 3-cleft; lower 2-cleft. Corolla 2-lipped; upper lip erect, flat; lower spreading, 3-cleft. Stamens 2 sterile, rudimentary or wanting; 2 fertile and ascending.
LABIATÆ.

H. pulegioides Pers.: stem erect, branched, pubescent; leaves ovate, sub-serrate, petiolate, narrowed at base; whorls axillary, about 6-flowered; corolla about as long as the calyx. Cunila pulegioides Linn.


13. MICROMERIA. Benth.—Micromeria.

(From the Greek μικρός, small, and μέρος, a part.)

Calyx tubular, 13—15-nerved, with 5 nearly equal teeth, or somewhat 2-lipped; the throat often villous. Corolla 2-lipped; upper lip flattish, entire or emarginate; the lower spreading, with the lobes nearly equal, or the middle one broader. Stamens 4, didynamous, the lower pair longer and ascending.

M. glabella var. angustifolia Torr.: smooth; stem herbaceous, erect, with prostrate suckers at the base; radical leaves ovate, petiolate; cauline oblong-linear, obtuse; all entire; flowers axillary, solitary, or 2—5 in cymes, on long pedicels. M. glabella Benth. (excl. syn. Mich.) Cunila glabella Beck Bot. 1st. Ed.

Limestone rocks, near Niagara Falls. W. to Miss. Aug. 2. — Stems 6—10 inches high, branched from below. Corolla violet, much longer than the calyx. Found by the late Dr. D. Houghton at the Falls of St. Anthony. According to Dr. Torrey, the true Cunila glabella of Michaux, which occurs on rocks in Tennessee, differs from the Niagara plant in being much larger, the leaves all ovate or obovate-oblong and toothed. Niagara Thyme.

14. MELISSA. Linn.—Balm.

(From the Greek μέλισσα, a bee; because the flowers are sought by that insect.)

Calyx tubular, 13-nerved, often striated, 2-lipped; upper lip mostly spreading, 3-toothed; lower bifid. Corolla 2-lipped; upper lip erect, flattish; lower spreading, 3-lobed, the middle lobe mostly broader. Stamens 4, ascending, mostly approximated in pairs at the summit.

1. M. Clinopodium Benth.: herbaceous, erect, villous; leaves petiolate obtuse, subcrenate, rounded at base; whorls many-flowered, depressed-globose; bracts subulate, as long as the calyx. Clinopodium vulgare Linn.


2. M. officinalis Linn.: herbaceous, erect; leaves oblong-ovate, rather acute, coarsely crenate-serrate, rugose, sometimes obtuse or cordate at base; whorls dimidiate or secund, loose, axillary; bracts few, lance-ovate, petiolate.

Read sides, &c. N. S. July, Aug. 4. — Stem 1—2 feet high, branched, more or less pubescent. Flowers in small axillary peduncled cymes, white or
yellowish. Introduced and naturalized in some places. It is cultivated as a medicinal herb; the infusion being considered as a useful drink in fevers. Common Balm.

V. SCUTELLARINEE. Upper lip of the calyx truncate, entire or somewhat 3-toothed. Corolla 2-lipped; the upper lip galeate. Stamens 4, ascending; the lower pair longer.

15. PRUNELLA. Linn.—Self Heal.

(From the German Brunnelle, again derived from Bracene, the quinsy; because the plant was supposed to cure that disease.)

Calyx tubular-campanulate, 2-lipped; upper lip flat, dilated, truncate, with 3 short teeth; lower 2-cleft. Corolla 2-lipped; upper lip erect, vaulted, entire; lower depending, 3-lobed. Stamens 4, ascending. Filaments 2-toothed at the apex.

P. vulgaris Linn.: leaves petiolate, oblong-ovate, toothed at base; lips of the calyx unequal; the upper one truncate, 3-awned. P. Pennsylvanica Willd.

Meadows. Can. to Car. W. to Miss. June—Aug. *2*.—Stem 8—12 inches high, erect or ascending, somewhat branched, hairy. Flowers large, purple, densely whorled, so as to form an imbricated oblong spike. Introduced?
Common Self-heal.

16. SCUTELLARIA. Linn.—Skullcap.

(From the Latin scutella, a little dish or cup; in allusion to the appearance of the calyx with its appendage.)

Calyx campanulate, 2-lipped; lips entire; upper one with a galeate appendage on the back, deciduous. Corolla 2-lipped; the tube elongated; upper lip vaulted; lower dilated, convex. Stamens 4, ascending under the upper lip of the corolla.

1. S. canescens Nutt.: stem tall, branched, pubescent; leaves ovate or ovate-lanceolate, acute, crenate, petiolate, pubescent on both sides, white beneath; lower somewhat cordate; flowers in loose paniculate racemes; calyx white-tomentose. S. pubescens Muhl.


2. S. pilosa Mich: stem erect, mostly simple, pubescent; leaves remote, rhombic-ovate, crenate-serrate, petiolate; upper cuneate or narrowed at base; lower rounded or cordate; raceme terminal, loose, mostly branched; bracts elliptic-ovate.

Open woods. N. Y. to Car. June, July. *2*.—Stem 12—18 inches high, often purplish. Lower leaves sometimes cordate, on petioles an inch or more long. Flowers large, in a somewhat paniculate terminal raceme, white, tinged with violet at the summit. A variable species. Hairy Skullcap.

3. S. integrifolia: Linn stem nearly simple, pubescent; leaves oblong-lanceolate or linear, obtuse, smoothish, on short petioles, entire or very ob-
scurely toothed; racemes terminal, subpaniculate, loose, leafy; bracts lanceolate. *S. hyssopifolia* Linn. *S. Caroliniana* Pursh.

Moist grounds. N. Y. to Geor. W. to Miss. June, July. **24.**—*Stem* 1—2 feet high, sparingly branched above, grayish-green. *Flowers* very large, in loose terminal and subterminal racemes, blue at the summit, the tube nearly white. A very showy species. **Entire-leaved Skullcap.**

4. *S. galericulata* Linn.: *stem* simple or divaricately branched; leaves ovate-lanceolate, on very short petioles, acute, roundish and cordate at base, crenate; flowers axillary, solitary, on short pedicels.


5. *S. parvula* Mich.: *stem* decumbent or oblique, slender, branching from the base, minutely pubescent; leaves ovate or lance-ovate, remotely serrate or entire, sessile, subcordate at base, prominently veined; flowers small, axillary. *S. ambigua* Nutt.

Rocky grounds. Can. to Virg. W. to Miss. June, July. **24.**—*Root* (rhizomes) consisting of a succession of tubers. *Stem* 4—8 inches high, simple or branched from near the base and spreading, mostly purplish. *Leaves* 4—8 lines long, rather closely sessile, distinctly veined, purplish beneath. *Flowers* from 3—4 lines long, blue, axillary, hairy. The specimens found by Dr. A. F. Holmes, in Canada, and by Dr. D. Houghton, on the Upper Mississippi, agree exactly with those from New Brunswick, N. J. **Small Skullcap.**

6. *S. nervosa* Pursh: *stem* erect, mostly simple, smoothish; lower leaves roundish-cordate, petiolate; middle ones broad-ovate, crenate-dentate, sessile; upper ovate-lanceolate, entire; flowers axillary, solitary, opposite. *S. gracilis* Nutt. *S. parviflora* Muhl?


7. *S. lateriflora* Linn.: smoothish; *stem* erect, much branched; leaves on long petioles, ovate-lanceolate, acuminate, coarsely serrate, rounded or slightly cordate at base; racemes axillary, leafy.

Wet meadows. Can. to Car. W. to Oregon. July, Aug. **24.**—*Stem* 1—2 feet high, much branched, with the angles roughish. *Flowers* small, blue, in numerous leafy racemes. Some years since this plant was in great repute as a cure for hydrophobia; but like many other specifics, it has had its day. **Mad-dog Skullcap.**

VI. NEPETEE. Calyx oblique or somewhat 2-lipped. Corolla 2-lipped; the upper lip galeate. Stamens 4; the upper pair longer.

17. LOPHANTHUS. Benth.—Giant Hyssop.

(From the Greek λόφος, a crest, and ἄνθος, a flower; in allusion to the flowers.)

Calyx tubular, 15-nerved, oblique, 5-toothed, the upper teeth somewhat longer. Corolla 2-lipped; upper lip emarginately bifid; lower 3-lobed; the middle lobe broader, crenate. Stamens divaricate, upper pair longer.

1. *L. nepetoides* Benth.: *stem* smooth, with the angles acute or winged; leaves opposite, ovate and lance-ovate, serrate-crenate, green on both sides,
smoothish; teeth of the calyx ovate, somewhat obtuse. *Hyssopus nepetoides* Linn.


2. *L. scrophulariacefolius* Benth.: stem pubescent, with the angles obtuse; leaves ovate, acute, serrate-crenate, green on both sides, smooth above, pubescent beneath; teeth of the calyx lanceolate, acute. *Hyssopus scrophulariacefolius* Linn.


18. NEPETA. Linn.—Cat Mint.

(Named, some say, from *Nepi*, a town in Italy, others, from *Nepa*, a scorpion, for whose bite this plant was considered a cure. *Hook. Brit. Fl.*)

Calyx tubular, 13–15-nerved, obliquely 5-toothed. Corolla 2-lipped; upper lip erect, emarginate or bifid; lower 3-lobed, middle lobe largest; throat dilated; tube slender below. Stamina 4, ascending.

1. *N. Cataria* Linn.: hoary-pubescent; stem erect, tall; leaves oblong-cordate, petiolate, acute, coarsely crenate, rugose; whorls many-flowered, upper ones crowded in a spike; calyx half as long as the corolla.


2. *N. Glechoma* Benth.: stem procumbent, rooting at the base; leaves petiolate, cordate-reniform, rounded, crenate, somewhat hairy; whorls few-flowered, axillary; corolla three times as long as the calyx. *Glechoma hederacea* Linn.

Road sides, &c. N. S. May, June. 2.]—Stems about a foot long, slender, with ascending branches. *Flowers* large, blue, in distant axillary whorls. Introduced from Europe. *Ground Ivy.*

19. DRACOCEPHALUM. Linn.—Dragon’s Head.

(From the Greek δρακος a dragon, and κεφαλη, a head; in allusion to the form of the flowers.)

Calyx tubular, 13–15-nerved, 5-toothed; upper tooth broader and often larger, the 3 upper sometimes approximated. Corolla 3-lipped; upper lip erect and emarginate; lower spreading, 3-lobed. Stamina 4, ascending; the lower pair shorter.

*D. partitiforum* Nutt: stem erect, branched; leaves ovate-lanceolate, coarsely or incisely crenate or serrate, petiolate, green on both sides; whorls in a terminal capitulate spike; upper tooth of the calyx broad-ovate; corolla scarcely longer than the calyx.
Barren fields and woods. Arct. Amer. to N. Y. W. to Miss. May—Aug. ②.—Nearly smooth. *Stem* 8—15 inches high, obtusely 4-angled. *Flowers* pale-blue, in ovoid or globose spikes which are about an inch in diameter.

*Small-flowered Dragon’s Head.*

**VII. Stachydeæ.** *Calyx* 5—10-nerved or irregularly veined. *Corolla* 2-lipped. *Stamens* 4, ascending; the lower pair longer. *Achenia* smoothish when dry.

20. **PHYSOSTEGIA.** *Benth.—Physostegia.*

*(From the Greek φυστία, a bladder, and στέγνη, a covering; in allusion to its inflated calyx.)*

*Calyx* 5-toothed or truncate, at length inflated-campanulate. *Corolla* 2-lipped; tube exserted, destitute of a ring within; upper lip nearly erect, somewhat concave; lower with 3 rounded lobes, the middle one larger and emarginate. *Stamens* 4, ascending under the upper lip; the lower pair rather longer.

*P. Virginiana* *Benth.:* calyx acutely and almost equally 5-toothed. *Dracocephalum Virginianum* *Linn.* and *D. denticulatum* *Ait.* *D. variegatum* *Vent.*

*Low grounds. Can. to Flor. W. to Miss. June—Aug. ②.—Stem* about 2 feet high, smooth except at the summit. *Leaves* sessile, opposite, varying from narrow-lanceolate to ovate-lanceolate, acutely serrate or denticulate, coriaceous. *Flowers* large, pale-purple, sometimes variegated, nearly sessile and usually opposite, in long spikes, crowded or somewhat distant. I follow Bentham in uniting the two or three species heretofore considered distinct, but not without considerable hesitation. I cannot help thinking, with Dr. Darlington, that *D. denticulatum* of previous authors will eventually prove to be, if not a distinct species, at least a constant variety.

21. **LAMIUM.** *Linn.—Dead Nettle.*

*(From the Greek λαυρός, the throat; on account of the shape of the flower.)*

*Calyx* tubular-campanulate, about 5-nerved, with 5 nearly equal subulate teeth. *Corolla* 2-lipped; upper lip oblong or ovate, galeate; throat dilated; lower lip with the middle or lower lobe broad, emarginate, contracted at base. *Stamens* 4, the lower pair longer.

*L. amplexicaule* *Linn.:* leaves rounded, crenately incised; lower ones petiolate; floral sessile, clasping; tube of the corolla naked within.

*Fields and road-sides. N. S. May—Nov. ①.—Stem* 6—10 inches high, branched from the base. *Flowers* with the tube slender, purple, in dense whorls. *Introduced from Europe.*

**Common Dead Nettle.** *Hen-bit.*

22. **LEONURUS.** *Linn.—Motherwort.*

*(From the Greek λιόν, a lion, and ὄφρα, a tail; on account of a fancied resemblance in the plant.)*

*Calyx* turbinate, 5-nerved, with 5 subulate equal teeth. *Corolla* 2-lipped; upper lip very hairy above, entire; lower
spreading, 3-cleft, the middle lobe obcordate. Stamens 4, ascending; the lower pair longer.

*L. Cardiaca* Linn.: lower stem leaves palmately divided; upper ovate, lobed; floral cuneate-oblong, mostly trifid; tube of the corolla with a villous ring inside; upper lip flattish, hirsutely villose.


23. **GALEOPSIS**. *Linn.*—Hemp Nettle.

(From the Greek γαλόζη, a weasel, and ὁμοσ, appearance; the lips of the flower resembling the snout of that animal.)

Calyx tubular-campanulate, about 5-nerved, 5-toothed; the teeth armed with spine-like tips, nearly equal. Corolla 2-lipped; upper lip entire, arched; lower spreading, 3-lobed, the middle lobe bifid or obcordate; throat dilated. Stamens 4, ascending; the lower pair longer.

*G. Tetrahit* Linn.: stem hispid, swollen below the joints; leaves petiolate, ovate serrate, and with the calyx smooth or hairy.

Old fields, &c. N. S. July. 24.—*Stem* 1—2 feet high, retorsely hispid, branched. *Flowers* numerous, pale-purple, with darker spots, in whorls, which are usually approximated towards the summit of the stem and branches. According to Bentham this is a very variable species, and should probably include that which has been described by American botanists under the name of *G. Ladanum*. Introduced from Europe. Common Hemp Nettle.

24. **STACHYS**. *Linn.*—Hedge Nettle.

(From the Greek σταχύς, a spike; in allusion to its mode of flowering.)

Calyx tubular-campanulate, 5—10-nerved, 5-toothed; the teeth equal or the upper ones longer. Corolla 2-lipped; upper spreading and somewhat vaulted; lower mostly longer, spreading, 3-lobed; the middle lobe largest. Stamens 4, ascending; the lower ones longer.

1. *S. hyssopifolia* Mich.: herbaceous, smooth; stem slender, ascending; leaves oblong or linear-lanceolate, sessile, remotely toothed; whorls about 4-flowered; calyx smooth; the teeth lanceolate, acute. *S. tenuifolia* Willd.


3. *S. palustris* Linn.: herbaceous, erect; stem hairy; leaves subsessile,
cordate-ovate or ovate-lanceolate, serrate-crenate, rugose, hispid, the lower smooth; whors 6—10-flowered, distinct; teeth of the calyx lanceolate, acute and somewhat spiny. *S. sylvatica* Nutt.


**25. MARRUBIUM. Linn.—Horehound.**
(Of doubtful origin, some say from a town so called in Italy.)

Calyx tubular, 5—10-nerved, with 5—10 spreading teeth; the throat hairy. Corolla 2-lipped; upper lip flattish or concave; lower 3-lobed, the middle lobe broader and usually emarginate. Stamens 4, included; the lower pair longer.

*M. vulgare* Linn.: stem erect, white and woolly; leaves roundish-ovate, toothed, rugose, very woolly beneath; whors villous, many-flowered; calyx with 10 setaceous hooked teeth.


**26. BALLOTA. Linn.—Fetid Horehound.**
(From the Greek βαλλω, to reject; on account of its disagreeable smell.)

Calyx funnel-form, 10-nerved, with 5—10 broad mucronate teeth. Corolla 2-lipped; upper lip erect, somewhat concave, emarginate; lower trifid, the middle lobe largest and emarginate. Stamens 4, ascending; the lower pair longer.

*B. nigra* Linn.: hairy or smoothish; leaves ovate, truncate at base, green on both sides, more or less hairy; teeth of the calyx 5, dilated at the base, subulate-mucronate at the summit.


**Black Horehound.**

**VIII. AJUGOIDEÆ. Corolla with the upper lip very short, sometimes bifid, with the segments mostly depending. Stamens 2 or 4, ascending, exserted. Achenia more or less reticulate-rugose.**

**27. TRICHOSTEMA. Linn.—Trichostema.**
(From the Greek ὀπίς, τριχος, a hair, and στήμα, a stamen; in allusion to its hair-like stamens.)

Calyx campanulate, oblique, resupinate, unequally 5-cleft; the three upper teeth (apparently lower) elongated; the two others short. Corolla with the tube slender; upper lip falcate. Stamens 4, very long and curved.
1. *T. dichotoma* Linn.: stem pubescent; leaves lance-oblong or rhomboid-lanceolate, petiolate, entire.


2. *T. linearis* Walt.: stem viscidly pubescent; leaves linear, smooth, sessile, acute at each end; teeth of the calyx awned. *T. dichotoma* var. *linearis* Pursh.

Sandy fields. N. J. to Car. June—Sept. 2.—Resembles the former in habit, but is smaller. It is considered distinct by Nuttall and Elliott. **Narrow-leaved Trichostema.**


(From *Teucer*, a prince of Troy, who is said to have first used this plant medicinally.)

Calyx tubular or campanulate, almost equally 5-toothed. Corolla with the tube short; 4 upper lobes of the limb nearly equal; the lowest lobe longest, oblong or rounded. Stamens exserted from a cleft between the upper lobes of the corolla.

*T. Canadense* Linn.: hoary-pubescent; leaves ovate-lanceolate, serrate, petiolate, obtuse at base, hoary beneath; whorls crowded in a single terminal spike; calyx campanulate, with the 3 upper teeth broader. *T Virginicum* Linn.


**Order XCIV. VERBENACEÆ.—VERVAINS.**

Calyx tubular, persistent. Corolla tubular, deciduous, generally with an irregular limb. Stamens usually 4, didynamous, seldom equal, sometimes only 2. Ovary 2—4-celled; style 1; stigma bifid or undivided. Fruit nucamentaceous, sometimes berried, composed of 2 or 4 nucules in a state of adhesion, (rarely with 1 nucule). Seeds with the albumen wanting or fleshy.—Trees, shrubs or herbaceous plants, with the leaves opposite, and the flowers usually in corymbbs.

1. *VERBENA.* Linn.—Vervain.

(From the Celtic *ferfain*, derived from *fer*, to drive away, and *faen*, stone; from its having been supposed to cure the disease so called. *Hook. Brit. Fl.*)

Calyx tubular, with 5 teeth, one of them generally shorter than the rest. Corolla tubular or somewhat funnel-form; limb
unequal, 5-cleft. Stamens 4, included, (sometimes only 2.)
Fruit composed of 2—4 nucules.

1. *V. hastata* Linn.: erect, tall; leaves lanceolate, acuminate, sharply
or incisely serrate, lower ones lobed or subhastate; spikes filiform, erect,
corymbose-paniculate, somewhat imbricate.
high, 4-sided, somewhat rough and hairy. *Leaves* large, rough.—*Flowers* small,
purple, in numerous spikes forming a large terminal panicle.

2. *V. spuria* Linn.: stem decumbent, branched, divaricate; leaves la-
ciniate, much divided; spikes filiform, loose; bracts longer than the calyx.
Sandy fields. N. Y. to Car. W. to Miss. Aug.—Oct. 1. — Stem 1—2 feet
long, at length much branched. *Flowers* small, blue, in paniculate spikes, at
length scattered.

3. *V. urticaefolia* Linn.: erect, somewhat pubescent; leaves ovate or
lance-ovate, acute, serrate, petiolate; spikes filiform, axillary and terminal;
flowers distinct.
Road sides. N. Y. to Car. W. to Miss. July, Aug. 2. — Stem 2—3 feet
high, somewhat hairy. *Flowers* small, white tinged with purple, in filiform
spikes forming panicles.

4. *V. angustifolia* Mich.: erect, mostly simple; leaves linear-lanceolate,
attenuate at the base, remotely toothed, with elevated veins; spikes filiform,
axillary, axillary and terminal. *V. rugosa* Willd.
Sandy fields. N. Y. and Penn. W. to Miss. June—Aug. 2. — Stem a foot
high, sometimes a little branched, hairy. *Flowers* blue, in terminal spikes.

2 ZAPANIA. Lam.—Zapania.
(In honor of Paul Anthony Zappa, an Italian botanist.)

Calyx compressed, 2-parted. Corolla tubular, with the limb
unequally 5-lobed. Stamens 4, didynamous. Stigma peltately
capitate, oblique. Nucules 2, at first covered by an evanescent
pericarp.

*Z. nodiflora* Lam.: stem procumbent and rooting; leaves ovate-wedge-
form and ovate-lanceolate, sub sessile, serrate above; spikes solitary, on
long filiform peduncles, forming conical heads. *Z. lanceolata* Pers. Ver-
ben a nodiflora Linn. Lippia nodiflora Mich.
Low grounds. Penn. to Car. W. to Miss. July. 4. — Stem 6—8 inches
long, branching. *Flowers* bluish-white, in heads which are on peduncles 2—4
inches long.

3. PHRYMA. Linn.—Lopseed.
(ETYMOLOGY unknown.)

Calyx cylindric, 2-lipped; upper lip longer, trifid; lower
2-toothed. Corolla 2-lipped; upper lip emarginate; the lower
much larger, flat, 3-lobed. Stamens 4, included. Pericarp
thin and evanescent, with a single seed.
P. leptostachya Linn.: leaves ovate, acute, coarsely and unequally toothed, petioled; spikes terminal, slender.


Order XCV. ACANTHACEÆ.—ACANTHADS.

Calyx 4 or 5-divided, usually 5-leaved, distinct or variously combined, persistent. Corolla mostly irregular, with the limb ringent or bilabiate, or occasionally 1-lipped, sometimes nearly equal, deciduous. Stamens mostly 2, both bearing anthers; sometimes 4, didynamous, the shorter ones being sometimes sterile. Ovary seated in the disk, 2-celled; style 1; stigma 2-lobed or entire. Capsule 2-celled, bursting elastically with 2 valves. Seeds roundish, hanging by processes of the placenta, without albumen.—Herbaceous plants or shrubs. Leaves opposite, without stipules.

1. JUSTICIA. Linn.—Justicia.

(In honor of James Justice, a Scotch horticulturalist.)

Calyx 5-parted, often with 2 bracts at the base. Corolla irregular, bilabiate; upper lip emarginate; lower 3-cleft. Stamens 2, each with a single or double anther. Stigma 1. Capsule attenuated, 2-celled, 2-valved; dissepiment growing from the centre of each valve.

J. pedunculosa Mich.: leaves linear-lanceolate; spikes axillary; peduncles elongated, mostly alternate; flowers crowded. J. Americana Vahl. Dianthera Americana Linn.

In water. Can. to Car. W. to Miss. July, Aug. 74.—Root creeping. Stem 2 feet high, simple or sparingly branched above. Leaves nearly 6 inches long, narrow-lanceolate. Flowers on axillary peduncles which are nearly as long as the leaves, pale-purple. Water Willow.

2. RUCELLIA. Linn.—Ruellia.

(In honor of John Ruelle, a French physician and botanist.)

Calyx 5-parted, often bi-bracteate. Corolla subcampanulate, border 5-lobed. Stamens approximating by pairs. Capsule attenuated at either extremity, bursting with elastic teeth. Seeds few.

R. strepsis Linn.: erect, hairy; leaves on petioles, opposite, lanceolate-ovate, entire; peduncles 1–3-flowered; segments of the calyx linear-lanceolate, very acute, hispid, shorter than the tube of the corolla.

**Order XCVI. LENTIBULARIACEÆ.—Butterworts.**

Calyx divided, persistent. Corolla irregular, bilabiate, with a spur. Stamens 2, included within the corolla and inserted into its base; anthers 1-celled. Ovary 1-celled; style 1; stigma bilabiate. Capsule 1-celled, many-seeded. Seeds minute, without albumen. Herbaceous plants, growing in water or marshes. Leaves radical, undivided; or compound, resembling roots and bearing little vescicles.

1. **PINGUICULA.** Linn.—Butterwort.

(From the Latin pinguis, fat; the leaves being thick and greasy to the touch.)

Calyx 4—5-cleft, unequal. Corolla ringent, spurred at the base beneath. Stamens 2, included; the filaments ascending. Anthers transversely 2-valved.

*P. vulgaris* Linn.: spur cylindric, acute, as long as the veinless petal; upper lip 2-lobed; lower one in three unequal obtuse segments. *P. acutifolia* Mich.?


2. **UTRICULARIA.** Linn.—Bladderwort.

(From the Latin utriculus, a little bladder; in allusion to the inflated appendages attached to the roots.)

Calyx 2-parted; lips undivided, nearly equal. Corolla personate, with the lower lip spurred at the base. Stamens 2, with the filaments incurved, bearing the anthers within the apex. Stigma 2-lipped. Capsule 1-celled.


Root very long, finely divided and furnished with numerous compressed air vessels. Stem or scape about 8 inches high. Flowers large, yellow, subcorymbed.

Spongy-leaved Bladderwort.

2. *U. vulgaris* Linn.: floating; stems submerged, dichotomous; leaves many-parted, furnished with air bladders; scape 5—9-flowered, bracteate; upper lip of the corolla entire, broad-ovate; spur conical, incurved. *U. macrorhiza* Le Conte.


Root much branched. Scape 8—10 inches high. Flowers large, racemed, yellow; spur entire and somewhat attenuated at the apex.

Common Bladderwort.
3. *U. minor* Linn.: floating; leaves dichotomously divided, the segments linear and setaceous, furnished with air bladders; scape about 2-flowered; upper lip emarginate, as long as the palate; spur very short, obtuse, keeled, deflexed. *U. gibba* Torr. Fl. not of Linn.


4. *U. fornicata* Le Conte: floating; scape naked, 1—2-flowered; upper lip 3-lobed, the middle lobe arched over the palate; spur incurved, conoidal, obtuse, very entire, appressed to the lower lip of the corolla. *U. minor* Pursh. *U. gibba* Ell. not of Linn.


5. *U. setacea* Mich.: scape filiform, rooting, with 2 or more flowers; upper lip of the corolla ovate; the lower deeply 3-lobed; spur subulate, as long as the lower lip of the corolla. *U. subulata* Pursh. *U. pumila* Walt.

Swamps. Can. to Flor. and Louis. June. 2—*Scape* very slender, 4—6 inches high, furnished with scales. *Flowers* many, small, yellow. Upper lip of the corolla half the size of the lower. **Setaceous Bladderwort.**

6. *U. intermedia* Heyne: floating; leaves distichous, dichotomously many-parted, without air bladders; segments setaceous, spinulose-denticulate; scape 2—3-flowered, upper lip entire, twice as long as the palate; spur conical, acute; capsule erect. (D. C.)


7. *U. resupinata* Greene: radical leaves resembling roots, somewhat whorled, capillary, furnished with air bladders; scape 1-flowered, erect, slender; lip cylindrical, obtuse, 4 times as long as the corolla. (D. C.)

Plymouth, Mass. Greene. 1?—*Plant* 3—6 inches long, slender. *Flower* solitary, yellow? The only description which I have seen of this species is that given in De Candolle, *Prod.* viii. 11, from a specimen furnished by Mr. Tucker-mann. **Resupinate Bladderwort.**

8. *U. cornuta* Mich.: scape rooting, erect, rigid; flowers 2—3, sessile; upper lip of the corolla obovate, entire; lower lip very broad, somewhat 3-lobed; spur very acute, projecting and dependent.

Wet rocks. Can. to Car. W. to Lake Superior. July, Aug. 2—*Scape* 10 inches high, with minute appressed scales. *Flowers* yellow, approximate, nearly sessile, as large as those of *U. vulgaris*. **Sharp-horned Bladderwort.**

9. *U. striata* Le Conte: floating; scape 4—7-flowered; upper lip of the corolla ovate-roundish, submarginate, margin waved; lower lip 3-lobed, reflected at the sides; spur straight, obtuse, shorter than the lower lip. *U. fibrosa* Ell. not of Walt.

Swamps and shallow waters. Mass. to Flor. June, July. 2—*Root* sparingly furnished with air vessels. *Scape* nearly a foot high. *Corolla* large, yellow, striated with red; spur much shorter than the lower lip. **Striata Bladderwort.**

10. *U. personata* Le Conte: scape rooting, many-flowered; upper lip of
the corolla emarginate, reclinate; lower small, entire; palate very large; spur linear-subulate, somewhat acute, as long as the corolla.

Bogs. N. Eng. to Flor. Le Conte. ①—Scape 12—18 inches high, 4—10-flowered, furnished with scales. Flowers yellow, rather large. Spur more slender and acute than in U. cornuta.

11. U. purpurea Wall.: floating; leaves verticillately branched; the capillary segments furnished with air bladders; scape 1—3-flowered; upper lip of the corolla truncate; the lower 3-lobed; lateral lobes cucullate; spur conical, appressed to the corolla and half its length. U. saccata Ell.


Order XCVII. PRIMULACEÆ.—Primworts.

Calyx 4—5-cleft, persistent. Corolla regular, the limb 4—5-cleft. Stamens inserted upon the corolla, equal in number, and opposite to its segments. Ovary 1-celled; style 1; stigma capitate. Capsule with a central placenta. Seeds numerous, peltate; embryo lying across the hilum in fleshy albumen.—Herbaceous plants, with the leaves usually radical; otherwise whorled and opposite or alternate.

1. PRIMULA. Linn.—Primrose.

(From the Latin primus, first; on account of the early appearance of the flowers of some species.)


P. Mistassinica Mich.: leaves obovate-spatulate, sparingly toothed, obtuse or acute, smooth or pubescent beneath; scape slender, with a few-flowered umbel; segments of the corolla obcordate, slightly emarginate, about two-thirds as long as the tube. D. pusilla Hook.

Yates county, N. Y. Dr. Sartwell. Steuben county, N. Y. D. Thomas. N. to Arct. Amer. ②—Plant usually smooth, but sometimes powdery. Scape 3—5 inches high. Leaves 6—10 lines long. Flowers about 3, in a terminal umbel, pale-purple. Mr. David Thomas informs me that this plant was found several years since near Hammondsport, Steuben county, N. Y. The two New York localities are the only known ones in the U. S.

Dwarf Canadian Primrose.

2. DODECANTHEON. Linn.—American Cowslip.

(From the Greek δώδεκα, twelve, and θνω, divinity; an old name renewed by Linneus on account of its beauty.)

Calyx 5-parted, reflexed. Corolla rotate, 5-parted, the lobes reflexed. Stamens 5, inserted into the throat of the corolla;

1. *D. Meadia Linn.*: scape erect, simple, smooth; leaves oblong-ovate, repandly toothed; umbel many-flowered; flowers nodding; bracts numerous, oval.


2. *D. integrifolium Mich.*: leaves ovate or lanceolate, subspatulate, obtuse; umbel few-flowered; flowers nearly erect; bracts lanceolate or linear, acute.


3. **TRIENTALIS. Linn.**—Wintergreen.

(From the Latin *triens,* the third part; said to allude to this plant being the third of a foot high. *Hook. Brit. Fl.*)


Low woods. Can. to Virg. N. to Subarct. Amer. May, June. 24. — *Stem* 6 inches high. *Leaves* 6 or 7 in a terminal whorl, with two or three straggling ones on the stem. *Flowers* white, on terminal filiform peduncles. *Chickweed Wintergreen.*

4. **HOTTONIA. Linn.**—Water Feather.

(In honor of *Pierre Hottot,* a professor of Leyden, who flourished in the seventeenth century.)


*H. inflata Linn.:* stem thick, generally submersed; scape jointed, with the internodes and lower part inflated; flowers verticillate, mostly in fours, pedicellate. *H. palustris Pursh.*

5. GLAUX. Linn.—Black Saltwort.

(From the Greek γλαύξ, given to a plant of a sea-green color, or because it grew near the sea.)

Calyx campanulate, 5-lobed, colored. Corolla none. Stamens 5, inserted into the bottom of the calyx and alternating with the segments. Stigma capitate. Capsule globose, 5-valved, few-seeded.

*G. maritima* Linn.


6. LYSIMACHIA. Linn.—Loosestrife.

(Origin uncertain.)

Calyx 5—6-parted. Corolla somewhat rotate, 5—6-parted. Stamens 5, (rarely 6—7,) sometimes with intermediate teeth or short sterile filaments. Capsule globose, 5—10-valved, dehiscent at the summit.

1. *L. stricta* Ait.: stem erect, smooth; leaves opposite, lanceolate, tapering at base, subessectile, punctate; raceme terminal, very long, loose; pedicels long, slender. *L. racemosa* Mich.

Low grounds. Can. to Virg. July, Aug. **4.**—Stem 12—18 inches high. Leaves few, often with bulbs or abortive branches in the axils. (Torr.) Flowers yellow, on capillary pedicels, arranged in a terminal raceme 4—5 inches long.

*Upright Loosestrife.*


Low grounds. Can. to Car. June, July. **4.**—Stem 12—18 inches high. Leaves varying from 3—8 in a whorl, though generally four. Flowers yellow, on long slender peduncles which are as numerous as the leaves.

*Whorled Loosestrife.*

3. *L. longifolia* Pursh: very smooth, 4-sided, branched above; leaves opposite, sessile, linear, revolute on the margin; peduncles 1-flowered, opposite or in fours, the upper ones longer; lobes of the corolla broad-ovate, acuminate, serrulate. *L. revoluta* Nutt.

Wet rocky woods. N. Y. to Car. W. to Mich. June. **4.**—Stem 1—2 feet high. Leaves narrow, not dotted; floral ones appearing as if whorled. Flowers mostly at the extremities of the branches, at length nodding, yellow.

*Revolute Loosestrife.*


Banks of streams. Can. to Car. W. to the Rocky Mountains. July. **4.**
PRIMULACEAE.

Stem 2—3 feet high, square, sparingly branched. Leaves large, not punctate. Flowers large, yellow. Ciliate Loosestrife.

5. *L. hybrida* Mich.: stem smooth; leaves petioled, opposite, lanceolate, acute at each end; petioles ciliate; peduncles axillary, mostly in pairs, 1-flowered; flowers nodding; corolla scarcely longer than the calyx. *L. heterophylla* Nutt.

Moist grounds. N. Y. to Car. July. ?—Resembles the preceding species, but the leaves are narrower and never cordate at base, and the petioles are less ciliate. Hybrid Loosestrife.


Swamps. N. S. N. to Arct. Amer. June. ?—Stem 1—2 feet high. Leaves villous beneath. Flowers yellow, in roundish or ovate heads which are on axillary peduncles. 

7. ANAGALLIS. Linn.—Pimpernel.

(From the Greek *anagallion*, to laugh; on account of its supposed exhilarating virtues.)


*A. arvensis* Linn.: stem procumbent, branched; leaves opposite, ovate, sessile, dotted beneath, very entire; margin of the corolla crenate and pilose-glandular.

Fields and road sides. N. Y. Mass. to Car. June-Oct. 1.—Stem 4—10 inches long. Flowers scarlet, sometimes with a purple centre, on solitary axillary peduncles which are longer than the leaves. Scarlet Pimpernel.

8. SAMOLUS. Linn.—Water Pimpernel.

(Supposed to have been named from the island of Samos.)

Calyx 5-cleft, the base adnate to the ovary. Corolla salverform, 5-parted, with 5 scales, (sterile filaments,) alternating with the lobes; tube short. Fertile stamens 5, inserted on the tube of the corolla. Capsule half inferior, 1-celled, many-seeded, opening with 5 valves.

*S. Valerandi* Linn.: stem erect; leaves obovate; racemes elongated, loose, many-flowered; pedicels with small bracts.

Wet grounds. Can. to Car. July—Sept. 4.—Stem 8—12 inches high, smooth. Leaves obovate, subpetiolate, entire and somewhat fleshy. Flowers small, white. This plant is very generally distributed throughout the world. Common Water Pimpernel.
Order XCVIII. PLUMBAGINACEÆ.—Leadworts.

Calyx tubular, plaited, persistent. Corolla monopetalous or of 5 petals, regular. Stamens 5, hypogynous when the petals are combined, inserted into the base of the petals when distinct. Ovary free, 1-celled; styles 5, seldom 3 or 4; stigmas the same number. Fruit an utricle. Seed inverted, with rather a small quantity of mealy albumen.—Herbaceous plants or under shrubs. Leaves alternate or clustered, undivided, somewhat sheathing at base. Flowers either loosely panicled or contracted into heads.

STATICE. Linn.—Marsh Rosemary. (From the Greek ἀράτις, to stop; on account of its supposed power of checking diarrhoea.)


Order XCIX. PLANTAGINACEÆ.—Ribworts.

Calyx 4-parted, persistent. Corolla monopetalous, persistent, with a 4-parted limb. Stamens 4, inserted into the corolla, alternate with its segments; filaments long, filiform; anthers versatile. Ovary 2-very seldom 4-celled; style simple. Capsule membranous, opening transversely. Seeds sessile, peltate. —Herbaceous plants, usually stemless. Leaves flat and ribbed or taper and fleshy. Flowers in spikes, small.

PLANTAGO. Linn.—Plantain.

(Origin doubtful.)

Flowers perfect. Calyx 4- (rarely 3) -parted. Corolla 4-
cleft; border reflexed. Stamens 4, mostly very long. Capsule 2—4-celled, opening transversely.

* Leaves broad.

1. *P. cordata* Lam.: leaves on long petioles, broad-ovate, cordate, subdentate, smooth; spike very long; flowers subimbriicate; the lower ones scattered; bracts ovate, obtuse; cells of the capsule 1-seeded. *P. Kentuckiensis* Mich.


2. *P. major* Linn.: leaves ovate, smooth, subdentate, on longish petioles; scape rounded; spike cylindric, very long; flowers closely imbricated; cells of the capsule many-seeded.


3. *P. media* Linn.: leaves ovate, pubescent, sessile or tapering into short petioles; scape rounded; spike short, cylindric; cells of the capsule 1-seeded.


4. *P. Virginica* Linn.: hoary-pubescent; leaves lanceolate-ovate, sparingly toothed, 3—5-nerved, tapering at base; spike cylindric, with the flowers rather remote; capsule 2-seeded.

Sandy soils. Throughout the U. S. May, June. 2. — *Scape* hairy, almost hirsute, longer than the leaves, angular. *Spires* 1—4 inches long, with the flowers at first crowded, but at length distant. *Corolla* yellowish. *Virginian Plantain.*

5. *P. lanceolata* Linn.: leaves lanceolate, acute at each end, 3—5-nerved, remotely toothed; scape slender, elongated, grooved; spike short, ovoid-cylindric, compact; capsule 2-seeded.


** Leaves linear.

7. *P. maritima* Linn.: leaves linear, grooved, fleshy, hairy near the base, mostly entire; scape rounded; spike cylindric, dense; cells of the capsule 1-seeded. *P. pauciflora* Pursh.

8. *P. pusilla* Nutt. : minutely pubescent; leaves linear-subulate, flat, entire, acute; scape terete, slender, longer than the leaves; spike cylin-
dric, loose; lower flowers distantly placed; bracts ovate, acute, as long as the calyx. *P. hybrida* Bart. *P. linearisfolia* Muhl.


**Subclass IV.—Monochlamydeals.**

Flowers with a simple perianth, or whose calyx and corolla form only one envelope.

**Order C. Amaranthaceae.—Amaranth.**

Perianth 3—5-parted, scarious, persistent. Stamens hypogynous, either 5 or some multiple of that number, distinct or monadelphous; anthers 1—2-celled. Ovary single; style 1 or none. Fruit usually a membranous utricle. Seeds lenticular, pendulous; the embryo curved around mealy albumen.—Herbs or shrubs. Leaves simple, opposite or alternate. Flowers in heads or spikes, sometimes monoeccious or dioecious.

**Amaranthus. Linn.—Amaranth.**

(From the Greek *a*, not, and *μαρανθό*, to fade; or flowers which do not fade.)


1. *A. lividus* Linn. : stem erect; leaves elliptic, retuse; flowers clustered, triandrous, in rounded spikes.

Cultivated grounds. Penn. to Car. June—Aug. ①.—Stem 2—3 feet high, smooth. **Livid Amaranth.**

2. *A. hybridus* Linn. : stem sulcate, angled, roughish pubescent, sparingly branched; leaves ovate-lanceolate; flowers pentandrous, in dense compound axillary and terminal spikes.


3. *A. gracilexzans* Linn. : stem obtusely angled, smooth, erect, with horizontal branches; leaves obovate and spatulate, oblong, retuse, mucronate; flowers triandrous, in small axillary clusters. *A. Biatum* Big.


4. *A. spinosus* Linn. : stem striate, smoothish, much branched; leaves ovate-lanceolate; axils spinose; flowers pentandrous, in compound terminal and axillary spikes.

Cultivated grounds near West Chester, Penn. **Darlingt.** Aug. ①.—Stem
18 inches to 2 or 3 feet high, generally much branched, often purple. Flowers small, in oblong erect terminal and subterminal spikes. A very troublesome weed. Introduced.

5. *A. retroflexus* Linn.: branches pubescent; leaves ovate, undulate; racemes erect, much compounded; flowers pentandrous.


6. *A. pumilus* Raf.: stem diffuse, smooth; leaves ovate, obtuse, smooth and fleshy, often retuse; flowers pentandrous, in axillary clusters.

Sandy beaches. N. Y. to Car. Aug. (2)—Stem a foot high, somewhat decumbent, spreading. Flowers greenish and purple, in somewhat crowded clusters.

Dwarf Amaranth.

**Order CI. CHENOPODIACEÆ.—CHENOPODS.**

Perianth deeply divided, sometimes tubular at the base, persistent. Stamens inserted into the base of the perianth, opposite its segments and equal to them in number or fewer. Ovary single, mostly superior. Style 2—4-divided, rarely simple; stigmas simple. Fruit an utricle, sometimes a berry. Seed erect, with the embryo usually curved around mealy albumen.

—Herbaceous plants or under shrubs. Leaves alternate, without stipules, occasionally opposite. Flowers small, sometimes polygamous.

1. *CHENOPODIUM* Linn.—Goosefoot.

(From the Greek χινος, χινος, a goose, and πεος, πεος, a foot; in allusion to the shape of the leaves in some species.)


* Leaves ovate or rhomboid, often toothed or lobed.

1. *C. Bonus Henricus* Linn.: leaves triangular-sagittate, very entire; spikes compound, peduncled, crowded, terminal and axillary, erect, leafless. *Blitum Bonus Henricus Mey.*


2. *C. rhombifolium* Muhl.: leaves triangular-rhombic, acute, repandly toothed; upper ones lanceolate, toothed, cuneate at base; racemes axillary, erect, leafless; bracts minute, incurved.


3. *C. rubrum* Linn.: leaves rhomboid-triangular, deeply toothed and
sinuate; racemes erect, compound, leafy; flowers crowded; fruit very small.


Red Goosefoot.

4. C. hybridum Linn.: leaves cordate, ovate, angularly toothed, acuminate; racemes much branched in a somewhat cymose manner, divaricate, leafless.


Maple-leaved Goosefoot.

5. C. album Linn.: leaves rhomboid-ovate, crenate-dentate, entire at the base; upper ones oblong-lanceolate, entire; racemes branched, somewhat leafy; seed very smooth.


Lamb's-quarters.

6. C. ambrosioides Linn.: leaves lanceolate, remotely toothed; the upper ones linear-lanceolate, entire; racemes simple, axillary, leafy. Ambrina ambrosioides Spach.


Sweet Pigweed.

7. C. Botrys Linn.: leaves oblong, pinnatifid-sinuate; racemes axillary and terminal, paniculate, leafless; flowers distinct, on short pedicels. Ambrina Botrys Spach.

Waste places. N. S. July—Sept. ①.—Stem 1—2 feet high, branched, somewhat viscid. Flowers in numerous short axillary racemes covering the ends of the branches. The whole plant has a strong smell. Introduced. 

Jerusalem Oak.

8. C. anthelminticum Linn.: leaves oblong-lanceolate, nearly sessile, coarsely toothed; racemes axillary and terminal, spike-like, simple, elongated, leafless. Ambrina anthelmintica Spach.

Fields. N. S. Aug. ②.—Stem 1½—2 feet high, much branched. Racemes long and slender, axillary and terminal. 

Worm-seed.

9. C. glaucum Linn.: leaves oblong, toothed and sinuate on the margin, glaucous and mealy beneath; spikes compound, axillary and terminal, leafless.

In N. Y. Muhl. ①.—Stem diffuse, thick. 

Glaucous Goosefoot.

** Leaves linear, fleshy. 


Seaside Goosefoot.
2. ATRIPLEX. Linn.—Orach.

(From the Greek a, not, and τραπέζω, to nourish.)


1. A. Halimus Linn.: stem frutescent; leaves alternate or opposite, oblong-subrhomboid, entire, decurrent into the petiole. N. J. to Virg. 15. Muhl. A doubtful species. Shrubby Orach.

2. A. patula Linn.: stem herbaceous, much branched, procumbent; leaves triangular-hastate, acuminate, smooth above, irregularly toothed; the upper ones entire; perianth of the fruit submuricate on the sides. A. laciniata Pursh.

3. A arenaria Nutt.: stem herbaceous, spreading; leaves oblong-ovate, subsessile, silvery-mealy beneath, very entire; upper ones acute or acuminate; perianth of the fruit muricate, dentate, retuse. Ochine arenaria Moq-Tand.

Sea-coast. N. Y. to Car. Aug. 1.—Stem much branched; the branches 1—2 feet long, striate. Leaves on petioles which are nearly an inch long. Flowers clustered on axillary and terminal spikes. Spreading Orach.

4. A. hortensis Linn.: stem erect, herbaceous; leaves triangular, dentate, green on both sides; perianth of the fruit ovate, reticulate, entire; flowers in terminal interrupted racemes or spikes.


3. ACNIDA. Linn.—Water Hemp.

(From the Greek a, without, and κνην, a nettle; because it resembles a nettle but does not sting.)


1. A. cannabina Linn.: leaves ovate-lanceolate; capsules smooth, acutely angled.


2. A. rusocarpa Mich.: leaves oval-lanceolate; capsules obtusely angled, rugose.
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Marshes. Can. to Flor. Nutt. July. ①.—Resembles the preceding, except in its fruit. It may be only a variety. Rough-fruited Water-hemp.

4. SALICORNIA. Linn.—Glasswort.
(From the Latin sal, salt, and cornu, a horn; on account of the saline nature and horn-like branches of the plant.)

Perianth turbinate, fleshy, obscurely lobed. Stamens 1 or 2. Style 1, bifid. Utricle compressed, enclosed in the enlarged perianth.

1. S. herbacea Linn.: herbaceous, annual; stem erect or assurgent; joints compressed, somewhat thickened and notched at the summit; spikes peduncled, cylindric, slightly tapering at the extremity; perianth truncated. S. Virginica Linn.


2. S. ambiguа Mich.: perennial, procumbent, branching; joints crescent-shaped, small; spikes opposite and alternate; perianth truncate.

Salt meadows. N. Y. to Car. ② or ④.—Stem procumbent and ascending. Anthers purplish-yellow. Resembles S. fruticosa of Linnaeus.

Perennial Saltwort.

3. S. mucronata Linn. ② herbaceous, annual, erect; the joints 4-angled at the base, with two acute ovate mucronate teeth at the summit; spikes very thick, obtuse. (Torr. N. Y. Fl.)


5. SALSOLA. Linn.—Saltwort.
(From the Latin sal, salt; in allusion to the alkaline salt which many of the species afford.)

Flowers perfect. Perianth 5-cleft, persistent, enveloping the fruit with its base, and crowning it with its enlarged limb. Stamens 5. Styles 2.


6. BLITUM. Linn.—Strawberry Blite.
(Said to be derived from the Greek βλίτος, insipid; in allusion to the fruit.)

Perianth 5-cleft, bacca in fruit. Stamens mostly solitary. Styles 2, united below. Utricle compressed, covered with the perianth. Seed somewhat globose.
1. *B. capitatum* Linn.: procumbent; leaves triangular-hastate; heads of flowers alternate, in a leafless terminal spike.


2. *B. virgatum* Linn.: leaves triangular-hastate; heads scattered, lateral.


3. *B. maritimum* Nutt.: perianth membranaceous; clusters axillary, spiked, naked; leaves lanceolate, attenuated at each extremity, incisely toothed.

Salt marshes, near N. Y. Aug. 1—Stem erect, 1—2 feet high, much branched. Leaves with a few large teeth, succulent. Perianth not becoming succulent. Resembles an *Atriplex,* and perhaps does not belong to this genus. *Seaside Bile.*

Order CIII. PHYLLOLACCACEAE.—Pokeweeds.

Perianth of 4—5-petaloid leaves. Stamens either indefinite, or, if equal to the number of the divisions of the perianth, alternate with them. Ovary of 1 or several cells, each containing 1 ascending ovule. Fruit berried or dry, indehiscent. Seeds ascending, solitary, with a cylindric embryo curved round mealy albumen.—Under shrubs or herbaceous plants. Flowers racemose.

**PHYTOLACCA.** Linn.—Pokeweed.

(From the Greek ἄνθος, a plant, and λαχανός, a pot-herb; in allusion to the use which is made of the young shoots.)


*P. decandra* Linn.: leaves ovate-lanceolate, acute at each end, alternate, petiolate; flowers in simple racemes, with 10 stamens and 10 styles.


Order CIII. POLYGONACEAE.—Buckwheats.

Perianth free, often colored, imbricated in aestivation. Stamens usually definite, inserted in the bottom of the perianth. Ovary superior, with a single erect ovule; styles 2—4. Fruit a nut, usually triangular, naked or covered by the enlarged peri-
anth. Seed with farinaceous albumen and an inverted embryo.—Herbaceous plants, rarely shrubs, with alternate entire leaves and usually sheathing stipules (ochræ). Flowers often in racemes, occasionally diclinous.

1. POLYGONUM. Linn.—Knotweed.

(From the Greek πολυς many, and γοναν a knee or joint; the stem having numerous joints.)

Perianth mostly 5-parted, petaloid, persistent. Stamens 3—9, mostly 8. Styles 2—3. Fruit a one-seeded compressed or triquetrous nut.

* Flowers axillary.

1. P. aviculare Linn.: stem mostly procumbent, herbaceous; leaves elliptic-lanceolate, rough on the margin; flowers axillary, 2—3 together; nerves of the stipules distant. P. aviculare var. procumbens Torr.


Near cultivated grounds. N. S. N. to Subarct. Amer. Aug. 24.—Stem 1—3 feet high. Flowers greenish. Dr. Darlington concurs in the opinion expressed by Muhlenberg, that this is a distinct species. Fl. Cest. Upright Knotweed.

3. P. maritimum Linn.: glaucous; stem prostrate, with very short internodes; leaves lanceolate, somewhat fleshy, often revolute on the margin; stipules half as long as the leaves, finally lacerate; flowers axillary, 2—3 together, on somewhat exserted pedicels. P. glaucum Nutt.

Sandy coast of Long Island. Torr. Aug. 1 and 24.—Stem diffuse and spreading, woody towards the base. Flowers pale rose-color or white, twice as large as in P. aviculare. Seaside Knotweed.

4. P. tenue Mich.: stem slender, erect, branched, acutely angled; leaves lance-linear, erect, cuspidate; stipules tubular, lacerate at the summit, with the segments setaceously acuminate; flowers axillary, mostly solitary, subsessile, alternate. P. linifolium Muhl.


** Flowers in terminal solitary spikes.

5. P. viviparum Linn.: stem simple; spike linear, solitary; leaves linear-lanceolate, revolute on the margin; the lower ones elliptic, petiolate.

### Flowers in axillary or terminal spikes.

6. *P. punctatum Ell.*: stem branched; leaves lanceolate, with pellucid punctures, scabrous on the margin and midrib; stipules slightly hairy, ciliate; spikes few-flowered, filiform, at first cernuous; perianth glandular-punctate; stamens 6–8; styles 2–3. *P. Hydropiper Mich.*. *P. hydropiperoides Pursh.*


7. *P. mite Pers.*: stem erect or ascending; leaves narrow-lanceolate, acuminate, entire, somewhat hairy; stipules hairy, with long cilia; flowers octandrous, in crowded spikes; styles 3. *P. hydropiperoides Mich.*


8. *P. Virginianum Linn.*: stem simple; leaves ovate-lanceolate, acuminate; spike terminal, slender, very long; flowers remote, pentandrous; perianth unequally 4-parted; styles 2. *P. Bistorta Walt.*

Shady woods. Can. to Flor. W. to Miss. July, Aug. 2.—Stem 2–4 feet high, somewhat angular, hairy near the summit. Leaves large, with hairy stipules. Flowers white or purplish, in a very long naked and somewhat virgate spike. *Virginian Knotweed.*

9. *P. amphibium Linn.*: stem nearly erect; leaves petiolate, oblanceolate, sometimes cordate at base; flowers in dense terminal spikes, pentandrous; styles 2. *P. coccineum var. terrestre Pursh.*

var. *aquaticum Linn.*: stem spreading on the surface of water; leaves ovate-lanceolate, cordate; spike cylindric-oblong. *P. fluwans Eaton.* *P. coccineum Big.*

Borders of swamps and ponds. N. S. W. to Miss. July. 2.—Stem 8–12 inches long. Flowers large, reddish, in an ovate spike. The var. has the stems long and the leaves broad-cordate and floating; but it passes into the former. *Water Knotweed.*

10. *P. Pennsylvanicum Linn.*: stem erect, with humid joints; leaves lanceolate, slightly hairy, petiolate; stipules smooth and naked; spikes oblong, crowded, on glandular-hispid peduncles; flowers mostly octandrous; styles 2.


11. *P. Persicaria Linn.*: stem erect; leaves lanceolate; stipules truncate, ciliate; spikes dense, ovate-oblong, erect, on smooth peduncles; flowers hexandrous; styles 2. *P. lapathifolium Linn.*


12. *P. orientale Linn.*: stem erect, paniculately branched, hirsute; leaves very large, petiolate, ovate, acuminate, minutely pubescent; stipules hairy, salverform; spikes terminal, dense, nodding, on hairy peduncles; flowers heptandrous; styles 2.

**** Flowers in panicked spikes. Perianth 5-sepal.

13. P. articulatum Linn.: stem erect; leaves linear, obtuse; stipules short, truncate; spikes paniculate, filiform, erect; pedicels solitary, articulate near the base; flowers perfect, octandrous, trigynous, nodding.


***** Flowers in racemose panicles. Leaves subcordate or sagittate.

14. P. sagittatum Linn.: stem prostrate, square, the angles armed with reversed prickles; leaves sagittate, acute, nearly sessile; flowers in small peduncled heads, mostly octandrous.

Wet grounds. N. Y. to Flor. July, Aug. (1).—Stem 2–4 feet long, slender, procumbent or supported by other plants. Flowers white, axillary and terminal, in small compact heads which are supported on long peduncles. Arrow-leaved Knotweed.

15. P. arifolium Linn.: stem prostrate, sulcate-angled, the angles with reversed prickles; leaves on long petioles, hastate, acuminate; flowers sub-racemose, distinct, hexandrous; styles 2.


16. P. Convolulus Linn.: stem climbing or prostrate, somewhat rough; leaves oblong, hastate-cordate, acuminate; flowers in loose axillary racemes, octandrous; segments of the perianth bluntly keeled, wingless.


Black Bindweed.

17. P. ciliatone Mich.: stem climbing or prostrate, retrorsely pubescent; leaves somewhat hastate-cordate, acuminate; stipules somewhat acute, ciliate at the base; flowers in axillary paniculate racemes, octandrous; segments of the perianth bluntly keeled, wingless; styles 3.


18. P. dumentorum Linn.: stem climbing, smooth; leaves broad-cordate, acuminate; stipules truncate, naked; flowers rather large, in erect axillary racemes, octandrous; segments of the perianth winged. L. scandens Linn.


19. P. Fagopyrum Linn.: stem erect, paniculately branched, smoothish; leaves cordate-sagittate, acute; racemes terminal and axillary; seeds equally triquetrous, nearly naked.

Fields, remaining as a weed where it has been cultivated. June. (1).—Stem 2–3 feet high, pubescent at the joints. Flowers white tinged with green and purple, in somewhat paniculate racemes. Buckwheat.
2. RUMEX. Linn.—Dock.

(Said to be derived from the Latin rumex, a pike or spear; in reference to the form of the leaves of some species.)

Perianth 6-leaved; the three inner leaves somewhat colored, larger, often with tubercles on the outside and closing in a valvate manner over the fruit. Stamens 6. Styles 3. Stigmas many-cleft. Nut triquetrous.

* Flowers perfect. Inner leaves of the perianth or valves bearing tubercles.

1. R aquaticus Linn.: leaves lanceolate, acute, the lower ones on long petioles and cordate at base; valves ovate, entire, all of them bearing tubercles.


2. R. crispus Linn.: leaves lanceolate, acute, waved on the margin; upper whorls of flowers leafless; valves very large, cordate, entire, veined, one of them with a large tubercle.

Pastures and meadows. Can. to Car. June, July. 2. —Root large, fusiform, yellow. Stem 2—3 feet high, furrowed, paniculately branched above. Flowers in crowded whorls, on pedicels. One of the valves with a large orange-colored tubercle, the others with the midrib swollen at the base. Introduced from Europe. Curled Dock.

3. R. sanguineus Linn.: leaves lanceolate, somewhat cordate, petioled, smooth, mostly with red veins; whorls distant, on long generally leafless branches; valves small, oblong, entire, one at least with a tubercle.


4. R. Britannica Linn.: leaves broad-lanceolate, flat, smooth; sheaths obsolete; racemes in a large terminal panicle, nearly leafless; valves all entire and usually with tubercles.


5. R. verticillatus Linn.: leaves lanceolate, acute, flat; sheaths cylindrical; flowers whorled, in long leafless racemes; valves broad-cordate, entire, all bearing tubercles.

Swampy grounds. N. S. June, July. 2. —Stem 2 feet high, branching above. Leaves long, lanceolate, narrow. Whorls distant, on dichotomous racemes or spikes. Pedicels of the fruit half an inch or more in length. Whorled Dock.

6. R. pallidus Big.: leaves linear-lanceolate, acute; spikes slender; valves ovate, acute, entire, with large tubercles.


7. R. acutus Linn.: leaves cordate-oblong, acuminate; whorls numerous, small, leafy; valves oblong, somewhat toothed, all with tubercles.
Moist grounds. N. S. June. 4.—Stem 2—3 feet high. Introduced from Europe. **

8. R. obtusifolius Linn.: stem roughish; radical leaves cordate-oblong, obtuse; upper ones narrower; valves ovate, toothed, one of them with a tubercle.

Woods and fields. N. Y. to Virg. June, July. 4.—Stem 2—3 feet high, paniculately branched. Leaves very large. Flowers in long nearly leafless racemes. Introduced from Europe. **

Obtuse-leaved Dock.

9. R. Acetosella Linn.: leaves lanceolate-hastate; lobes acute, spreading; upper ones narrower; valves ovate, toothed, one of them with a tubercle.

Woods, &c. Throughout the U. S. June, July. 4.—Stem 6—12 inches high. Racemes paniculate; flowers erect, small. Fertile flowers similar to the sterile, but less common. The plant has a pleasant acid taste, owing to the presence of binoxalate of potassa. Sheep Sorrel.

3. OXYRIA. Hill.—Oxyria.

(From the Greek ὀξύς, acid; in allusion to the qualities of its leaves.)


O. reniformis Hook. Rumex digynus Linn.


Order CIV. LAURACEÆ.—LAURELS.

Perianth 4—6-cleft, imbricated. Stamens definite, opposite the segments of the perianth and usually twice as numerous; anthers adnate, 2—4-celled, bursting by a longitudinal valve. Glands usually present at the base of the inner filaments. Ovary superior, single; style simple; stigma obtuse. Fruit a berry or drupe, naked or covered. Seed without albumen; embryo inverted.—Trees or shrubs. Leaves without stipules, alternate. Flowers in panicles or umbels.

1. LAURUS. Linn.—Bay Tree.

(The ancient name for the Bay Tree.)

Dioecious. Perianth colored, 5—6-parted. Fertile stamens 9, arranged in three series, the six outer ones with simple distinct filaments; three inner ones with two glands at the base of each. Ovary superior. Drupe 1-seeded.
*Leaves perennial.*


**Leaves deciduous. Flowers dioecious.**


**Order CV. ELÆAGNACEÆ.—Oleasters.**

Flowers mostly dioecious. *Sterile Fl.* Stamens, 3, 4, or 8, sessile; anthers 2-celled. *Fertile Fl.* Perianth tubular, persistent; the limb entire or 2—5-toothed. Ovary free, 1-celled; stigma simple, subulate, glandular. Fruit crustaceous, enclosed within the perianth become succulent. Seed erect; embryo straight, surrounded by thin fleshy alburnem.—Trees or shrubs, usually covered with leprous scales. Leaves alternate or opposite, without stipules.

*SHEPHERDIA.* Nutt.—Shepherdia.

(In honor of John Shepherd, late curator of the Liverpool Botanic Garden.)


*S. Canadensis* Nutt.: leaves oblong-ovate, nearly smooth above, stellately hairy and scaly beneath; the scales ferruginous and deciduous. *Hippophaë Canadensis* Willd.
Rocky banks of streams. Can. and western part of N. Y. N. to Arct. Amer. May, June. $l_2.$—Stem 6—9 feet high, with numerous opposite branches. Flowers minute, in short axillary racemes. Berry scaly, sweetish.

**Canadian Shepherdia.**

**Order CVI. THYMELACEÆ.—DAPHNADS.**

Perianth inferior, tubular, colored; the limb 4- seldom 5-cleft. Stamens definite, usually 8, sometimes 4 or 2; anthers 2-celled. Ovary solitary; style 1; stigma undivided. Fruit a nut or drupe; albumen none, or thin and fleshy.—Shrubs with a tough bark. Leaves alternate or opposite, entire, without stipules.

**DIRCA. Linn.—Leather Wood.**

(From the Greek διρκα, a fountain; in allusion to its usual place of growth.)

Perianth colored, tubular-campanulate; limb obsolete, loosely dentate. Stamens 8, inserted into the perianth, unequal. Style 1. Berry 1-seeded.

*D. palustris* Linn.

Woods. Can. to Geor. April. $l_2.$—Stem 2—4 feet high, with tough yellowish branches. Leaves alternate, ovate, sometimes subrhomboid, petioled, entire, obtuse, smooth above, pubescent and glaucous beneath. Flowers appearing before the leaves, usually in threes, on a short thick peduncle, pale-yellow. Berry oval, reddish when ripe. The bark has a sweetish taste, and when chewed excites a burning sensation in the fauces.

**Order CVII. SANTALACEÆ.—SANDALWORTS.**

Perianth superior, 4- or 5-cleft, half colored, with valvate aestivation. Stamens 4 or 5, opposite the segments of the perianth and inserted into their bases. Ovary 1-celled, with from 1—4 ovules; style 1; stigma often lobed. Fruit a nut or drupe. Seed with fleshy albumen.—Trees, shrubs, or sometimes herbaceous plants, with alternate undivided leaves and small flowers.

1. **NYSSA. Linn.—Gum Tree.**

(Origin of the name uncertain.)


1. **N. multiflora** Walt: leaves oval and obovate, very entire, acute at each end, the petiole margin and midrib villous; fertile peduncles mostly 2—3 flowered. **N. villosa** Willd. Mich. **N. sylvatica** Mich. f.

Low woods. Can. to Car. June.—A tree 30—50 feet high. Flowers small, green; the **sterile** ones 2—6 in a cluster; the **fertile** mostly 2 on a peduncle.
ARISTOLOCHIACEÆ.

Drupe nearly spherical, very dark blue. The wood of this tree, as of the next, (if indeed it is distinct,) is remarkable for its toughness; on which account it is much used for making navies for carriage-wheels, &c.

Sour Gum. Black Gum.

2. N. biflora Wall. : leaves ovate-oblong, very entire, acute at each end, smooth; fertile peduncles 2-flowered; drupe oval-compressed. N. aquatica Linn.

Swamps. N. S. i S. to Car. June.—A tree 30—50 feet high. Fertile flowers almost invariably 2. Drupe dark blue. Probably not distinct from the preceding, at least as credited to the Northern States.

Tupelo-tree. Swamp Hornbeam.

2. HAMILTONIA. Muhl.—Oil Nut.

(Dedicated by Muhlenberg to Mr. Hamilton, an American patron of botany.)


Mountains. Penn to Geor.; rare. May, June. ½.—Stem 4—6 feet high, with a very deep root. Leaves oblong-obovate, entire, acuminate, 2—3 inches long, petiolate, pubescent when young. Flowers in a terminal raceme, small, greenish-yellow. Whole plant more or less oily. Oil Nut.

3. COMANDRA. Nutt.—Bastard Toad Flax.

(From the Greek κοίνον, hair, and αὐνη, a man, (a stamen;) in allusion to the tuft of hair which connects the anthers with the perianth.)

Perianth urceolate-campanulate; the limb 5-cleft, persistent. Stamens 5, rarely 4, the anthers adhering to the lobes of the perianth by a tuft of hair. Style single. Fruit somewhat drupaceous, dry, 1-seeded, crowned by the persistent perianth.

C. umbellata Nutt. : stem round and erect; leaves lance-ovate or oblong, subsessile, entire; cymes in a leafy terminal panicle. Thesium umbellatum Linn.


ORDER CVIII. ARISTOLOCHIACEÆ.—BIRTHWORTS.

Perianth superior, regular or very unequal; the limb valvate. Stamens 6—12, epigynous, distinct, or adhering to the style and stigmas. Ovary inferior, 3—6-celled; style simple; stigmas radiate. Fruit dry or succulent, 3—6-celled. Seeds with a very minute embryo, in the base of fleshy albumen.—Herbs or shrubs. Leaves alternate, simple, often with leafy stipules.
1. ARISTOLOCHIA. Linn.—Birthwort.

(From the Greek; in allusion to its supposed medicinal virtues.)

Perianth tubular, ventricose at base, dilated at the apex and ligulate. Anthers 6, subsessile, inserted on the style. Stigma 6-parted or lobed. Capsule 6-sided, 6-celled, many-seeded.

1. A. Sipho L’Herit.: stem twining; leaves cordate, acute; peduncles 1-flowered, furnished with an ovate bract; perianth ascending, the limb 3-cleft and equal.


2. A. Serpentaria Linn.: stem erect, flexuous; leaves cordate-oblong, acuminate; peduncles nearly radical; perianth sigmoid, the orifice 2-lipped.


2. ASARUM. Linn.—Asarabacca.

(From the Greek α, not, and κρέπα, a band or braid; because it was rejected from garlands by the ancients.)

Perianth campanulate, mostly 3-parted. Stamens 12, placed on an epigynous disk. Anthers adnate to the middle of the filaments. Ovary inferior; style short; stigma 6-parted or lobed. Capsule 6-celled, many-seeded.

1. A. Canadense Linn.: leaves a terminal pair, broad reniform; perianth woolly, cleft to the base; the segments sublanceolate, reflexed. A. Carolinianum Wall.

Woods. Can. to Car. W. to Miss. April. 14.—Stem none or very short. Leaves generally 2, with long and hairy petioles. Flower somewhat campanulate, solitary, on a short peduncle, sometimes nearly buried in the ground. The root has an agreeable and aromatic flavor.

Canadian Asarabacca. Wild Ginger.

2. A. Virginicum Mich.: leaves solitary, cordate, nearly round, coriaceous; flower nearly sessile; perianth externally smooth, short, campanulate.

Rocky woods. N. J. to Car. April. 14.—Leaves spotted or clouded, smooth. Segments of the perianth obtuse. Very similar in habit to the preceding. Virginian Asarabacca.

ORDER CIX. EMPETRACEAE.—CROWBERRIES.

Flowers dioecious or polygamous. Perianth consisting of several persistent imbricate scales, the innermost of which are sometimes petaloid. Stamens as numerous as the inner scales.
Ovary free, 3—9-celled; style 1; stigma radiating. Fruit fleshy, seated in the persistent perianth, with 3—9 bony nu-
cules.—Small arid shrubs, with heath-like evergreen leaves and minute flowers in their axils.

1. EMPETRUM. Linn.—Crowberry.

From the Greek \(\epsilon\varepsilon\), on, and \(\pi\varepsilon\rho\varepsilon\), a stone; in allusion to its place of growth—

Dioecious. Perianth consisting of two rows of scales. Ste-

rile Fl. Stamens 3, upon long filaments. Fertile Fl. Sta-

mens none. Style none, or very short. Stigma with 6—9 rays. Fruit globose, with 6—9 nu-
cules.

E. nigrum Mich.: procumbent; leaves linear-oblong, revolute on the

margin.

White Hills, N. H. Big. Summits of the high mountains in Essex county, N. Y. Torr. Shores of Lake Superior. Houghton. N. to Arct. Amer. May, June.—A low shrub with small and dense evergreen foliage, like that of the

heaths. Leaves imbricate, oblong, obtuse. Flowers axillary, very small, red-

2. OAKESIA. Tuckerm.—Oakesia.

(In honor of William Oakes, Esq., of Ipswich, Mass., a well known botanist.)

Mostly dioecious. Staminate Fl. Perianth of 5—6 leaflets, the 2 innermost ones somewhat petaloid and often united on one side. Stamens mostly 3, (sometimes 4 or 5,) exerted. Ovary wanting or mostly abortive. Fertile Fl. Perianth nearly as in the sterile. Disk none. Ovary 3—4-celled; style filiform, 3—4-cleft. Fruit dry and drupaceous, globose, mi-

nute.

O. Conradi Tuckerm.

Dry sandy woods. Long Island, N. Y. July, Aug.—A very branching shrub forming dense circular patches; the branches somewhat verticillate, with a

grayish bark. Leaves coriaceous, narrow-linear, bright green, somewhat hispid when young, smooth when old, margin revolute. Heads of flowers furnished with several small concave bracts. Perianth purplish-brown, the leafets ob-

long or obovate. Fruit about the size of a mustard-seed. (Torr. N. Y. Fl.)

Conrad’s Oakesia.

ORDER CX. EUPHORBIACEÆ.—S purgeworts.

Flowers monœcious or dioecious. Perianth inferior, with va-

rious glandular or scaly appendages, (sometimes wanting). Ste-

rile Fl. Stamens 1 or many; anthers 2-celled. Fertile Fl. Ovary free, sessile or stalked; styles 2—3; stigmas compound or single with several lobes. Fruit consisting of 2—3 dehis-
cent cells, separating with elasticity from their common axis,
sometimes indehiscent. Seeds often with an aril, the embryo enclosed in fleshy albumen.—Trees, shrubs or herbs, often abounding in acrid milk. Leaves simple, rarely compound, usually with stipules.

1. CROTONOPSIS. Mich.—Crotonopsis.


Swamps in sands. N. J. to Car. W. to Miss. June. (1)—Stem 12—18 inches high, covered like the leaves, with solitary scales. Leaves varying from linear-lanceolate to ovate, on short petioles. Flowers in terminal and axillary spikes, very minute.

Linear-leaved Crotonopsis.

2. PHYLLANTHUS. Linn.—Phyllanthus.


*P. Caroliniensis* Walt.: herbaceous; stem erect; branches alternate and distichous; leaves alternate, simple, elliptic-obovate, obtuse, smooth, somewhat distichous, on short petioles; flowers few, (2—4,) axillary, on pedicels, nodding. *P. obovatus* Willd.


Carolinian Phyllanthus.

3. RICINUS. Linn.—Palma Christi.

(From the Latin *ricinus*, a tick; its seed resembling that insect.)


*R. communis* Linn.: stem herbaceous, glaucous-pruinose; leaves peltate-palmate; lobes lanceolate, serrate; capsule echinate.

Around plantations at the South. Aug., Sept. (1)—Introduced. Cultivated extensively in various parts of the U. S. for the purpose of obtaining oil from the seed.

Castor-oil Bean.
4. ACALYPHA. Linn.—Three-seeded Mercury.


1. A. Virginica Linn.: pubescent; leaves ovate or oblong-lanceolate, obtusely serrate, petiolate; bracts somewhat stipitate, roundish-cordate, incisely lobed; fertile flowers at the base of the sterile spike.

2. A. Caroliniana Walt.: leaves on long petioles, rhombic-ovate, acuminate, serrate, entire at base; bracts cordate, lobed; fertile flowers at the base of the sterile spike.

5. EUPHORBIA. Linn.—Spurge.

(Monoeous. Rarely furnished with a perianth. Involucre monophyllous, campanulate, 4—5-lobed; lobes usually alternating with peltate glands. Sterile Fl. numerous, each consisting of an anther with its filament articulated in the middle. Fertile Fl. solitary, central, on a long peduncle. Styles 3, usually 2-cleft. Capsule 3-celled, 3-seeded.

* Flowers solitary or somewhat corymbose.

1. E. dentata Mich.: hairy; leaves opposite, oval, dentate; flowers crowded at the summit of the stem.

2. E. hypericifolia Linn.: stem erect, spreading, smoothish or hairy, with dichotomous branches; leaves on short petioles, oval-oblong, slightly falcate, serrate; peduncles solitary in the axils and corymbose at the extremity of the branches; glands of the involucre with small petaloid appendages.

3. E. maculata Linn.: stem prostrate, much branched, hairy; leaves opposite, ovate-oblong, serrate, unequal at base; flowers axillary, solitary or somewhat clustered; glands 4, seated on small petaloid appendages, transversely elliptic.

**Euphorbiaceae.**

4. _E. polygonifolia_ Linn.: procumbent, branching, very smooth, succulent; leaves oblong and linear-oblong, petiolate, obtuse, sometimes subcordate at base; flowers solitary in the forks of the stem; glands transversely oblong, stipitate. _E. maritima_ Nutt.

Sandy sea-shores. N. Y. to Car. July—Sept. (σ).—Stem diffuse, 4—10 inches long. Stipules subulate, simple or simply cloven. Flowers solitary, on peduncles which are longer than the petioles.

5. _E. Ipecacuanha_ Linn.: procumbent or nearly erect, small, smooth; leaves opposite, varying from obovate to linear-lanceolate; peduncles axillary, 1-flowered, elongated; glands reniform.

Sandy soils. N. Y. to Car. June. (σ).—Root very long and tapering. Stem short, the branches 6—12 inches long. Leaves sessile, often purplish. Flowers solitary, on peduncles which are about as long as the leaves. Emetic, and sometimes used as a substitute for the Ipecacuanha of the shops.

6. _E. portulacoides_ Linn.: erect; leaves entire, oval, retuse; lower ones ternate, spatulate, obtuse, smooth; peduncles axillary, 1-flowered, as long as the leaves; glands of the involucre roundish.

Sandy soils. Penn. Muhl. June—Aug. (σ).—It may be a variety of _E. corollata._

**Flowers somewhat umbelleted, involucrate.**

7. _E. Peptis_ Linn.: leaves membranaceous, broad-obovate, petiolated, entire, smooth; umbel 3—4-cleft; glands of the involucre lunate, the horns very long; capsule somewhat winged.


**Petty Spurge.**

8. _E. mercurialis_ Mich.: stem weak and slender; leaves opposite or ternate, sub.sessile, oval, entire; umbel simply 3-cleft, the rays 1-flowered.


9. _E. Lathyris_ Linn.: stem erect; leaves submembranaceous, oblong-lanceolate, entire, sessile, 4-farious; umbel 3—4-cleft; glands of the involucre bluntly lunate; capsule smooth.

Near gardens and cultivated grounds. Penn. July, Aug. (σ) or (σ).—Stem 2—8 feet high, stout, smooth. Leaves opposite and decussate. Flowers on dichotomous branches at the summit of the stem. Introduced from Europe.

**Caper Spurge.**

10. _E. corollata_ Linn.: stem simple, erect; leaves varying from ovate-oblong to linear and spatulate-oblong, obtuse; umbel mostly 5-cleft, the rays 2—6-forked; glands of the involucre with a large obovate petaloid appendage; capsule smooth.


**Large-flowered Spurge.**

14
11. *E. memoralis* Darlingt.: stem erect; leaves alternate, lance-oblong, rather acute, narrowed at the base, subsessile, entire, hairy beneath; umbel 5–8-cleft, the rays 1–2-forked; petaloid segments of the involucre dilated, subreniform. *E. pilosa* Pursh not of Linn.

Moist woods. Penn. May, June. 2. Stem 2–3 feet high, simple or with a slender peduncle-like branch from the axils of the leaves. Flowers in a terminal umbel and on slender axillary branches. Wood Spurge.

12. *E. helioscopia* Linn.: smooth; stem erect, branched above; leaves alternate, broadly obovate-wedgeform, obtuse, the bracteal ones broader; umbel 3–5-cleft, the rays 2–3-times forked; involucre oblong-turbinate, terminal and in the forks of the umbel, nearly sessile. *E. obtusa* Linn.


13. *E. platyphylla* Linn.: stem erect, smooth; leaves elliptic or oblongulate, mostly acute, finely serrulate, hairy beneath; floral ones cordate; umbel 3–5-cleft, the rays 2–3-times forked; glands of the involucre oval; capsule warted.


Order CXI. URTICACEÆ.—Nettles.

Flowers monoecious or dioecious, scattered or clustered. Perianth membranous, lobed, persistent. Stamens definite, distinct, inserted into the base of the calyx and opposite its lobes. Ovary superior, simple; stigma simple. Fruit a simple indehiscent nut, surrounded either by the membranous or fleshy perianth. Embryo straight, with fleshy albumen.—Trees, shrubs or herbs. Leaves alternate, often covered with pungent hairs. Flowers inconspicuous.

1. URTICA. Linn.—Nettle.

(From the Latin urs, to burn; in allusion to its stinging property.)


* Leaves opposite.

1. *U. urens* Linn.: leaves elliptic or roundish-ovate, somewhat 5-nerved, acutely serrate; flowers in simple axillary clusters, which are shorter than the leaves.

Small Stinging Nettle.

2. U. dioica Linn.: stem and leaves hispid; leaves ovate, acuminate, cordate at base, coarsely serrate; flowers mostly dioecious, in much-branched clusters.


3. U. procera Muhl.: leaves opposite, ovate-lanceolate, serrate; petioles fringed; flowers dioecious; spikes branching, clustered by pairs, longer than the petioles.

Low grounds. Can. to Car. July, Aug. ②.—Stem 3—4 feet high, obtusely 4-angled. Flowers in compact approximate clusters. According to Mr. Elliott, the leaves of this species are never cordate, and the spikes are uniformly longer than the petioles, in which points it differs from the U. procera of Pursh, which would seem to be a distinct species, probably the next. Tall Nettle.

4. U. gracilis Linn.: stem hispid; leaves opposite, ovate-lanceolate, serrate, cordate at base; flowers dioecious; peduncles hispid; clusters in pairs, somewhat branched, about as long as the petioles. U. procera Pursh.?


** Leaves alternate.**

5. U. capitata Linn.: stem naked; leaves cordate-ovate, acuminate, serrate, 3-nerved, twice as long as the petiole; clusters spiked; spikes solitary, shorter than the leaves, leafy at the summit.


6. U. Canadensis Linn.: hispid and stinging; leaves ovate, acuminate, serrate; panicles axillary, mostly in pairs, loosely and divaricately branched; the lower sterile, the upper fertile. U. divaricata Pursh.

Moist shady grounds. Can. to Car. July, Aug. ②.—Stem 5—6 feet high, stout, erect, branched. Leaves large, ovate, sometimes cordate. This species has the fibres very tough and strong, and it was formerly proposed by Mr. Whitlow as a substitute for hemp.

Canadian Nettle.

2. ADIKE. Raf.—Richweed.

(An ancient Greek name of some nettles.)

Flowers dioecious or somewhat monœcious. Perianth 3-(sometimes 4-) leaved; leaves nearly equal, oblong or lanceolate.

Sterile FL. Stamens 3. Fertile FL. Perianth with a petaloid cuculate scale at the base of each of the leaves inside, membranaceous in fruit. Stigma 1, minute, capitate, sessile.

Nutmintely papillose, straight.

A. pumila Raf. Urtica pumila Linn.

Wet grounds. Can. to Car. June, July. ①.—Stem 6—18 inches high, sim-
ple or branched from the base, succulent and almost transparent. **Leaves** opposite, broad-ovate or ovate-lanceolate, acuminate, crenate-serrate, shining, on petioles which are 1—2 inches long. **Flowers** very small, greenish, in axillary branching clusters or paniculate corymbs, which are shorter than the petioles. Very properly separated from the genus *Urtica*. Richweed. Coolweed.

3. **BECHMERIA**. Jacq.—False Nettle.

(Named after George Rudolph Bahmer, a German Botanist.)

**Flowers** monoeccious or dioecious, minute. **Sterile Fl.** Perianth 4-parted. Stamens 4. **Fertile Fl.** Perianth none, but a cluster of ovate acuminate scales, with a compressed ovary within each scale. Nut ovate, pointed with the subulate style.

*B. cylindrica* Willd.: herbaceous; leaves opposite, ovate-oblong, acuminate, toothed, 3-nerved, on long petioles, smoothish; sterile spikes interrupted; fertile ones mostly continuous, cylindric. *B. lateriflora* Muhl. *Urtica cylindrica* Linn.

Wet grounds. Can. to Flor. June—Aug. 24.—**Stem** 2—3 feet high, smoothish, usually simple, obtusely 4-angled. **Flowers** minute, greenish, often dioecious, in slender mostly leafy spikes.

4. **PARIETARIA**. Linn.—Pellitory.

(From the Latin *paries*, a wall; the species often growing on old walls.)

**Flowers** polygamous, surrounded by a many-cleft involucre. **Perfect Fl.** Perianth 4-parted, persistent. Stamens 4; filaments at first incurved, then expanding with an elastic force. Ovary 1. Style 1. Nut enclosed by the enlarged perianth.

*P. Pennsylvanica* Muhl.: leaves alternate, oblong-lanceolate, veiny, with opaque dots; involucre longer than the flowers.

Moist rocks. N. Y. to Geor. June. 1.—**Stem** 6—12 inches high, simple. **Flowers** mostly perfect, in compact axillary clusters, whitish, at length brown. *Pennsylvanian Pellitory.*

**Order CXII. CANNABINACEÆ.—Hempworts.**

**Flowers** dioecious. **Sterile Fl.** in racemes or panicles. Perianth 5-parted, herbaceous, scaly, imbricated. Stamens few. **Fertile Fl.** in spikes or cones. Perianth single, inwrapping the ovary. Stigmas 2, subulate, sessile. Fruit indehiscent, with a single seed. Embryo curved, without albumen.—Herbaceous rough-stemmed watery plants, with alternate lobed stipulate leaves, and small inconspicuous flowers.

1. **CANNABIS**. Linn.—Hemp.

(An ancient Greek name, the etymology of which is obscure.)

**Dioecious. Sterile Fl.** Perianth 5-parted. Stamens 5.
Fertile Fl. Perianth oblong, acuminate, convolute, the base ventricose and including the ovary. Stigmas 2, long, subulate. Nut 2-valved.

C. sativa Linn.


2. HUMULUS. Linn.—Hop.

(From the Latin humus, moist earth; because it prefers moist soils.)

Dioecious. Sterile Fl. Perianth 5-parted. Stamens 5. Fertile Fl. in aments; the scales large, membranous, imbricate in several rows, 2-flowered. Stigmas 2, long, spreading. Achenia invested with the enlarged perianth and forming a membranaceous strobile.

H. Lupulus Linn.

Hedges, &c. Throughout the U. S. Aug. 2L.—Stem twining, scabrous. Leaves opposite, rough, cordate at base, 3—5-lobed; the lobes acuminate and serrate. Flowers greenish, the sterile in oblong panicles terminating the axillary branches, the fertile in oblong aments. It is used in medicine as an anodyne. Common Hop.

ORDER CXIII. MORACEÆ.—MULBERRIES.

Flowers monoecious, in heads, spikes or aments. Sterile Fl. Perianth none, or 3—4-parted, imbricated. Stamens 3—4. Fertile Fl. Perianth 3—5-parted, sometimes in two rows. Ovary 1- rarely 2-celled; style terminal, bifid. Fruit small nuts or utricles, 1-seeded, enclosed by a succulent receptacle or collected in a fleshy head formed by the succulent perianth. Seeds albuminous.—Trees or shrubs, with a milky juice. Leaves of various forms. Flowers very inconspicuous.

MORUS. Linn.—Mulberry.

(From the Greek μούρος, the mulberry.)


1. M. rubra Linn.: leaves cordate-ovate or palmately lobed, acuminate, equally serrate, scabrous above, pubescent beneath; flowers mostly dioecious; fruit dark-purple.
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2. M. alba Linn.: leaves cordate, ovate, unequal at base, somewhat lobed, acute, serrate, smoothish, shining; flowers monoecious; fruit usually whitish. Near old fields, &c. May.—A tree 20—30 feet high, much branched. Leaves sometimes a little lobed. Fruit shorter than in the preceding, sweetish but nauseous. Originally introduced as food for the silk-worm. White Mulberry.

ORDER CXIV. SAURURACEÆ.—SAURURADS.

Flowers naked, seated upon a scale. Stamens definite, clavate, persistent; anthers continuous with the slender filaments. Ovaries 3 or 4, more or less distinct. Fruit consisting of 3 or 4 fleshy indehiscent nuts, or a 3- or 4-celled capsule. Embryo minute, in a fleshy sac, on the outside of hard mealy albumen. —Herbaceous plants, growing in marshy places. Leaves alternate, with stipules. Flowers in spikes.

SAURURUS. Linn.—Lizard’s Tail.

(From the Greek σαῦρος, a lizard and ὄπις, a tail; in allusion to its spike of flowers.)

Flowers in a solitary spike. Scales 1-flowered. Stamens 6—8; filaments free, elongated. Fruit 3- or 4-celled; the carpels easily separating at maturity, 1- rarely 2-seeded, not opening.

S. cernuaus Linn.

Swamps. Can. to Car. Aug. 24.—Stem 1—2 feet high, leafy, forked above, angular and sulcate. Leaves sagittate-cordate, acuminate, nerved beneath. Flowers very small, greenish-white, in a long slender spike, which is at first cernuous at the apex, but in fruit erect. Lizard’s Tail. Swamp Lily.

ORDER CXV. SALICACEÆ.—WILLOWS.

Flowers dioecious, naked, or with a membranous scale or bract, amonadecous. STERILE Fl. Stamens 2—12 or more, sometimes monadelphous. FERTILE Fl. Ovary superior, 1-celled; style 1 or none; stigmas 2, often 2-cleft or 2-parted. Fruit leathery, 1-celled, 2-valved, many-seeded. Seeds covered with long silky hairs. Albumen none.—Trees or shrubs. Leaves alternate, simple, serrate or entire, furnished with stipules. The bark is usually bitter, and contains more or less of the peculiar principle called Salicin.
SALICACEÆ.

1. SALIX. Linn.—Willow.

(From the Celtic sal, near; and lis, water; a tree that grows near water.)


* Leaves entire or obscurely serrate.

1. S. viminalis Linn.: leaves linear-lanceolate, very long-acuminate, nearly entire, somewhat undulate, white-silky beneath; stipules very small; sub lanceolate; aments appearing before the leaves; scales roundish, very hairy; ovary sessile, ovoid; style filiform; stigmas linear, acute, undivided.


2. S. candida Willd.: leaves lanceolate or linear-lanceolate, acute, obscurely toothed at the point, pubescent above, white-tomentose beneath, with the margin revolute; stipules lunate, small; aments appearing before the leaves, cylindric; scales obovate, obtuse, brown, clothed with long hairs. S. incana Mich.

Shady woods. N. Y. and Penn. N to Arct. Amer. April, May. 12.—Stem 5 or 6 feet high, with reddish twigs. Anthers about an inch long, on short peduncles. White-leaved Willow.

3. S. Muhlenbergiana Barratt: leaves obovate-lanceolate, entire or remotely toothed, mostly acute, even, smoothish above, grayish-tomentose beneath; stipules semiovate or lunate; aments ovoid-cylindric, densely flowered; ovary lanceolate, with a long beak; stigma 2-cleft. S. conifera Willd. and S. recurvata Pursh.


4. S. tristis Ait.: leaves narrow-cuneate, oblanceolate, acute at each end, nearly entire, revolute, smoothish above, rugosely veined and tomentose beneath; stipules none or caducous; aments globose-ovoid, appearing before the leaves; scales roundish-ovobate; stigmas 2-cleft; capsules with a long beak. S. longirostris Mich.

Sandy woods. N. Y. to Car. March, April. 12.—Stem 2 or 3 feet high, sometimes procumbent. Aments numerous, 4—6-lines long. Anthers at length yellow. The most dwarfish of our lowland species. Dwarf Downy Willow.

5. S. pedicellaris Pursh: branches smooth; leaves obovate-lanceolate, rather acute, very entire, smooth and of the same color on both sides; stipules none; aments appearing with the leaves, pedunculate, very smooth; scales oblong, half the length of the pedicel, scarcely hairy; stamens 2; ovary ovoid-oblong; style short; stigmas 2-cleft.

Sphagnum swamps. Catskill mountains. N. Y. Pursh. Near Oriskany, Oneida county. Lodi, Seneca county. N. Y. Torr. New Eng. Tuckermann. May. 12.—Stem ascending, virgate, 1—3 feet high, the bark smooth and brown-
ish. *Aments* at the ends of the leafy branches, about 8 lines long. *Capsule* reddish.

6. *S. rosmarinifolia* Linn.: leaves straight, linear-lanceolate, acute at each end, very entire or with a few glandular teeth, pubescent above, silky beneath; stipules lanceolate, erect; aments appearing before the leaves; scales short, villous; ovary pedicellate, lanceolate, acuminate, silky; stigmas subsessile, bifid.


**Leaves remotely and obtusely serrate.**

7. *S. myricoides* Muhl.: leaves oblong-lanceolate, acute or acuminate, biglandular at base, obtusely serrate, smooth, glaucous beneath; stipules lanceolate, ovate; glandular-serrate; aments villous, leafy at the base; scales lanceolate, obtuse, villous, black; ovaries on long pedicels, lanceolate, smooth; style distinct; stigmas bifid.


8. *S. prinoides* Pursh.: leaves oval-oblong, acute, remotely undulate-serrate, glabrous, glaucous beneath; stipules semicordate, incisedly toothed; aments appearing before the leaves, villous; ovary pedicellate, ovoid, acuminate, silky; style long; stigmas bifid.


9. *S. discolor* Willd.: leaves oblong or obovate-oblong, somewhat obtuse or shortly acuminate, smoothish, remotely serrate, very entire at the point, glaucous beneath; stipules lanceolate, serrate, deciduous; aments appearing with the leaves, diandrous, oblong, tomentose; scales oblong, acute, hairy, black; ovary subsessile, tomentose; stigmas deeply 2-parted. *S. prinoides* Pursh.

Swamps and low grounds. N. Eng. to Car. April.—A shrub or small tree, with tough brownish or greenish branches. *Aments* an inch long, thick and compact. *Filaments* white. *Anthers* red, yellow when burst. *Glaucous Willow.*

10. *S. longifolia* Muhl.: leaves linear-lanceolate, very long, acute at each end, remotely toothed, green on both sides and at length nearly smooth; stipules small, lanceolate, toothed; aments appearing with the leaves, peduncled, tomentose; scales flat, retuse; stamens 2, longer than the scales; stigmas large, 2-parted. *S. angustata* Pursh.


11. *S. Cutleri* Tuckermann: depressed; leaves elliptic and acute, or obovate and obtuse, glandular-denticulate, smooth and somewhat shining above, glaucous beneath; aments appearing with the leaves, compact, oblong-cylindric; scales obovate, silky, blackish; stigmas 2-cleft. (Torr. N. Y. *Fl.*) *S. Uvaursi* Pursh.
White Mountains, N. H. High mountains in Essex county, N. Y. June. 12.—Stem depressed, much branched, smooth. Leaves from half an inch to an inch long. Aments about half an inch long. Cutler’s Willow.

*** Leaves closely and acutely serrate.

12. *S. Purshiana* Spreng.: leaves very long, linear-lanceolate, gradually attenuate above, subfalcate, acute at base, finely toothed-serrate, smooth on both sides, silky when young; stipules lunate, toothed, reflexed; ovaries smooth, pedicellate; style short. *S. falcata* Pursh. *S. nigra* var. *falcata* Torr. N. Y. Fl.

Banks of streams. N. Y. to Virg.—A small tree, 6—10 feet high, with smooth and slender branches. Aments 1—2 inches long. Capsules brownish. Pursh’s Willow.

13. *S. nigra* Marsh.: leaves lanceolate, acute at each end, serrulate, smoothish and green on both sides; petiole and upper side of the midrib tomentose; stipules small, lunate, caducous; aments appearing with the leaves; scales oblong, very villous; filaments 3—6, bearded at base; ovary pedicelled, ovoid, smooth; style very short; stigmas bifid. *S. Caroliniana* Mich.

Banks of streams. N. Y. to Car. April, May.—A tree 15—20 feet high, with dark rough bark, generally branching from the base; branches very brittle at base. Sterile aments 2 inches long. Stamens usually 5. Black Willow.

14. *S. lucida* Muhl.: leaves ovate-oblong, cuspidate-acuminate, rounded at base, glandular-serrate, smooth and shining on both sides; stipules roundish or oblong, serrate; aments appearing with the leaves; scales lanceolate, obtuse, hairy at the base, smooth and serrate at the apex; ovary lanceolate-subulate, smooth; style short; stigmas bifid.

Banks of streams. N. Y. to Virg. May. 12.—Stem 8—12 feet high, with yellowish-brown bark. Sterile aments an inch and a half long, with yellow scales. Stamens usually 5. Closely allied to *S. pentandra* of Europe. Glossy-leaved Willow.

15. *S. rigida* Muhl.: leaves oblong-lanceolate, acuminate, cordate at base, rigid, coarsely serrate, smooth, paler beneath; petioles villous; stipules large, cordate, obtuse, serrate; aments appearing with the leaves; scales lanceolate, woolly, black; ovaries on long pedicels, lanceolate, smooth; style very short; stigmas 2-parted. *S. cordata* Mich.

Swamps. N. Eng. to Virg. April, May. 12.—Stem 6—12 feet high; branches green, red towards the end, the younger ones pubescent. Aments 1—2 inches long, on short leafy peduncles. Stamens usually 2. It is tough, and much used by basket makers. Rigid Heart-leaved Willow.

16. *S. rostrata* Richardson: leaves oblong or obovate-lanceolate, acute, entire, toothed or waved on the margin, glaucous and hoary-pubescent beneath, smoothish above; stipules lunate or ovate, toothed; sterile aments densely flowered, the fertile at length much elongated; capsules with a long slender beak; stigmas subsessile, 2-cleft.

Margins of swamps. Western N. Y. N. to Arct. Amer. April. 12.—Stem 4—15 feet high, with numerous reddish-brown branchlets. Aments on leafy peduncles; the sterile ones about an inch, the fertile ones nearly 2 inches long. Ochre-flowered Willow.

17. *S. cordata* Muhl.: leaves oblong-lanceolate, acuminate, cordate at base, acutely serrate, smooth, paler beneath; stipules large, roundish-
ovate, serrate; aments appearing with the leaves; scales ovate-lanceolate, woolly, black; ovaries pedicellate, lanceolate, smooth; style very short; stigmas 2-cleft.

Banks of streams. N. Y. to Virg. N. to Arct. Amer. April. \(2^h\).—Stem 4—8 feet high, with yellowish-green branches. Leaves large and broad. Aments an inch to an inch and a half long. Anthers yellow. Heart-leaved Willow.

18. S. petiolaris Smith: leaves lanceolate, serrate, smoothish above, glaucous and silky-pubescent beneath; stipules lunate, toothed; aments appearing before the leaves, loose; scales obovate, obtuse, black at the tip; ovaries on long pedicels, ovoid, silky; stigmas nearly sessile, 2-lobed. S. grisea Willd. S. sericea Muhl.

Banks of streams. N. Y. to Virg.—Stem 4—10 feet high; twigs green or purple, tough but brittle at base. Aments scarcely an inch long; the fertile ones often recurved. Anthers at first reddish, then yellow, and finally brown. Dark Long-leaved Willow.

19. S. vitellina Linn.: leaves lanceolate, acuminate, with glandular serratures, smoothish above, paler and somewhat silky beneath; stipules minute or caducous; aments appearing with the leaves, cylindrical; scales ovoid-lanceolate, externally pubescent; ovaries sessile, ovate-lanceolate, smooth; style short; stigmas 2-lobed. S. alba Linn.

Road sides and about farms. May.—A tree 20—40 feet high, with numerous somewhat erect branches; twigs yellowish and shining. Fertile aments about 2 inches long. Introduced from Europe and naturalized in many places. According to Dr. Darlington S. Russeliana is naturalized along the Brandywine in Pennsylvania. It is closely allied to, if not identical with, S. decipiens of Hoffman; which is said to be a native of Arctic America. Yellow Willow.

2. POPULUS. Linn.—Poplar.

(From the Latin populus, the people; on account of its having been used to shade public walks.)


1. P. balsamifera Linn.: leaves ovate, acuminate, appressed-serrate, smooth on both sides, white and reticulate-veined beneath; stamens very numerous; buds resinous.


2. P. candicans Ait.: leaves cordate, ovate, acuminate, obtusely and unequally serrate, whitish and reticulate-veined beneath; petioles hairy; buds resinous.

Woods. N. H. Ver. and N. Y. March.—A tree from 40—50 feet high, with smooth and greenish bark. Leaves large, the petiole somewhat compressed above. Fertile aments 6 inches long. The young buds, as in the preceding, are covered with an odoriferous balsam. Batin of Gilead.

Woods. Subarct. Amer. to Penn. April.—A tree from 20—30 feet high, with smooth bark. **Leaves** small, light, roundish and slightly cordate. **Aments** 3—4 inches long, pendulous. **American Aspen.**

4. *P. monilifera* Ait.: leaves subcordate-deltoid, acuminate, smooth, with cartilaginous hooked serratures, nearly entire at the base; petioles compressed above.

Banks of the Hudson, near Troy, N. Y. and in the western part of that state. W. to Ark. April.—A tree 50—80 feet high, with the younger branches slightly angled. **Fertile aments** very long. It seems not to have been found in N. America by either the elder or younger Michaux. **Virginia Poplar.**

5. *P. nigra* var. *betulifolia* Torr.: leaves deltoid-rhomboid, conspicuously acuminate, finely crenate-serrate, smooth on both sides. **P. Hudsonica** Mich. f. **P. nigra** Mich. **P. betulifolia** Pursh. Banks of the Hudson, above Albany. Michaux. March.—A tree 30—50 feet high, with spreading branches, the younger of which are pubescent. It is probably not a native. According to Loudon, Michaux believed it to be a mere variety of *P. nigra*. **American Black Poplar.**


var. pendula Nutt.: branches pendulous.

Woods. Can. to Car. April.—A tree 40—50 feet high, covered with smooth greenish bark. **Leaves** when young covered with a thick down, which disappears as they become older. The large and unequal indentations on the margins of the leaves sufficiently characterize this species. The variety is found on the Alleghany mountains, Penn. **American Large Aspen.**

7. *P. lavigata* Ait.: younger branches angled; leaves roundish or deltoid-ovate, acuminate, subcordate, unequally serrate, smooth, glandular at base; petioles compressed. **P. Canadensis** Mich. Rocky grounds. Can. to Virg. W. to the Rocky Mountains. March.—A tree from 70—80 feet high; branches angular, the angles forming whitish lines. **Leaves** large, deltoid, somewhat cordate; **petioles** with two glands at the base. This species has been confounded with *P. angulata*, but according to the younger Michaux, it is distinct. **Cotton Wood.**

8. *P. heterophylla* Linn.: leaves roundish-ovate, obtuse, often auriculate cordate at base with the sinus small, uncinately toothed, very tomentose when young. **P. argentea** Mich. f. Swamps. N. Y. to Car. W. to Miss. May.—A tree 40—60 feet high, with terete branches. **Leaves** with lobes or auricles that often conceal the insertion of the petiole. **Fertile aments** about 6 inches in length. **Various-leaved Poplar.**

**Order CXVI. MYRICACEÆ.—Galeworts.**

Flowers monoecious or dioecious, amentaceous, naked. **Stere Fl.** Stamens 2—8, generally in the axil of a scale-like bract. **Fertile Fl.** Ovary 1-celled, surrounded by several hypogynous scales; stigmas 2, subulate or dilated and petaloid. Fruit drupaceous, often covered with waxy secretions. **Seed**
without albumen.—Shrubs or small trees, with alternate leaves which are covered with resinous glands and dots.

1. MYRICA. Linn.—Candleberry Myrtle.

(From the Greek μῦρον, synonymous with the Tamarix. Hook. Brit. Fl.)


1. M. gale Linn.: leaves cuneate-lanceolate, serrate at the apex, obtuse; sterile aments imbricate; scales acuminate, ciliate; fruit in imbricate heads.

Bogs and mountain lakes. Can. to Penn. April, May. [12].—Stem 4—5 feet high, branching. Leaves alternate, somewhat coriaceous. Fruit with a strong penetrating spicy scent. The leaves have a bitter taste and are sometimes employed as a substitute for hops. Hook. Sweet Gale. Dutch Myrtle.

2. M. cerifera Linn.: leaves cuneate-lanceolate, with a few serratures near the summit, acute; sterile aments loose; scales acute; fruit globular, naked. M. Carolinensis and Pennsylvanica Pursh.

Shady woods. N. Eng. to Flor. May, June. [12].—Stem 2—8, but sometimes, (especially at the South,) 10—18, feet high, diffusely spreading. Leaves varying in width, sometimes entire, somewhat pubescent. Fruit small, dry and juiceless, but by boiling, a wax of very pleasant flavor is extracted from it, which is used for making candles, &c. Big. Med. Bot. iii.

Bayberry. Wax Myrtle.

2. COMPTONIA. Gart.—Sweet Fern.

(In honor of Henry Compton, a Bishop of London of the last century, who was a patron of botany.)


C. asplenifolia Ait. Liquidambar asplenifolium Linn.

Woods. Can. to Geor. April, May. [12].—Stem 2—4 feet high, much branched. Leaves linear-lanceolate, cut almost to the midrib into numerous roundish lobes. Flowers in oval sessile aments. Nuts forming a round burl. The whole plant, when rubbed, has a strong and somewhat fragrant scent. It is a popular remedy in dysentery.

Sweet Fern.

Order CXVII. BETULACEÆ.—Birches.

Flowers monoecious, in aments, with small scales which are sometimes arranged in a whorl. Sterile Fl. Stamens 4, distinct, opposite the scales; anthers 2-celled. Fertile Fl. Ovary free; styles single or none; stigmas 2. Fruit thin, indehiscent, 1-celled, combined with the scales into a sort of
cone. Seeds without albumen.—Trees or shrubs, with alternate simple leaves and deciduous stipules.

1. BETULA. Tourn.—Birch.

(Said to be derived from Betu, the Celtic name for the birch.)

Sterile Fl. Ament imbricate, cylindric; scales ternal, the middle one bearing the stamens. Fertile Fl. Ament ovoid-oblong; scales trifid, 3-flowered. Nuts compressed, winged on each side.

1. B. populifolia Ait.: leaves deltoid, long-acuminate, unequally serrate, very smooth; petioles smooth; fertile aments cylindric, pendulous; scales with roundish lateral lobes.


2. B. excelsa Ait.: leaves ovate, acute, serrate, smooth on both sides; petioles pubescent, shorter than the peduncles; fertile aments ovate, erect; scales with roundish lateral lobes. B. lutea Mich. f.

Low grounds. N. Eng. and N. Y. May, June.—A tree from 40—60 feet high, with a yellowish bark which is slightly fragrant. Fertile aments about an inch long. Used for fuel and for cabinet work. The bark is valuable for tanning. Yellow Birch.

3. B. nigra Linn.: leaves rhombic-ovate, doubly serrate, acute, pubescent beneath, entire at base; fertile aments ovate; scales villous, with the segments linear and equal. B. rubra Mich. f.

Banks of streams. N. Y. to Car. April, May.—A tree 40—60 feet high, with a smooth bark. Leaves on short petioles. Fertile aments three-fourths of an inch long. The wood is of little consequence. Red Birch.

4. B. papyracea Ait.: leaves ovate, acuminate, doubly serrate, hairy on the veins beneath; petioles smooth; fertile aments pendunculate, nodding; scales with short and rounded lateral lobes. B. papyrifera Mich.

Can. N. Eng. N. Y. N. to Hudson's Bay. May, June.—A tree 40—70 feet high; the bark white externally, easily separable into thin layers which have a reddish color. Fertile aments about an inch long. The bark is used by the Indians for constructing their canoes; and the wood is sometimes employed for cabinet work. Canoe Birch.

5. B. lenta Linn.: leaves cordate-ovate, sharply serrate, acuminate; nerves beneath and petioles hairy; fertile aments elliptic-ovoid, erect; scales roughish-pubescent; lobes nearly equal, obtuse, with elevated veins. B. carpinifolia Mich.

Woods. Can. to Geor. April, May.—A tree 30—60 feet high, with numerous slender branches which are spotted with white. Leaves cordate and somewhat unequal at base, long-acuminate. The wood has a close grain and is susceptible of a fine polish. The bark and young twigs are fragrant and aromatic. Sweet Birch. Cherry Birch.

6. B. pumila Linn.: young branches pubescent or smoothish; leaves roundish-ovovate, serrate, smooth, subsessile; petioles densely pubescent beneath; fertile aments oblong. B. glandulosa Mich.
Mountain bogs. Can. N. Y. and Penn. Pursh. W. to Ohio. May, June. h_2.—Stem 2—3 feet high. Leaves on short petioles, somewhat pubescent beneath. Dr. Torrey states that he has seen no specimens collected in New York.

Low Birch.

7. **B. nana** Linn.: very smooth; leaves orbicular, crenate, reticulate beneath; fertile aments oblong, on short peduncles; scales deeply 3-parted; lobes oblong-ovate, nearly equal.

White Mountains, N. H. High mountains of Essex county, N. Y. N. to Hudson's Bay. April, May. h_2.—Stem 1—2 feet high, branched. Leaves small. Fertile aments half an inch long. Fruit ovate, with a winged margin.

Dwarf Birch.

2. **ALNUS** Willd.—Alder.

(From the Celtic *al*, near, and *lan*, the river bank.)

Monœcius. **Sterile Fl.** Ament long, cylindric; scales 3-lobed, 3-flowered. Perianth 4-parted. Stamens 4. **Fertile Fl.** Ament ovoid; scales subtrifid, 2-flowered. Perianth none.


1 *A. serrulata* Willd.: leaves obovate, somewhat coriaceous, doubly serrulate, acuminate, veins and their axils hairy beneath; stipules oval, obtuse.

Swamps and banks of rivers. Can. to Car. March. h_2.—Stem 6—10 feet high, with alternate leaves. Sterile flowers in a long pendulous ament; fertile ones about half an inch long, thick and rigid, purplish-brown, persistent, often somewhat clustered.

Common Alder.


Banks of mountain streams. Can. N. Eng. N. Y. h_2.—Stem 8—20 feet high, with smooth brown bark. Fertile aments oval, usually 4—5 in a paniculate raceme.

Black Alder.

3. *Aviridis* D.C.: leaves oval or ovate, obtuse or acute, somewhat obtuse at the base, doubly serrate, glutinous and pubescent beneath, or only the veins and axils pubescent; stipules broad-ovate; fruit with a broad winged margin. (Torr. *N. Y. Fl.*) *A. undulata* Willd. *Betula crispa* Ait.

Banks of mountain streams. Ver. N. H. and N. Y. N. to Hudson's Bay, W. to the N. W. coast. h_2.—Stem 4—8 feet high, much branched; the branches warty. Fertile aments ovoid, obtuse, three-fourths of an inch long, long pedicels. Fruit winged, like that of a *Betula*.

Mountain Alder.

**Order CXVIII. CUPULIFERÆ.—NUTS.**

Flowers usually monœcius. **Sterile Fl.** in aments. Stamens 5—20, inserted into the base of scale-like or regular perianth. **Fertile Fl.** solitary, 2—3 together or clustered. Ovary crowned by the rudiments of an adherent perianth, seated within a coriaceous involucre which is usually echinate or scaly externally, and encloses the fruit at maturity or forms a cup at its
base. Fruit a bony or coriaceous 1-celled nut. Albumen none. —Trees or shrubs. Leaves alternate, simple, often feather-veined, with stipules.

1. CARPINUS. Linn.—Hornbeam.

(From the Celtic car, wood, and pin, the head; being used in making yokes for cattle.)

Monoecious. Sterile Fl. Ament long-cylindric; scales ovate, acute, ciliate at base. Stamens 8—14, somewhat bearded at the top. Fertile Fl. Ament oblong, loosely imbricated; scales in pairs, enlarging and becoming leafy; each pair 2-flowered. Styles 2. Nut bony, ovoid, acute, sulcate.

C. Americana Mich.: leaves oblong-ovate, acuminate, unequally serrate; scales of the fertile ament 3-parted; the middle segment much the largest, oblique, ovate-lanceolate, unequally toothed on one side. C. Virginiana Mich. f.


Hornbeam. Water-Beech.

2. OSTRYA. Mich.—Hop Hornbeam.

(From the Greek oarpeov, a shell; in allusion to the fruit.)

Monoecious. Sterile Fl. Ament cylindric; scales orbicular-ovate, acuminate, ciliate. Stamens 8—10 or more; filaments branched. Fertile Fl. Ament loosely imbricated, bracteate, with the flowers in pairs; scales none, but a membranous sac or involucre enclosing each flower. Stigmas 2, filiform. Nut oblong, included in the bladdery involucre.

O. Virginica Willd.: leaves ovate-oblong, somewhat cordate at base, acuminate, unequally serrate; strobile oblong-ovoid, erect; buds acute. Carpinus Ostrya Mich.

Woods. Can. to Car. W. to the Rocky Mountains. May.—A tree 20—40 feet high, with brownish bark. Leaves alternate, on hairy petioles. Fertile aments at length enlarged into a sort of oblong somewhat pendulous cone resembling the common hop. The wood is exceedingly hard and heavy. In some parts of the country it is called lever wood, from the use to which it is sometimes applied.


3. QUERCUS. Linn.—Oak.

(From the Celtic quer, beautiful, and cuez, a tree. Hook.)

Monoecious. Sterile Fl. Ament long, slender and pendulous. Perianth 6—8-parted, the segments unequal. Stamens 6—10. Fertile Fl. Several together on erect axillary pedun-
CUPULIFERÆ.

cles or sessile on a rachis. Involucre 1-flowered, consisting of many imbricate scales, which in fruit become an indurated cup (cupule), surrounding the base of the ovoid or roundish 1-seeded nut or acorn.

* Fruit biennial, subsessile.

† Leaves entire.

1. Q. Phellos Linn.: leaves deciduous, linear-lanceolate, tapering at each end, very entire, smooth, mucronate; acorn nearly round.


2. Q. imbricaria Mich.: leaves deciduous, oblong, acute at each end, mucronate, very entire, shining, pubescent beneath; cup shallow; scales broad-ovate; acorn subglobose.

Banks of rivers in mountainous regions. Penn. to Flor. W. to Miss. June.—A tree 40—50 feet high, with numerous irregular branches. Acorn small, nearly spherical, in a flat nearly sessile cup. The wood splits easily, and is used in the Western States for shingles. Shingle Oak.

†† Leaves toothed or lobed.

3. Q. heterophylla Mich.: leaves on long petioles, ovate-lanceolate or oblong, entire or coarsely toothed; cup hemispheric; acorn subglobose.

Banks of the Delaware. Penn. May. b.—According to Pursh there is only one individual of this species known, which grows near Philadelphia. He suggests that it may be a hybrid. It is figured and described by Michaux in his Sylva Americana. Various-leaved Oak.

4. Q. aquatica Wall.: leaves obovate-wedgeform, smooth, very entire, obscuringly 3-lobed at the end, with the middle lobe largest; cup hemispheric; acorn subglobose. Q. nigra Linn.


5. Q. triloba Linn.: leaves oblong-wedgeform, acute at the base, somewhat 3-lobed at the end; lobes equal, mucronate, tomentose beneath, middle one longer; cup flat; acorn depressed-globose.

Pine barrens. N. J. to Geor. May.—A tree 20—40 feet high, of rapid growth. Downy Black Oak.

6. Q. nigra Willd.: leaves coriaceous, wedgeform, subcordate at base, dilated and retusely 3-lobed above, the lobes mucronate when young, rusty-pulverulent beneath; cup turbinate, with the scales obtuse and scarios; acorn short, ovoid. Q. ferruginea Mich. f.

Sandy woods. Long Island. Torr. S. to Flor. May.—A tree 10—30 feet high, irregular in its growth, and covered with a thick rough black bark. The wood is much esteemed for fuel; but is seldom of sufficient size to be of any value as timber. Barren Oak. Black Jack Oak.

7. Q. tinctoria Bartram: leaves obovate-oblong, somewhat sinuate-
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lobed, pubescent beneath; lobes oblong, obtuse, obscurely toothed, mucronate; cup flat, tapering at base; acorn ovoid-globose.

Woods. Can. to Geor. W. to Miss. May.—One of the largest species of oak, sometimes attaining the height of 70 or 80 feet, covered with a rough blackish bark, from whence it has derived its common name. It is highly valued on account of its timber, as well as its bark. Black Oak. Quercitron.

8. Q. discolor Ait.: leaves oblong, pinnatifid-sinuate, pubescent beneath; lobes oblong, toothed, setaceous-mucronate; cup turbinate; acorn ovoid. Q. tinctioria sinuosa Mich. f.

Forests. Penn. to Car. May.—A large tree, resembling the preceding, and also Q. coccinea, but differs in having the young leaves covered with down. It is still, however, doubtful whether it is really distinct. Two-colored Oak.

†† Leaves deeply sinuate and lobed.

9. Q. coccinea Wang.: leaves on long petioles, oblong, deeply sinuate-lobed, smooth; lobes divaricate, toothed, acute, setaceously-mucronate; cup turbinate, scaly; acorn roundish-ovoid.

Ferile woods. N. Eng. to Geor. W. to the Ark. May.—A tree 60—80 feet high. Distinguished by the brilliant red color of its leaves towards the close of autumn. Its wood is used for staves and fuel, but it is not very durable. The bark is valuable for tanning. Scarlet Oak.

10. Q. rubra Linn.: leaves on long petioles, oblong, smooth, obtusely sinuate-lobed; lobes spreading, rather acute, toothed, setaceously-mucronate; cup flat, nearly smooth; acorn oblong-ovoid.

Forests. Can. to Geor. May.—A tree 70—80 feet high. Leaves bright-green, slightly pubescent in the axils of the nerves beneath. Resembles the former, but its leaves are larger, and in autumn they change to a dull red, and finally become yellow. The acorn also is larger, has a flat base and shallow cup. It is valuable both for its wood and bark; the wood however is not very durable. Red Oak.

11. Q. Catesbaei Mich.: leaves on short petioles, wedgeform at base, oblong, deeply sinuate, smooth; lobes 3—5, divaricate, toothed, acute, setaceously-mucronate; cup turbinate, broad; scales obtuse, those of the margin bent inwards; acorn subglobose.

Pine barrens. Md. to Flor. May.—A shrub or small tree 10—20 feet high, with an irregular stem and branches. Leaves coriaceous and glossy. Cup large and remarkable for its obtuse scales. The wood makes excellent fuel, and its bark is used by the tanner. Shrubby Oak.

12. Q. falcata Mich.: leaves on long petioles, obtuse at base, tomentose beneath, 3-lobed or sinuate; lobes somewhat falcate, setaceously-mucronate, the terminal one long; cup shallow, somewhat turbinate; acorn globose. Q. elongata Linn. Q. rubra Wall.

Sandy soils. N. J. to Geor. W. to Ark. May.—A tree 70—80 feet high. Leaves with 3—5 lobes, glossy on the upper surface. The wood is used for staves, fencing and fuel. The bark is highly esteemed by tanners. Spanish Oak. Downy Red Oak.

13. Q. palustris Mich.: leaves on long petioles, oblong, smooth, deeply sinuate-lobed, with broad sinuses; lobes dentate, toothed, acute, setaceously-mucronate; cup flat, smooth; acorn subglobose.

Swampy woods. N. Y. N. Eng. and Penn. W. to Ill. and Ark. May.—A tree 40—60 feet high, with numerous spreading branches. Leaves bright-green
and shining. **Acorns** numerous, small, on short peduncles. The wood is firm and much used by mechanics. *Water Oak. Pin Oak.*


**Fructification annual.** **Fruit** mostly pedunculate.

† Leaves sinuate-lobed; lobes not mucronate.

15. *Q. obtusiloba* Mich.: leaves oblong, deeply-sinuate-lobed, wedge-form at base, pubescent beneath; lobes obtuse, the upper one dilated and retuse; cup hemispheric; acorn oval. *Q. stellata* Linn.

Sterile grounds. Can. to Flor. W. to Miss. and Ark. May.—A tree 30—50 feet high, with straggling irregular branches. **Leaves** mostly 5-lobed, smoothish and shining above, rusty pubescent beneath. **Fruit** sessile or 2—3 together on a short common peduncle. **Cup** hemispheric, enclosing nearly half of the acorn. The timber is much esteemed in ship building, and is supposed in durability and strength to surpass that of any other species of oak except the *Live Oak.* *Post Oak.*

16. *Q. macrocarpa* Mich.: leaves deeply and lyrately sinuate-lobed, tomentose beneath; lobes obtuse, repand, upper ones dilated; cup deep, fringed around the margin; acorn ovoid, turgid, more than half immersed in the cup.

Woods. Near Schenectady, N. Y. On the islands in Lake Champlain. Penn., and throughout the Western and Southwestern states. May.—A tree 40—60 feet high, the branches with a cory bark. **Acorns** pedunculate, larger than in any other American species. The wood is said to be of an excellent quality. *Over-cup White Oak.*

17. *Q. olivaeformis* Mich.: leaves oblong, smooth, glaucous beneath, deeply and unequally sinuate-pinnatifid; cup very deep, crenate above; acorn elliptic-ovoid, three-fourths enclosed in the cup.

Hills. N. Y. to Virg. May.—A tree somewhat resembling the preceding. Michaux credits it to the banks of the Hudson near Albany, but I believe no other botanist has found it there. It has, however, been observed by the late Dr. W. Horton, in Orange county, N. Y. *Mossy-cup Oak.*

18. *Q. alba* Linn.: leaves oblong, pinnatifid-sinuate, paler beneath; segments oblong, obtuse, entire; fruit pedunculate; cup deep, tuberculate; acorn ovoid or oblong.

Fertile forests. Throughout the U. S. May.—One of the largest and most valuable of the American forest trees, often 80—100 feet high, and 3—7 feet in diameter. **Bark** whitish. **Leaves** pubescent when young. Timber firm and durable, and of great use in ship building and in many other arts. *White Oak.*

†† Leaves coarsely serrate or toothed, not lobed.

Shady woods. N. Y.? to Flor. May.—A tree 60—80 feet high. Leaves large, on petioles about an inch long. Cup hemispheric, enclosing about one third of the acorn, on a short peduncle. Acorn large. Timber inferior to that of the preceding, but often employed indiscriminately with it.  

Swamp Chestnut Oak.

20. Q. bicolor Willd.: leaves on short petioles, oblong-obovate, whitish tomentose beneath, coarsely toothed, cuneate and entire at base; teeth unequal, dilated, rather acute, callous at the summit; fruit mostly in pairs, on long peduncles; cup hemispheric; acorn oblong-ovoid. Q. Prinus discolor Mich. f.

Low woods and swamps. N. Y. to Car. May.—A tree 40—60 feet high, with the bark separating into large flat scales or plates. Leaves varying from broad-ovate to oblong. Acorn large, in a small thin and roughish cup. Its timber is in less repute than that of many other species. Swamp White Oak.

21. Q. montana Willd.: leaves on petioles, broad-obovate, oblong, pubescent and somewhat glaucous beneath, coarsely and nearly equally toothed; teeth short, broad and obtuse, slightly mucronate; fruit mostly in pairs, on short peduncles; cup hemispheric; acorn elliptic-oblong. Q. Prinus monitica Mich.

In rocky situations. N. H. to Car. W. to Ark. May.—A tree of less size than either of the two preceding. Its wood resembles the white oak in strength, and its bark is highly esteemed by tanners. For fuel it is scarcely exceeded in value by any of our trees. Rock Chestnut Oak.

22. Q. Castanea Willd.: leaves on long petioles, oblong-lanceolate, obtuse at base, acuminate, pubescent and grayish beneath, nearly equally toothed; teeth acute, callous at the point; cup hemispheric; acorn roundish-ovoid. Q. Prinus acuminata Mich. f.

Mountains. N. Y. to Geor. May.—A tree 60—70 feet high. Leaves on long petioles and narrower than those of the former. Fruit middle-sized, sessile or on a short peduncle. In name and use it is often confounded with Q. Prinus. Chestnut Oak. Yellow Oak.

23. Q. Chinquapin Pursh: leaves on short petioles, obovate, and lance-oblong, coarsely and often obsolescent sinuate-toothed, acute at base, pubescent and glaucous beneath; teeth nearly equal, callous at the point; cup hemispheric, sessile; acorn ovoid. Q. prinoides Willd.


4. CASTANEA. Tourn.—Chestnut.

(From Castanea, a city of Thessaly, noted for its chestnuts.)

Polygamous. Sterile Fl. Aments numerous, interruptedly clustered, very long, cylindric. Perianth deeply 5—6-parted. Stamens 8—15. Fertile Fl. 2—3, within an ovoid scaly or muricate involucre. Perianth urceolate, 5—6-cleft, having the rudiments of 10—12 abortive stamens. Ovary crowned with the perianth. Nuts 1—3, included in the enlarged echinate 4-lobed involucre.

Dry woods. N. Y. to Car. W. to Ill. May, June.—A large tree, and one of the most useful. Leaves 6 inches long, pubescent beneath when young. *Sterile* aments or spikes as long as the leaves. *Flowers* yellowish, in dense bracteate clusters, giving out an unpleasant odor. *Nuts* generally 3, much smaller than in the European chestnut. The wood is extremely durable and is highly esteemed for posts and rails to construct fences. *American Chestnut.*


Sandy fields and woods. N. Y. to Geor. May.—A shrub or small tree, at the North being seldom more than 10 or 12 feet high. *Leaves* smaller than in the preceding and white beneath. *Nut* ovoid, acute, very sweet, half as large as that of the preceding. The wood is durable, but too small to be converted to much use. *Chinquapin.*

5. *Corylus.* Linn—*Hazel Nut.*

(From the Greek *kóps*, a helmet or cup; in allusion to the involucrate fruit.)


1. *C. Americana* Wall.: leaves roundish-cordate, acuminate; involucre roundish-campanulate, larger than the subglobose nut; border dilated, many-cleft.

Shady woods. Can. to Flor. W. to Miss. and Ark. March, April. 12.—

Stem 4—8 feet high, with virgate branches, pubescent when young. *Nut* about half an inch long and often a little compressed; the kernel of a fine flavor. *American Hazel Nut.* Wild Filbert.

2. *C. rostrata* Ait.: leaves oblong-ovate, acuminate, doubly serrate; stipules linear-lanceolate; involucre tubular-campanulate, longer than the nut, 2-parted, with incised segments.


(From the Greek *φαγεῖν, to eat*; in allusion to the esculent fruit.)


Woods. Can. to Geor. May.—A beautiful tree, often attaining the height of 50 or 60 feet, and coated with a thick smooth grayish bark. *Leaves* 2—5 inches long, often a little cordate at base, bright-green and shining above, silky beneath when young. *Nuts* 1—2 in each involucre, mostly acute but sometimes rather obtuse, mucronate with a sharp point, pale reddish-brown. There is probably only one species of beech in the Northern States, but whether this is distinct from the foreign *F. sylvestica*, or a mere variety, is still somewhat doubtful. The difference in the color of the wood, (red and white,) is caused by the more or less rapid growth of the tree.

**Order CXIX. PLATANACEÆ.—Planes.**

Flowers monoecious, in globose pedunculate aments, destitute of floral envelopes. **Sterile Fl.** Stamens numerous, mixed with small scales and appendages. **Fertile Fl.** Ovaries numerous, mixed with scales; styles subulate; stigma small. Fruit a small coriaceous 1-seeded nut. Seeds albuminous.—Large trees, with alternate palmate or toothed leaves.

**Platanus. Linn.**—Plane Tree.

(From the Greek πλατης, broad; in allusion to its wide spreading branches and foliage.)

Character same as that of the order.

*P. occidentalis* Linn.: leaves angularly lobed or obscurely palmate, sinuate-toothed, pubescent beneath; branches whitish; fertile heads solitary.

Banks of streams. Can. to Flor. W. to Miss. May.—One of the largest trees in the United States, attaining in favorable situations the height of 80 feet or more. *Leaves* alternate, on long petioles. *Aments* axillary, globose; the *fertile* ones at length forming a compact ball of about an inch in diameter, which hangs on a slender peduncle 2 or 3 inches in length.

*Button Wood. Sycamore.*

**Order CXX. ALTINGIACEÆ.—Sweet Gums.**

Flowers monoecious, destitute of floral envelopes, in aments which are furnished with a deciduous 4-leaved involucre. **Sterile Fl.** in conical aments. Anthers numerous, nearly sessile, with a few minute scales. **Fertile Fl.** in globose aments. Ovaries numerous, each surrounded by a few scales; styles 2, long. Fruit a cone composed of hard connected scales, in the cavities of which lie obconic, 2-lobed, 2-celled capsules. Seeds mostly abortive; albumen fleshy.—Trees, with alternate simple or lobed leaves and deciduous stipules.
LIQUIDAMBAR. Linn.—Sweet Gum.

(From the Latin liquidum, fluid, and ambar, amber; in allusion to the liquid which exudes from the tree.)

Character same as that of the order.

*L. styraciflua* Linn.: leaves palmately lobed; lobes acuminate, serrate; axils of the primary veins villous.

Low woods. N. Y. to Flor. W. to Miss. May.—A tree sometimes attaining the height of 60 or 70 feet. *Leaves* fragrant when bruised. *Perite aments* when in fruit about an inch in diameter, forming a brownish woody and prickly strobile. At the South, the tree yields an aromatic liquid. *Common Sweet Gum.* Bilsted.

ORDER CXXI. ULMACEÆ.—ELMS.

Flowers perfect or polygamous by abortion. Perianth campanulate, imbricate, irregular. Stamens 5—10, inserted on the perianth. Ovary 2-celled; stigmas 2, distinct. Fruit a samara, an indehiscent capsule or a drupe. Seed solitary, without albumen.—Trees or shrubs, with rough alternate simple deciduous leaves and stipules.

1. ULMUS. Linn.—Elm.

(An ancient Latin name, the origin of which is doubtful.)


1. *U. Americana* Linn.: branches smooth; leaves smooth above, pubescent beneath, somewhat doubly serrate, unequal at the base; serratures uncinately acuminate; flowers pedicellate, in loose lateral fascicles; samara ovate, densely villose, ciliate on the margin.

Low grounds. N. Y. to Car. W. to Miss. April, May.—A tree 60—80 feet or more in height, with long recurved branches. *Flowers* purplish, in small fascicles, generally appearing before the leaves. *Stamens* 4—8. In favorable situations the most magnificent tree on the continent. The wood is less compact than that of the two next species. *American Elm.* White Elm.


Mountains. N. Y. to Car. May.—A tree 20, 30, or 40 feet high. *Leaves* much larger than in the preceding and very rough. *Stamens* 7—9. The inner bark contains a great portion of mucilage, and is largely employed for medicinal purposes. *Slippery Elm.*

3. *U. nemoralis* Ait.: leaves oblong, somewhat glabrous, equally serrate, nearly equal at base; flowers sessile.

4. *U. racemosa Thomas:* young branchlets pubescent; leaves smooth above, slightly and softly pubescent beneath, acuminate, doubly and unequally serrate; flowers in compound racemes, pedicellate; samara elliptic-oval, the margin densely fringed.


Thomas’s Elm. White Elm.

2. CELTIS. *Linn.*—Nettle Tree.

(An ancient name of the *Lotus,* applied to this tree.)


1. *C. occidentalis* *Linn.*: leaves ovate, acuminate, equally serrate, unequal at base, scabrous above, hairy beneath; flowers small, sub solitary.


2. *C. crassifolia* *Lam.*: leaves lance-ovate, acuminate, unequally serrate, rough and hairy on both sides, unequal and subcordate at the base; peduncles mostly 2-flowered.


Order CXXII. JUGLANDACEÆ.—WALNUTS.

Flowers monoeous, imperfect. Sterile Fl. in aments. Perianth adherent to a scale-like bract, unequally 2–6-parted. *Stamens* 3, or numerous. Fertile Fl. few, clustered or in loose racemes. Perianth adherent to the ovary; the limb minute, 3–5-parted; rarely double, the inner of 3–5 minute leaves. Ovary 2–4-celled below, 1-celled above; styles 1–2, very short; stigmas 2–4, unequal. Fruit drupaceous, the pericarp fibrous-fleshy or coriaceous; nut opening or separating from a 2-valved or valveless stone, which is 2–4-celled at base, and 1-celled at the apex. Seed without albumen, 2- or 4-lobed; cotyledons fleshy and oily.—Trees, with alternate pinnate leaves destitute of stipules.
1. JUGLANS. Linn.—Walnut.

(From the Latin Jovis glans, the nut of Jupiter; on account of its excellence.)

Monoeious. Sterile Fl. Ament imbricate; scales mostly 5-parted, sometimes bracteate. Perianth 5- or 6-parted. Stamens 8—40. Fertile Fl. Perianth double; the outer one short, 4-toothed; the inner one 4-parted. Styles 2, very short. Stigmas 2, somewhat clavate. Drupe fibrous-fleshy, indehiscent. Nut rugose and irregularly furrowed.

1. J. nigra Linn.: leaves pinnate; leaflets numerous, ovate-lanceolate, serrate, subcordate, tapering to the summit, the under surface and petioles slightly pubescent; fruit globose, roughly dotted, spongy; nut nearly globose, corrugated.

Fertile woods. N. Y. to Flor. W. to Miss. April, May.—A tree, 30—60 feet high, with a large spreading top. Leaves pinnate, with from 15—21 leaflets. Sterile aments axillary, cylindric, pendulous. Timber compact, fine grained, heavy and dark colored when exposed to the air. Black Walnut.

2. J. cinerea Linn.: leaves pinnate; leaflets numerous, oblong-lanceolate, serrate, rounded at the base, softly pubescent beneath; petioles villous; fruit ovoid-oblong, coriaceous, hairy and viscid; nut elliptic-oblong, acuminate, conspicuously sculptured. J. cathartica Mich. f.

Woods. Can. to Geor. W. to Miss. April, May.—A large tree. Leaves pinnate, with 15—17 pubescent leaflets. Habit and fructification very similar to the preceding, but the fruit is oblong, with a tapering protuberance at the summit, and the nut much more deeply and irregularly sculptured. The inner bark yields a laxative extract. Butternut. White Walnut.

2. CARYA. Nutt.—Hickory.

(From the Greek kapios, an ancient name of the Walnut.)


Fertile soils. N. Y. to Car. April, May.—A large tree. Leaves pinnate, with 7—9 leaflets. Sterile aments 3-parted, very long, peduncled. Nut large, oblong, with a very thick 4-parted pericarp. This, like most of the species, is valuable for fuel. Thick Shell-bark Hickory.

2. C. alba Nutt.: leaflets 5—7, on long petioles, obovate and oblong-lanceolate, acuminate, sharply serrate, villous beneath, the terminal one ses-

Fertile woods. Can. to Car. and W. to Miss. April, May.—A tree 50 to 80 feet high, with the bark separating in large flat scales or plates. *Nut* with a thinner shell than that of most other species and of a fine flavor; *pericarp* globose, depressed at the summit. Timber much prized, in consequence of the fineness of the grain and the elasticity of the fibre.

*Shell-bark* or *Shag-bark* Hickory.


Moist woods. Penn. May.—A tree 60—80 feet high, with an even bark. *Aments* long, slender, smooth. *Fruit* three-fourths of an inch in diameter; *pericarp* thin; *nut* with a thin shell. Intermediate between *C. alba* and one of the varieties of *C. porcina*, but Dr. Darlington is inclined to think it a good species.

*Small-fruited* Carya.

4. *C. tomentosa* Nutt.: leaflets 7—9, oblong and obovate-lanceolate, acuminate, smooth, slightly serrate, pubescent and scabrous beneath, terminal one nearly sessile; aments filiform, very long, tomentose; fruit subglobose; smooth; pericarp very thick; nut somewhat 6-angled, the shell very thick and hard. *Juglans tomentosa* Mich. *J. alba* Willd.

Fertile woods. Can. to Geo. April, May.—A tree, 50—80 feet high, with the bark rough but not scaly. *Leaflets* sometimes nearly entire (var. *integrifolia* Torr.) *Fruit* very variable in size, but usually from 1½—2 inches in length; *nut* light brown, shell very thick and hard, kernel sweet. The wood is very valuable for fuel.


5. *C. amara* Nutt.: leaflets 7—9, ovate-oblong, acuminate, sharply serrate, smooth on both sides; fruit subglobose; nut smooth, mucronate, with the shell fragile. *Juglans amara* Mich. *Hicorius amara* Raf.

Dry fertile woods. Can. to Car. May.—A large tree. *Leaflets* mostly 7, sometimes only 5, sessile, with the nerves and midrib pubescent. *Nut* small, almost obcordate, with a very thin shell, and a bitter and astringent kernel. Often confounded with the next species. *Bitternut*. *Swamp* Hickory.


Fertile woods. N. Y. to Geo. May.—A very large tree. *Leaflets* 5—7. *Fruit* small, variable, with a bitter and astringent kernel. Wood very tough; used for making splint brooms.

*Pignut*. *Broom* Hickory.

**Order CXXIII. CONIFERÆ.—PINES.**

Flowers monoecious or dioecious, naked. **Sterile Fl.** consisting of one or more (often monadelphous) stamens, arranged on a rachis so as to form a loose ament. **Fertile Fl.** in cones. Ovary spread open, and having the appearance of a flat scale destitute of style or stigma, and arising from the axil of a membranous bract. *Fruit* a cone. *Seed* with a hard crustaceous
integument; embryo in oily albumen.—Trees or shrubs, with a branched trunk abounding in resin. Wood marked with circular disks. Leaves usually rigid and needle-shaped, entire.

1. **JUNIPERUS.** Linn.—Juniper.

(From the Celtic jeneprus, rude, rough, characteristic of the plant.)

Dioecious, rarely monoecious. **Sterile Fl.** Ament ovoid-oblong, very small; scales verticillate, peltate. Anther-cells 3—6. **Fertile Fl.** Ament ovoid; scales few, concave, united at base, becoming a fleshy tuberculate berry and enclosing 1—3 crustaceous seeds.

1. **J. communis** Linn.: leaves in threes, subulate, spreading, mucronate, longer than the ovoid berry.


2. **J. Virginiana** Linn.: trunk arborescent; leaves in four rows, shorter than the berry; those of the older branches subulate, cuspidate, and somewhat spreading.


3. **J. prostrata** Mich.: stem prostrate, creeping; leaves imbricate in four rows, ovate, submucronate, glandular in the middle, appressed; berry large and conspicuously tuberculate. **J. repens** Nutt. **J. Virginiana,** var. prostrata Torr.

Sandy soils. Can. to Penn. W. to Miss. May.—A low shrub with creeping branches 2 yards long. Dr. Torrey considers this as a variety of the preceding; but it seems to differ in its habit and in its fruit. Trailing Juniper.

2. **THUYA.** Linn.—Arbor Vitæ.

(From the Greek thvô, sacrifice; because its wood or resin was used as a perfume in sacrifices.)

Monoecious. **Sterile Fl.** Aments terminal, very small, ovoid. Perianth none. Anther-cells 4, opening longitudinally. **Fertile Fl.** Cone with the scales 2-flowered. Seeds more or less winged.

**T. occidentalis** Linn.: branches ancipititious; leaves imbricate in 4 rows, ovate-rhomboideal, appressed, tuberculate; cones nodding, obovoid; inner scales truncate, gibbous at the summit; seeds winged all round.

River banks and hill sides. Can. to Car. W. to Miss. May.—A tree 20—30 feet high, with very tough branches. Leaves resembling scales. Cone about half an inch long, yellowish-brown. The wood is light and soft, but very durable. American Arbor Vitæ.
3. CUPRESSUS. Linn.—Cypress.

(From the Island of Cyprus, where one species of the tree is abundant.)


1. C. disticha Linn.: leaves distichous, flat, deciduous; sterile flowers leafless, paniculate.

Swamps. N. J. to Flor. W. to Miss. May.—One of the largest trees of the forest, occurring in extensive swamps, especially at the South. Leaves small, linear and acute. Cone with an irregular surface. Timber very durable.

American Cypress.

2. C. thyoides Linn.: branches compressed; leaves imbricate in four rows, ovate, tuberculate at base.

Swamps. N. Y. to Car. May.—A middle-sized tree, composing the Cedar swamps of the middle and southern states. Wood light, soft and durable, used as is the preceding, for shingles, cedar-ware, rails, &c. White Cedar.

4. PINUS. Linn.—Pine.

(Said to be derived from the Celtic pin or pen, a crag or stony mountain; often its place of growth.)

Monœcious. Aments racemously clustered; scales peltate. Stamens numerous, with short filaments. Fertile Fl. Aments more or less conic or cylindric; scales closely imbricate, 2-flowered, enlarging and becoming woody, forming a cone. Seeds winged at the summit, covered by the scales of the cone.

* Leaves 2—5, sheathing at base. Scales of the cone thickened at the summit. Pinus.

1. P. inops Ait: leaves short, mostly in pairs; cones oblong-ovoid, as long as the leaves, somewhat recurved; spines of the scales subulate, straight.

Sterile soils. N. J. to Car. W. to the Rocky Mountains. May.—A tree 15—40 feet high, with straggling branches and full of resin. Leaves about 2 inches long. Cones 2—3 inches long, ovoid, tapering and a little curved.

Pitch or Scrub Pine.

2. P. resinosa Ait.: leaves elongated, in pairs; sheaths elongated; cones ovoid-conic, rounded at base, subsolitary, half the length of the leaves; scales dilated in the middle, unarmed. P. rubra Mich.


5. *P. rigida* Linn.: leaves in threes; sheaths short; sterile aments erect-incumbent; cones ovoid, often in clusters; spines of the scales rigid, reflexed.

Sandy soils. Maine to Virg. May.—A tree 30—50 feet high, with numerous branches and a rough fissured bark. Leaves 4—6 inches long. Cones usually clustered in threes or fours, 2—4 inches long. The wood abounds in turpentine and is chiefly used as fuel. Pitch Pine.

6. *P. serotina* Mich.: leaves elongated, in threes; sterile aments incumbent, nearly erect; cones ovoid; spines of the scales straight, slender.


7. *P. Strobus* Linn.: leaves in fives, slender; sheaths very short; cones cylindric-oblong, pendulous, much longer than the leaves; scales loose, flattish, without spines.

Fertile soils. Can. to Virg. May.—A very large and valuable tree, sometimes attaining the height of 200 feet or more. Leaves 4 inches long, sharply triangular and more slender than in any of our species. Cone solitary, very long. Timber soft, fine grained and light. White or Weymouth Pine.

**Leaves fasciculate, deciduous. Larix.**

8. *P. pendula* Ait.: leaves fasciculate, deciduous, short; cones ovoid-roundish, consisting of a few nearly orbicular thin scales; bracts broad-ovate, with the point attenuated. *P. microcarpa* Lamb. Larix Americana Mich.

Swamps. Can. N. Eng. and N. Y. N. to Arct. Amer. April, May.—A tree from 30—70 feet high, which differs from the preceding by its leaves growing in tufts or fascicles, and in their being deciduous. Cones about half an inch long, covered with soft scales. The wood is strong and durable. Hackmatack. Tamarack.

***Leaves solitary, distinct at base. Scales of the cone even and attenuated. Abies.***

9. *P. Balsamea* Linn.: leaves solitary, flat, emarginate or entire, glaucous beneath, somewhat pectinate at the summit, nearly erect, below recurved-spreading; cone cylindric, erect; bracts short, obovate, conspicuously mucronate, somewhat serrulate. Abies balsamifera Mich.

Mountains. Subarct. Amer. to Car. W. to the Rocky Mountains. May.—A tree 40—50 feet high. Leaves 6—10 lines long. Cone solitary, erect. It yields a kind of turpentine known by the name of Canada balsam, which is used medicinally and for optical purposes. American Silver Fir. Balsam Fir.

10. *P. Fraseri* Pursh.: leaves solitary, flat, short, emarginate, glau-
cous beneath, subsecund, erect above; cones ovoid-oblong, erect; bracts elongated, reflexed, oblong-cuneate, emarginate, shortly mucronate, incisely toothed. *P. Balsamea*, var. *Fraseri Nutt.*

Mountains. Ver. N. Y. 1 and Penn. May.—Resembles the former, but differs in being a smaller tree, the leaves shorter and more erect, and the cones not one-fourth the size. **Double Balsam Fir.**


Mountains. Can. to Car. W. to the Rocky Mountains. May.—A tree sometimes attaining the height of 60 or 70 feet, with spreading and often somewhat pendulous branches. Leaves 6—8 lines long. Cones very small. The wood, though soft and coarse grained, is much used for various purposes. The bark contains a great quantity of tannin. **Hemlock Spruce.**

12. *P. nigra Ait.*: leaves solitary, scattered all around the branches, somewhat 4-sided, erect, short, entire; cones ovoid; scales elliptic, undulate on the margin, crenulate or toothed at the apex. *Abies nigra Mich. f.*

Swamps. Subarct. Amer. to Car. W. to the Rocky Mountains. May.—A tree usually from 30—60 feet high, with a pyramidal summit. Leaves half an inch long, dark-green. Cones 1—2 inches in length. **Black or Double Spruce.**

13. *P. rubra Lamb.*: leaves solitary, subulate; cones oblong, obtuse; scales rounded, somewhat 2-lobed, entire on the margin.


14. *P. alba Ait.*: leaves solitary, scattered around the branches, erect, 4-sided, somewhat glaucous, entire; cones oblong-cylindric, loose; scales obovate, very entire.

Swamps. Arct. Amer. to Car. May.—A small tree, seldom more than 40 or 50 feet high. Leaves 5—8 lines long, more slender and less crowded than in the preceding. Cones slender, 2 inches long. **White or Single Spruce.**

5. **TAXUS. Linn.—Yew.**

(Supposed to be derived from the Greek τοξον, a bow; on account of the use made of the wood.)

Flowers dioecious. Sterile Fl. consisting of peltate anthers in an ament; anther-cells 3—6 or more, inserted in the lobes of the connective, opening beneath. Fertile Fl. solitary, with imbricate scales at the base. Seed nut-like, seated in the disk which becomes a succulent cup.


Moist rocky places. Can. to Virg. W. to St. Louis River. March, April. **12. Stem 4—8 feet high. Leaves resembling those of Pinus Canadensis, but larger. Fruit having the appearance of a berry, open at the top, bright-red, the seed or nut oval, compressed. American Yew. Ground Hemlock.**
CLASS II. ENDOGENOUS OR MONOCOTYLEDONOUS PLANTS.

Stem, with no perceptible distinction of bark, wood and pith, increasing in diameter by the addition of new matter to the centre. Leaves mostly alternate, with no evident articulation, commonly sheathing at base and entire, mostly with parallel veins. Embryo with but one cotyledon; or if two, one is smaller and alternate with the other.

SUBCLASS I.—PETALOIDAEALS.

Stamens and pistils naked or covered by verticillate floral envelopes.

ORDER CXXIV. HYDROCHARIDACEÆ.—Frog’s Bits.

Flowers in a spathe, mostly dioecious. Perianth regular, 3—6-parted; the inner segments petaloid. Stamens 3—12. Ovary 1—9-celled; stigmas 3—6. Fruit dry or succulent, indehiscent. Seeds numerous, without albumen.—Floating or water plants. Leaves mostly radical, sometimes opposite or verticillate.

1. UDORA. Nutt.—Udora.

(From the Greek νδορ, water; in allusion to its place of growth.)


2. VALLISNERIA. Linn.—Tapeweed.

(In honor of Antonio Vallisneri, an Italian botanist.)

Dioecious. STERILE Fl. Spathe ovate, 2—4-parted. Spadix covered with minute flowers. Perianth 3-parted. Stamens
2. **Fertile Fl.** Scape very long, flexuous or spiral. Spathes tubular, bifid, 1-flowered. Perianth elongated, 6-parted; the alternate segments linear. Style none. Stigmas 3, ovate, bifid. Capsule elongated, cylindric, 3-toothed, 1-celled, many-seeded; the seeds attached to the sides.


| Leaves all radical, 1—2 feet or more long, 2—4 lines wide, linear and grass-like, obscurely 3-nerved, smooth and deep-green. Perianth reddish-white. The roots are supposed to be the favorite food of the canvas-back duck. |

**Order CXXV. ORCHIDACEÆ.—Orchids.**

Flowers irregular. Perianth of 6 segments, in two rows, the outer (*calyx*) usually colored and petaloid like the inner, the lowest one (*lip*) different from the others and often spurred. Stamens 3, united with the style and thus forming the *column*, the central one only perfect or the central abortive and the two lateral perfect. Pollen powdery or cohering in waxy masses. Ovary adherent, 1-celled, with 3 parietal placentae; style mostly forming part of the column; stigma a viscid concave spot in front of the column. Seeds very numerous and minute, with a loose netted coat.—Herbs, with tuberous or fibrous roots and usually handsome. Flowers in spikes or racemes.

**I. Malaxee.** Pollen cohering in waxy masses, without a caudicle or separable stigmatic gland. Anther terminal.

1. **LIPARIS.** Rich.—Liparis.

(From the Greek Λιπαρίς, fat; the leaves having an unctuous feel.)

Perianth with the segments distinct, linear, spreading. Lip flat, dilated, entire, turned various ways. Column winged. Pollen-masses 4, without pedicels or glands.

1. *L. liliifolia* Rich.: leaves 2, ovate, much shorter than the scape; inner segments of the perianth filiform, deflected; lip very large, obovate, mucronate. *Malaxis liliifolia* Willd.


| Scape 6—8 inches high, 5-angled, with an ovoid bulb at the base. Flowers rather large, in a short terminal raceme, the perianth pale-yellow, the lip purplish. |

Wet woods. Can. to Virg.; rare. June, July. \(2.\) — **Scape** 5—8 inches high, 3—5-angled, with a bulb at the base. Flowers yellowish-green, in a terminal raceme, smaller but more numerous than in the preceding. **Smaller Liparis.**

2. **MICROSTYLI**. *Nutt.*—Adder’s Mouth.

(From the Greek μικρός, little, and στυλής, a column.)

Perianth with the segments distinct; the two inner lateral ones filiform or linear. Lip widely spreading, concave, sagittate or auriculate at the base. Column very small. Pollen-masses 4, loose.

1. **M. ophioglossoides** *Nutt.*: scape or stem with one ovate, clasping leaf near the middle; flowers in an obtuse raceme, much shorter than the pedicels. *Malaxis ophioglossoides* *Willd.*

Wet grounds, near roots of trees. Can. to Virg. July. \(2.\) — **Stem or scape** 6—10 inches high, 1-leaved, with ovoid bulb at the base. **Leaf** about 2 inches long. Flowers numerous, minute, greenish-white, in a short terminal raceme, many abortive. **Common Adder’s-mouth.**

2. **M. monophyllos** *Lind.*: scape or stem with a single ovate-elliptic leaf near the base; flowers in a slender elongated raceme, about as long as the pedicels. *Malaxis monophyllos* *Willd.*

Shady swamps. Herkimer and Oneida counties, N. Y. July. \(2.\) — **Stem or scape** 2—5 inches high, triangular, somewhat winged, with an ovoid bulb at the base. **Leaf** solitary, (rarely 2,) about 2 inches long, petiolate. Flowers numerous, in an elongated raceme, several abortive. **Smaller Adder’s-mouth.**

3. **CALYPSO. Salsib.—Calypso.**

(A poetical name.)

Segments of the perianth ascending, secund. Lip ventricose, spurred beneath near the end. Column petaloid, dilated. Pollen-masses 2, each 2-parted, sessile.

**C. borealis** *Salsib.* **C. Americana** *Brown.* **Limodorum boreale** *Willd.*

Sphagnous swamps, near Brownville, Jefferson county, and Lowville, Lewis county, N. Y. W. A. *Wood* and F. B. *Hough*. Ver. Montreal, and various parts of British America. Near the outlet of Lake Michigan and W. to the Columbia River. **Scape** 6—8 inches high, sheathed, with a fleshy bulb at base. **Leaf** solitary, radical, 1—2 inches long, roundish-ovate, petiolate, plaited. **Flower** solitary, terminal, about an inch long, purplish. A rare and beautiful plant, resembling a *Cypripedium*. **Calypso.**

4. **CORALLORHIZA. Brown.—Coral-Root.**

(From the Greek κοράλλιον, coral, and ρίζα, a root; the root being coral-like.)

Perianth with the segments nearly equal and connivent. Lip produced at the base underneath; the spur short and adnate to the ovary. Column free. Pollen-masses 4, oblique, not parallel.

1. **C. innata** *Brown*: scape few-flowered; lip oblong, bi-dentate at the base, the apex recurved and ovate; spur obsolete, adnate; capsule elliptic-ovoid. **C. verna** *Nutt.* **Cymbidium Corallorrhizon** *Willd.*
Moist woods. Can. to Virg. May, June. 24. — Root coraloid or branching, with tooth-like processes. Scape 6—8 inches high, with 3 or 4 membranous leafless sheaths, having a purplish color. Flowers 5—12 in a short spike, small, distant, dull-purple. Lip nearly white, mostly without spots. Spur nearly wanting. According to Sir W. Hooker and Dr. Torrey, our plant is identical with the foreign C. innata.

Vernal Coral-root.

2. C. odontorchiza Nutt.: scape few-flowered; lip oval or obovate, crenulate and waved; spur obsolete, adnate; capsule nearly globose. Cymbidium odontorchizon Willd. Ophrys Corallorrhiza Mich.


3. C. multiflora Nutt.: scape many-flowered; lip wedgeform-oval, spotted, 3-lobed, the middle lobe broad recurved; spur conspicuous, adnate; capsule elliptic-ovoid. C. innata Nutt. Gen.


(From the Greek a, without, and πλεκτρον, a spur.)

Perianth with the segments distinct, nearly equal. Lip unguiculate, not produced at the base. Column free. Anther situated a little below the summit of the column. Pollen-masses 4, oblique, lenticular.

A. hyemale Nutt. Cymbidium hyemale Willd.

Shady woods. Can. to Flor. W. to Ark. May, June. 24. — Root with 2—4 subglobose tubers. Scape about a foot high, with 3 loose sheaths, purplish. Leaf solitary, 4—6 inches long, elliptic, acute at each end, nerved, on a petiole 2—3 inches long, which is inserted on the summit of the tuber. Flowers brownish, in a terminal bracteate raceme. Lip 3-lobed, obtuse, the middle lobe crenulate on the margin.

Adam and Eve. Putty-root.

II. Vandeæ. Pollen cohering in waxy masses, with a distinct caudicle united to a stigmatic gland. Anther terminal, rarely dorsal.


(From a fancied resemblance in the flower to insects of the genus Tipula.)


One-leaved Tipularia.
III. ORCHIDACEÆ.  

Pollen powdery, granular or sectile. Anther terminal, erect.

7. ORCHIS. Linn.—Orchis. 
(An ancient Greek name.)

Perianth ringent. Lip with a spur on the under side at base. Pollen masses pedicellate; glands of the pedicels contained in one common little pouch.

*O. spectabilis* Linn.: leaves 2, radical, elliptic-ovobate, obtuse; scape angular, naked, few-flowered, scarcely longer than the leaves; bracts longer than the flowers; spur clavate, shorter than the ovary. *O. humilis* Mich. 


8. GYMNADENIA. Brown.—Gymnadenia. 
(From the Greek γυμνός, naked, and ἀνδρῷ, a gland.)

Lip with a spur at the base. Glands of the stalks of the pollen-masses naked, approximated.

*G. tridentata* Lind.: lower leaf oblong, rather acute, upper leaves much smaller; flowers few, in an oblong terminal spike; lip cuneate-oblong, 3-toothed at the apex; segments of the perianth connivent, oblong-ovate, obtuse; spur clavate, incurved, longer than the ovary. *Habenaria tridentata* Hook. Orchis tridentata Willd.


(From the Greek πλαρν, broad, and ανθηρα, an anther.)

Lip entire, with a spur at the base. Cells of the anther widely separated. Glands of the pollen-masses pedicellate; the glands naked.

* Lip undivided. 
† Scape nearly naked.

1. *P. obtusata* Lind.: upper segment of the perianth very broad; inner segments triangular, truncate at the apex; lip linear, with two minute tubercles at the base; spur subulate-conic, curved, as long as the lip. Orchis obtusata Pursh.


2. *P. orbiculata* Lind.: upper segment of the perianth orbicular, the
lateral ones ovate; lip linear-spatulate, one-half longer than the segments; spur linear-clavate, curved, nearly twice as long as the ovary. **Orchis orbicularis** Pursh. *Habenaria macrophylla* Goldie.

Shady woods. Can to Virg. W. to Ark. July. **V.**—Scape 1—2 feet high, with several small appressed scales. *Leaves* 2, radical, nearly orbicular, large, fleshy, spreading on the ground. *Flowers* greenish-white, in a loose terminal raceme which is sometimes 5 or 6 inches long. Long-leaved *Orchis*.

3. **P. Hookeri** Lind.: outer segments of the perianth ovate-lanceolate, acute or acutish; inner ones linear, dilated at base, shorter than the outer; lip lanceolate, acuminate, rather shorter than the ovary. *Habenaria Hookeri* Torr. & Gr. in Lyc. Ann.

Fertile woods. Can. to Virg. July. **V.**—Scape 8—12 inches high, sometimes with a small lanceolate leaf. *Radical leaves* 2, nearly orbicular or oval, large, spreading. *Flowers* 10—20, yellowish-green, in an erect spike. Diffs from the preceding, for which it has probably been often mistaken, by its closer spike, projecting spur, and narrow upper perianth-segment. Hooker’s *Orchis*.

†† Stem leafy.

4. **P. flava** Gray: lower leaves oblong, acute, the upper lanceolate; bracts acuminate, longer than the flowers; lip oblong, 2-toothed toward the base, and a single tubercle in the middle, about half as long as the clavate spur. *Orchis flava* Linn. *Ofuscens* Pursh. *Habenaria herbiola* Brown. *H. virescens* Spreng. (according to Gray, Sill. Jour. xxxviii.)

Wet banks of streams. Can. to Car. **V.**—Scape 12—18 inches high, with 3—5 long clasping leaves. *Flowers* numerous, in a loose spike; outer segments greenish; the inner ones greenish-yellow. Small Pale-yellow *Platanthera*.

5. **P. hyperborea** Lind.: leaves lanceolate, erect; outer segments of the perianth ovate, the upper one shorter and broader; inner segments and lip lanceolate, somewhat equal; spur thick and obtuse, about half the length of the ovary. B. *dilatata* Beck Bot. 1st Ed. *Habenaria hyperborea* Brown and H. *Huronensis* Spreng. *Orchis hyperborea* Pursh. (Gray, l. c.)


6. **P. dilatata** Lind.: leaves lanceolate; bracts linear-lanceolate, the lower ones about as long as the flowers; outer segments of the perianth ovate, obtuse; lip lanceolate-linear, entire, dilated at the base, about as long as the thick obtuse spur. *Orchis dilatata* Pursh.


** Lip incised.**

7. **P. blephariglottis** Lind.: leaves lanceolate, acute; outer segments of the perianth roundish-oblong, the lateral ones reflexed; inner segments spatulate, slightly incised at the apex; lip oblong, flat, fimbriate; spur filiform, incurved, much longer than the ovary. *Habenaria blephariglottis* Hook. *Orchis blephariglottis* Willd.

Swamps. Can. to Car. June, July. **V.**—Scape 14—2 feet high. Lower *leaves* 6—8 inches long, the upper gradually smaller. *Flowers* pure white, in a
dense oblong spike. Spur nearly an inch long. The inner segments of the perianth are sometimes entire, when it constitutes the var. holopetala of Torrey.

8. *P. ciliaris* Lind: leaves lanceolate, acute; outer segments of the perianth roundish-ovate, the lateral ones reflexed; inner segments linear, incised; lip oblong, deeply and finely cut and fringed, twice as long as the segments; spur longer than the ovary. *Habenaria ciliaris* Brown. *Orchis ciliaris* Linn.

Swamps. Can to Car. June, July. 21.—Stem 12—18 inches high. Flowers bright orange-yellow, in a dense terminal spike. Lip larger and more pinnately ciliate than in the preceding. I have seen hundreds of specimens of this beautiful plant in a sandy swamp about two miles west of Albany, N. Y.

Fringed White Orchis.

9. *P. psycodes* Gray: leaves oblong; outer segments of the perianth ovate, obtuse, the lateral ones deflexed; inner segments fimbriate-toothed, cuneate, oblong, obtuse, incised; lip clawed, roundish, 3-parted, the segments cuneate and incisely toothed, the intermediate one larger; spur incurved, about twice as long as the lip. *Habenaria psycodes* Spreng. *H. fimбриata* Brown. *H. incisa* and *fissa* Spreng. *H. grandiflora* Torr. Comp. Beck Bot. 1st. Ed. (Gray, l. c.)

Swamps and wet meadows. Can. to Car. July, Aug. 21.—Stem 1—2 (sometimes 3) feet high, stout, angular. Leaves long. Flowers bright-purple, in a spike which is 2—6 inches long. Var. *grandiflora* of Gray has the flowers larger than the common form, and the segments of the lip fimbriate.—Gray, in Sill. Jour. xxxviii.

Fringed Yellow Orchis.

10. *P. lacera* Gray: outer segments of the perianth ovate; inner ones oblong-linear, obtuse, entire; lip clawed, slender, 3-parted, the lobes cut into capillary segments; spur filiform, clavate, ascending, somewhat longer than the ovary. *Habenaria psycodes* Spreng. *Orchis lacera* Mich.

Wet meadows. Can. to Virg. June, July. 21.—Stem 13 inches to 2 feet high, somewhat slender, angular. Leaves 3—3 inches long, mostly acute. Flowers pale greenish-yellow; in a long somewhat loose terminal spike.

Purple Swamp Orchis.

11. *P. bracteata* Torr.: bracts spreading, much longer than the flowers; inner segments of the perianth linear-lanceolate, erect; lip oblong-linear, obscurely 3-toothed at the apex; spur obtuse, very short, somewhat inflated and didymous. *Habenaria bracteata* Brown.

Shady woods. Can. to Virg. July. 21.—Stem 6—12 inches high, smooth, leafy at base. Leaves about 3, an inch and a half to near 3 inches long, elliptic-lanceolate, acute, the lower one sometimes spatulate-ovate and obtuse. Flowers green, small, in a terminal bracteate spike which is 2—3 inches long.

Ragged Yellow Orchis.

12. *P. integra* Gray: bracts as long as the flowers; lip oblong or ovate, entire, partly crenulate, longer than the inner segments of the perianth; spur subulate, scarcely longer than the ovary. *Habenaria integra* Spreng. and *H. Elliottii* Beck. *Orchis integra* and *flava* Nutt. *O. flava* Ell.?

Swamps. N. J. to Geor. July. 21.—Stem 14—2 feet high. Flowers small, bright orange-yellow, in a short crowded spike. I follow Dr. Gray in uniting *Habenaria Elliottii* with this species, although I am still doubtful of their identity.

Small Orange-flowered Orchis.

13. *P. cristata* Lind: segments of the perianth roundish; the two lateral
ones toothed; lip oblong, pinnately ciliate; spur shorter than the ovary.  

Swamps. Penn. to Car. June, July. 2. — Stem 1—2 feet high. Flowers yellow, in a somewhat crowded terminal spike. Distinguished from the former by its smaller flowers and more dense spike. Cristate Platanthera.

IV. Arethusa. Pollen powdery, granular or sectile. Anther terminal, opercular.

10. POGONIA. Brown.—Pogonia.

(From the Greek πώγων, a beard; in allusion to the bearded lip of the flower.)

Perianth with the segments distinct and nearly equal. Lip sessile or unguiculate, cucullate, mostly with a beard-like crest on the inner or upper side. Column wingless. Pollen powdery.

1. P. ophioglossoides Brown.: scape mostly 1-flowered, with an oval-lanceolate leaf near the middle and a foliaceous bract near the flower; lip spatulate-oblong, crested and fimbriate. Arethusa ophioglossoides Linn.


2. P. verticillata Nutt.: scape with a whorl of 5 elliptic-ovobovate leaves at the summit, 1—2-flowered; segments of the perianth unequal, the 3 outer ones very long and nearly linear; the 2 inner small, lanceolate, obtuse; lip 3-lobed, the middle lobe dilated and undulate. Arethusa verticillata Willd.

Swamps. N. Y. to Geor. June, July. 2.—Root fasciculate. Scape about a foot high. Leaves 5 in a whorl at the top of the stem. Flower mostly solitary; outer segments brown, 2 inches long; inner ones short, paler and obtuse. Whorled Pogonia.

11. TRIPHORA. Nutt.—Triphora.

(Abbreviated from the Greek τρια, aowos, and φερω, literally, bearing three flowers.)

Perianth with the segments distinct equal and connivent. Lip unguiculate, not crested. Column spatulate, flat, without wings. Pollen powdery.


Fertile woods, about roots of trees. N. Y. to Flor. and Ala. Sept. 2.—Root bearing tubers. Stems 6—8 inches high, angular, often in clusters, mostly purplish. Leaves 3—7, remote, very short, ovate and rather acute. Flowers 1—4, pale-purple, on axillary pedicels, pendulous. Lip about as long as the segments of the perianth, a little rough but not crested. Pendulous Triphora.

12. ARETHUSA. Linn.—Arethusa.

(From Arethusa, a nymph of Diana.)

Perianth somewhat ringent; the segments cohering at base, connivent and cucullate above. Lip united at the base with
the column, deflected at the apex, bearded inside. Pollen angular.

A. bulbosa Linn.

Sphagnous swamps. Can. to Car. May, June. 2—Scape 6—10 inches high, with a globose tuber at the base, the lower part bearing 2—4 loosely sheathing scales, from the upper of which there is often a linear-lanceolate nerved leaf. Flowers mostly solitary, (rarely 2,) terminal, large, bright-purple. Lip curled, crenulate on the margin, yellow and white, bearded in the middle. Bulbous Arethusa.

13. CALOPOGON. Brown.—Calopogon.

(From the Greek καλός, beautiful, and παχύς, a beard ; in allusion to the beard of the flower.)


C. pulchellus Brown. Cymbidium pulchellum Willd.


V. NEOTTIEÆ. Pollen powdery, granular or sectile. Anther dorsal.

14. LISTERA. Brown.—Twayblade.

(In honor of Martin Lister, an eminent British naturalist.)


1. L. cordata Brown: stem with only 2 opposite roundish cordate leaves; raceme loose; column without any appendage behind; lip elongated, 2-toothed at base, deeply bifid, the segments divaricate and acute. Ophrys cordata Mich.


2. L. convallarioides Nutt.: stem with only 2 opposite oval-roundish leaves, pubescent above; raceme few-flowered, (4—6); column porrected; lip oblong, dilated and obtusely 2-lobed at the extremity. Epipactis convallarioides Pursh.

Swamps. N. Y. to Car. May. 2—Stem 6 inches high and very slender. Flowers dark-brown and green, larger than in the preceding. Large-flowered Twayblade.

15. SPIRANTHES. Rich.—Ladies' Tresses.

(From the Greek σπείρα, a cord, and ἀόδος, a flower; the flowers being spiral like the strands of a rope.)

Spike spiral; inner segments of the perianth connivent. Lip unguiculate, parallel with the column, with 2 callous processes


Low meadows. N. Y. to Flor. June, July. 3. — Scape about a foot high. Flowers white, spirally twisted in a terminal spike which is 2—4 inches long. Perhaps not distinct from the next. Three-lobed Ladies' Tresses.

2. *S. gracilis* Big.: radical leaves ovate; scape sheathing; flowers in a spiral row; lip obovate, curled.


3. *S. cernua* Rich.: leaves nearly radical, lance-linear; scape sheathed, the lower sheaths bearing short leaves; flowers in a dense spike, obliquely recurved and cernuous; lip oblong, obtuse, crisped and crenate. *Neottia cernua* Willd.

Moist grounds. Can. to Flor. July, Aug. 3. — Scape 6—18 inches high, (rarely 2—3 feet.) Leaves radical or near the base of the scape, 3—10 inches long. Flowers greenish-white, sometimes a little yellowish, larger than in the preceding. It is liable to considerable variation in the number, and somewhat in the form of the leaves. Nodding Ladies' Tresses.


Moist woods. Ver. and N. Y. Torr. June. 2. — Root consisting of oblong fascicled tubers. Scape 5—10 inches high, with 2 or 3 sheaths which are produced into short linear leaves. Flowers white, the lip pale-yellow, in a spike which is about 2 inches long. Ladies' Tresses.

16. GOODYERA. Brown.—Goodyera.

(In honor of John Goodyer, an old English botanist.)

Perianth ringent; the outer segments herbaceous, the upper one vaulted, the 2 lateral ones placed beneath the saccate entire lip. Column free. Pollen angular. Stigma roundish or rostrate.

1. *G. pubescens* Brown: radical leaves ovate, petiolate, reticulate; scape with the flowers and sheathing scales pubescent; outer lateral segments of the perianth ovate; lip roundish-ovate, acuminate. *Neottia pubescens* Willd.


2. *G. repens* Brown: radical leaves ovate-lanceolate, petiolate, somewhat reticulate; flowers unilateral and with the scales slightly pubescent; outer segments of the perianth and lip lanceolate. *Neottia repens* Willd.

VI. CYPRIPEDEAE. Anthers 2, with a large dilated lobe or abortive stamen between them.

17. CYPRIPEDIIUM. Linn.—Ladies' Slipper.

(From the Greek \( \kappa \nu \psi \pi \zeta \), Venus, and \( \nu \iota \varepsilon \varsigma \omega \), a shoe.)

Perianth with the two outer lateral (or lower) segments mostly united near to the apex. Lip large and inflated. Column short, cernuous, 3-lobed; the middle lobe (sterile stamen) dilated and petaloid.

1. \( C. \) candidum Willd.: stem leafy; leaves oblong-lanceolate; lip compressed, shorter than the lanceolate segments of the perianth; sterile stamen lanceolate, rather obtuse. Penn. Muhl. May. \( \frac{\alpha}{\omega} \).—Resembles \( C. \) Calceolus; but the flowers are white and not half the size; the form of the leaves and of the sterile stamen distinguish it sufficiently. Pursh. A doubtful species. \( W h i t e \) Ladies' Slipper.

2. \( C. \) parviflorum Willd.: outer segments of the perianth ovate-oblong, acuminate; inner ones lance-linear, contorted; lip shorter than the perianth; sterile stamen triangular, acute. \( C. \) Calceolus Mich.

Woods and swamps. Can. to Car. W. to Miss. May, June. \( \frac{\alpha}{\omega} \).—Stem 12–18 inches high. Leaves ovate, clasping at base, pubescent. Flowers solitary or in pairs. Outer segments of the perianth green with purple stains; lip yellow, spotted, an inch and a half long, inflated. \( Y e l l o w \) Ladies' Slipper.

3. \( C. \) pubescens Swartz: stem leafy; outer segments of the perianth lanceolate, acuminate; inner ones very long, linear and contorted; lip laterally compressed, shorter than the inner segments; sterile stamen triangular, obtuse, (acute, Hook.)

Woods. Subarct. Amer. to Car. W. to Miss. May. \( \frac{\alpha}{\omega} \).—Stem 1–2 feet high. Leaves large, ovate-lanceolate, pubescent. Flowers solitary or in pairs. Segments of the perianth greenish-yellow, spotted with purple; lip yellow, 1–1½ inches long, much inflated. Closely resembles the preceding, but probably distinct. \( L a r g e \) Yellow Ladies' Slipper.

4. \( C. \) spectabile Swartz: stem leafy; outer segments of the perianth ovate, obtuse, longer than the flat lanceolate inner ones; lip longer than the inner segments; sterile stamen cordate-ovate, obtuse. \( C. \) Canadense Mich.

Swamps and bogs. Can. to Car. June, July. \( \frac{\alpha}{\omega} \).—Stem 1–2 feet high. Leaves ovate-lanceolate, plaited, resembling those of \( V e r a t r u m \) viride. Flowers 2–3, very large. Segments of the perianth white; lip variegated with stripes of purple and white, an inch or more long, much inflated. Showy Ladies' Slipper.

5. \( C. \) acaule Ait: scape leafless, 1-flowered; radical leaves 2, oblong, obtuse; outer segments of the perianth ovate-lanceolate; lip cleft in front; sterile stamen roundish-rhomboïd, acuminate, deflected. \( C. \) humile Salisb.

Shady woods. Subarct. Amer. to Car. May, June. \( \frac{\alpha}{\omega} \).—Scape 6–10 inches high, with two oval or elliptic-lanceolate leaves near the base. Flower solitary,
IRIDACEÆ.

large, terminal. Segments of the perianth yellowish-green, spotted with purple lip purple, veined.

6. C. arietinum Brown: stem leafy; upper segment of the perianth ovate-lanceolate, the rest linear; lip as long as the segments, acute, conic below; sterile stamen orbicular-spatulate. Crysanthes borealis Raf. Arietinum Americanum Beck Bot. 1st. Ed.


Stemless lip leaves ovary stem capsule 3; rarely

perianth leaves SLmkr sterile Ram's num short with below ginica with small, any ovate-lanceolate, lip large, and Stamens ally or Oneida sum

fleshy, 3, linear, cilis capsule

Flowers

vicinity blue perianth the 1 —

1

Stamens albumen. 3-celled, loculicidal. Seeds with hard albumen.—Mostly herbaceous plants, with tuberous or fibrous roots. Leaves equitant. Flowers spathaceous, usually large and showy.

ORDER CXXVI. IRIDACEÆ.—IRIDS.

Perianth with the limb 6-parted, in a double series, sometimes irregular, the 3 inner segments being occasionally very short. Stamens 3, from the base of the sepals; filaments distinct or connate. Ovary 3-celled; style single; stigmas 3, often dilated and petaloid. Capsule 3-celled, 3-valved, loculicidal. Seeds with hard albumen.—Mostly herbaceous plants, with tuberous or fibrous roots. Leaves equitant. Flowers spathaceous, usually large and showy.

1. IRIS. Linn.—Iris. Flower de Luce.

(Stem named from the varied hues of the flowers.)

Perianth 6-cleft; 3 of the segments larger and reflexed, the others erect. Stamens distinct. Style short or none. Stigmas 3, petaloid, covering the stamens.

1. I. versicolor Linn.: stem terete or slightly compressed, more or less flexuous; leaves ensiform; perianth beardless; ovary obtusely triangular, with the sides flat; capsule oblong, turgid, with rounded angles. I. Virginica Pursh, not of Linn.


2. I. Virginica Linn.: stem round, slender, smooth; leaves narrow-linear, long; perianth beardless; ovary 3-sided, each side twice grooved; capsule triangular, acute at each end. (Torr.) I. prismatica Pursh. I. gracilis Big.

Wet meadows. N. Y. to Virg. June 

2. —Root tuberous, creeping. Stem 1—2 feet high, a little flexuous, round. Flowers 2—6 at the summit of the stem, the blue faint and yellow, more delicate than in the preceding Very common in the vicinity of New Brunswick. N. J. Slender Blue Flag.

3. I. lacustris Nutt.: leaves ensiform, shorter than the 1-flowered scape; perianth without a bearded crest; segments nearly equal, attenuated on the tube; capsule turbinate, 3-sided, margined.
354 AMARYLLIDACEÆ.


2. SISYRINCHIUM. Linn.—Blue-eyed Grass.

(From the Greek σις, a hog, and πυξ, a snout; hogs being supposed to be fond of rooting it up.)


1. S. mucronatum Mich.: scape simple, narrowly winged; valves of the spathe unequal, colored; the outer one longer than the peduncles, tapering to a rigid point. S. Bermudiana var. Torr.


2. S. anceps Linn.: scape simple, broadly winged; valves of the spathe nearly equal, shorter than the peduncles. S. gramineum Lam. S. Bermudiana var. Torr.


ORDER CXXVII. AMARYLLIDACEÆ.—AMARYLLIDS.

Perianth petaloid, regular, 6-cleft; the outer segments overlapping the inner. Stamens 6, sometimes cohering below. Ovary 3-celled; style 1; stigma 3-lobed. Fruit a 3-celled 3-valved capsule, or a 1—3-seeded berry. Seeds with fleshy or corneous albumen.—Mostly bulbous, sometimes fibrous rooted, plants. Leaves ensiform, with parallel veins. Flowers usually spathaceous.

1. AMARYLLIS. Linn.—Amaryllis.

(From the nymph Amaryllis, mentioned in Virgil. Eat. Man.)

Perianth 6-parted, petaloid, unequal. Stamens 6, arising from the orifice of the tube, declined or straight, unequal. Style 1. Stigma 3-lobed. Capsule 3-celled, 3-valved.

A. Atamasco Linn.: spathe bifid, acute; flower pedicellate; perianth subcampanulate, subequal, erect, short and tubular at the base; stamens declined, equal.

2. AGAVE. Linn.—Agave.

(From the Greek ἀγάτως, admirable; in allusion to its beautiful appearance.)

Perianth tubular, 6-cleft. Stamens 6, exserted. Anthers versatile. Capsule ovate, attenuate at each end, obtusely triangular, 3-celled, many-seeded.


ORDER CXXVIII. HYPOXIDACEÆ.—STAR GRASSES.

Perianth petaloid, regular, 6-parted. Stamens 6. Ovary adherent, 3-celled; style single; stigmas 3, or united. Fruit indehiscent, dry or berried, 1—3-celled. Seeds numerous, roundish, with a lateral hilum; embryo straight in the axis of fleshy albumen.—Herbaceous plants, with tuberous or fibrous roots. Leaves usually radical, plaited.

HYPOGIS. Linn.—Star Grass.

(From the Greek ὑπό, beneath, and οξος, sharp; in allusion to the acute base of the capsule.)

Perianth superior, 6-parted, persistent. Capsule elongated, narrowed at the base, 3-celled, many-seeded. Seeds roundish, naked.


ORDER CXXIX. DIOSCOREACEÆ.—YAMS.

Flowers dioecious. Perianth 6-parted, equal. Stamens 6. Ovary adherent, 3-celled; styles 3, united below or distinct. Fruit a capsule, often 3-winged, with two of its cells sometimes abortive. Seeds compressed, sometimes winged; embryo small, lying in a cavity of the cartilaginous albumen.—Twining herbs or under shrubs. Leaves with reticulated veins. Flowers small, spiked.
DIOSCOREA. *Linn.*—Yam.

(In honor of the celebrated Greek naturalist, *Dioscorides.*


   
   Woods. Can. to Car. May, June. 4. **Stem** climbing, sometimes 10 or 12 feet long. **Leaves** mostly alternate, sometimes subopposite, rarely in whorls of 4. **Flowers** minute, pale greenish-yellow; the **sterile** ones in pendulous panicles; **fertile** ones in pendulous simple racemes.  
   
   Hairy Yam.

2. *D. quaternata* Walt.: leaves verticillate in fours, or alternate, cordate, acuminate, smooth on both sides, 7-nerved; lateral nerves bifid. *D. glauca* Muhl.
   
   Old fields. Penn. to Car. July. 4. **Stem** climbing. **Leaves** more tapering at the summit than in the preceding, of which, however, it may be only a variety. Smooth Yam.

**Order CXXX. SMILACEÆ.—SARSAVARILLAS.**

Flowers perfect or dioecious. Perianth petaloid, 6- (rarely 4-) parted or 6-leaved in a double series. Stamens 6, (rarely 4,) inserted into the perianth, rarely hypogynous. Ovary 3-celled; styles 3, distinct or united. Fruit a roundish berry. Seeds with horny albumen.—Herbaceous plants or under shrubs, usually climbing. Leaves simple, mostly entire, reticulated.

1. **SMILAX. Linn.**—Green Brier.
   
   (Greek σμιλάξ, from σμυλή, a knife or scraper; most of the species being armed with prickles.)


   * Stem shrubby.

   1. *S. quadrangularis* Willd.: prickly; stem 4-angled, unarmed above; leaves unarmed, ovate, subcordate, acute, 5-nerved. 
   

   2. *S. spinulosa* Smith: stem terete, very prickly, with slightly recurved
and rigid but rather slender prickles; leaves ovate-lanceolate, (on young plants often somewhat panduriform,) smooth on both sides, glaucous beneath, 3—5 nerved. (Torr. *N. Y. Fl.*) *Sarsaparilla* Linn. (in part)? Sandy woods. N. Y. and N. J. Torr. 3—6 feet long, trailing or climbing. *Leaves* 2—3 inches long, often dilated at base, cuspidate. *Spinulose Greenbrier.*


**Stem herbaceous, unarmed.**

8. *S. herbacea* Linn.: stem erect or climbing, nearly simple, angular; leaves ovate or oblong, cordate, acuminate, (sometimes obtuse;) peduncles very long, compressed. *S. peduncularis* Muhl.

Meadows and woods. Can. to Car. May, June. 8—Stem 3—5 feet long, climbing or leaning on other plants. *Flowers* yellowish-green, fetid, numerous, in globose axillary umbels of about an inch in diameter. *Berry* bluish-black. *Carrion Flower.*

2. SMILACINA. Desf.—Smilacina.

(The diminutive of *smilax*, to which this genus, however, has little resemblance.) Perianth 6—(rarely 4-) parted, spreading. Stamens as many as the segments of the perianth and inserted at their base.
Style thick, short. Stigma obscurely 2—3-lobed. Berry globose, pulpy, 1—3-seeded.

* Segments of the perianth and stamens 6.

1. *S. stellata* Desf.: leaves numerous, alternate, oval-lanceolate, acute, somewhat clasping; raceme simple, terminal, few-flowered. *Convallaria stellata* Linn.


2. *S. trifolia* Desf.: stem smooth, angular, pubescent, about 3-leaved; leaves alternate, oval-lanceolate, acute, contracted at the base and somewhat clasping; raceme simple, terminal, few-flowered. *Convallaria trifolia* Linn.

Swamps. Can. to Penn. May, June. 2. — Stem 6 inches high. Leaves 2 or 3, smooth on the margin. *Flowers* small, white, 4—6 in a terminal raceme, with the segments spreading. *Three-leaved Smilacina.*

3. *S. racemosa* Desf.: stem a little flexuous; leaves numerous, alternate, sessile, oblong-oval, acuminate, nerved, pubescent; flowers in a terminal racemose panicle, very small. *Convallaria racemosa* Linn.


** Segments of the perianth and stamens 4.


3. CLINTONIA. Raf.—Clintonia.

(In honor of the late Governor De Witt Clinton.)


1. *C. borealis* Raf.: leaves oblong or obovate, with the margin ciliate; umbel 2—5-flowered; pedicels nodding, without bracts. *Dracana borealis* Ait. *Smilacina borealis* Pursh.

Wet woods. Can. to Penn. May, June. 2. — Scape 6—8 inches high. Leaves radical or nearly so, 6 inches or more in length. *Flowers* yellowish-green, large, campanulate. *Berry* globose-oblong, blue. *Large-flowered Clintonia.*

Swamps. Jamestown, Chautauque county, N. Y. Torr. Can. to Car.? May, June. 2l.—Leaves 2—5, radical or nearly so, 6—9 inches long. Scapes usually longer than the leaves. Flowers 15—30, in an umbel or a corymb, white, odorous, much smaller than in the preceding species. Small-flowered Clintonia.

4. POLYGONATUM. Desf.—Solomon’s Seal.

(From the Greek τολυς, many, and γόνυ, a knee; in allusion to its many-jointed rhizoma.) Perianth tubular, 6-cleft. Stamens 6, inserted near the summit of the tube. Ovary superior. Berry subglobose, 3-celled; cells 2-seeded.

*P. multiflorum* All.: stem nearly terete; leaves ovate-elliptic or elliptic-lanceolate, clasping; peduncles 1—6-flowered; filaments smooth or slightly pubescent; ovules 3—6 in each cell of the ovary. (Torr. N. Y. Fl.) *P. biflorum* Ell. *P. pubescens, canaliculatum, latifolium, hirsutum* and *multiflorum* Pursh.

Rocky woods, banks of streams, &c. Can. to Car. June, July. 2l.—Rhizoma thick and fleshy. Stem 1—3 feet high, simple, slightly curved, round or a little angular and channelled. Leaves variable in size and form. Flowers greenish-white, usually 2—4, sometimes 5—6, rarely 1, on recurved peduncles. I adopt the views of Darlington and Torrey in regard to the identity of several supposed distinct species of this genus.

**Common Solomon’s Seal.**

**Order CXXXI. TRILLIACEÆ.—Parids.**

Perianth 6-parted; 3 inner segments larger, colored or herbaceous. Stamens 6—10; filaments subulate; anthers linear. Ovary free, 3—5-celled; styles as many, distinct; stigmas inconspicuous. Fruit succulent, 3—5-celled. Seeds numerous, with fleshy albumen.—Herbaceous plants, with simple stems, verticillate leaves and large terminal solitary flowers.

1. MEDEOLA. Linn.—Indian Cucumber.

(From Μηδεια, the name of a sorceress; on account of the reputed virtues of the plant.) Perianth petaloid, 6-parted, revolute. Stamens 6, inserted at the base of the perianth. Styles 3, filiform, elongated, divaricate. Berry 3-celled; cells 1—3-seeded.


Moist woods. Can. to Geor. May, June. 2l.—Stem 12—18 inches high, erect. Leaves in 2 whorls; one about the middle of the stem, of 6—8 oblong-lanceolate acuminate leaves; the other near the top, of 2—3 smaller ovate ones. Flowers 2—6, on pedicels arising from the upper whorl, greenish-yellow, reflexed.

Cucumber Root.
TRILLIACEÆ.

2. TRILLIUM. Linn.—Trillium.

(From the Latin trilix, triple; several parts of the plant being in threes.)

Perianth deeply 6-parted; 3 outer segments (sepals) spreading; 3 inner petaloid, (petals.) Stamens 6, inserted at the base of the segments, nearly equal. Anthers linear. Styles 3, distinct or united at base, stigmatose on the inside. Berry ovoid, 3-celled; cells many-seeded.

* Flowers sessile.

1. T. sessile Linn.: leaves sessile, broad-ovate, acute; flower closely sessile, erect; petals lanceolate, erect, twice as long as the calyx.

2. T. recurvatum Beck: leaves ovate or obovate, subpetiolate, nerved; flower closely sessile; petals lanceolate-ovate, very acute, attenuate at base, erect, as long as the recurved calyx.
   Shady woods. Miss. May.—Stem 8—10 inches high, smooth. Leaves smooth, clouded with dark-green. Petals purple. Filaments very short. I have been led to introduce this and the next species, described some years since, (Sill. Jour. xi. 178,) from the fact that under the name T. sessile, several distinct species have heretofore been included. Recurved Sessile Trillium.

3. T. viride Beck: leaves ovate, acute, closely sessile, 3—5-nerved; flower erect, closely sessile; petals fleshy, narrow, somewhat spatulate, a little longer than the lanceolate or ovate obtuse erect calyx.

** Flowers pedunculate.

4. T. erythrocarpum Mich.: leaves ovate, acuminate, rounded at the base, abruptly contracted into a short petiole; peduncle somewhat erect; petals from ovate to ovate-lanceolate, acute, recurved, nearly twice as long as the sepals. T. pictum Pursh. T. undulatum Willd.

5. T. pusillum Mich.: leaves oval, oblong, obtuse, sessile; peduncle erect; petals scarcely longer than the sepals. T. pumilum Pursh.

6. T. cernuum Linn.: leaves dilated-rhomboïd, abruptly acuminate, on short petioles; peduncle short, recurved; petals ovate, acuminate, flat, as long as the ovate-lanceolate sepals.

7. T. erectum Linn.: leaves broad-rhomboïd, acuminate, sessile; pe-
duncle inclined, the flower a little nodding; petals ovate, acute or acuminate, flat, spreading, a little longer than the ovate-lanceolate sepals. *T. rhomboideum* var. *atropurpureum* and *album* Mich.


8. *T. pendulum* Willd.: leaves roundish-rhomboid, acuminate, nearly sessile; peduncle inclined, the flower pendulous; petals ovate, acuminate, rather larger than the sepals.


Woods and banks of streams. Can. to Car.; rare. May. 24.—Stem about a foot high. Flower on a slightly inclined peduncle which is 2—3 inches long. Petals large, white. *Large-flowered Trillium.*

**Order CXXXII. LILIACEÆ.—Lilies.**

Perianth 6-parted or 6-leaved, regular or nearly so, sometimes cohering in a tube. Stamens 6, inserted into the perianth; anthers opening inwards. Ovary free, 3-celled; style 1; stigma simple or 3-lobed. Fruit succulent or dry and capsular, 3-celled. Seeds in one or two rows; embryo in fleshy albumen.—Herbaceous plants shrubs or trees, with bulbs, tubers, rhizomes or fibrous roots. Leaves with parallel veins, usually narrow. Flowers large and showy.

**I. TULIPÆ.**

1. *LILIUM* Linn.—Lily.

(Supposed to be derived from the Celtic *li, white*; in allusion to the color of one of the species.)

Perianth campanulate, deeply 6-parted; segments straight or reflexed, with a longitudinal furrow at the base. Stamens 6, adhering to the base of the perianth. Style elongated. Stigma thick, slightly 3-lobed. Capsule oblong, 3-celled, with numerous seeds.

1. *L. Catesbaei* Walt.: leaves scattered, linear-lanceolate, very acute; stem 1-flowered; perianth erect; segments with long claws, undulate on the margin, reflexed at the summit.

2. *Lilium philadelphicum* Linn.: leaves whorled, linear-lanceolate; stem 1—3-flowered; perianth erect, campanulate, spreading, the segments with claws.

Woods and meadows. Can. to Car. July, Aug. 2. —Stem 2—3 feet high, terete, smooth. Flowers large, dark orange, spotted at base, on a peduncle 1—3 inches long. **Red Lily.**

3. *Lilium canadense* Linn.: leaves mostly whorled, lanceolate, distinctly nerved, the nerves hairy beneath; peduncles 2—3, terminal, elongated; perianth nodding, campanulate, the segments lanceolate and slightly revolute.


4. *Lilium superbum* Linn.: leaves whorled below, linear-lanceolate, 3-nerved, smooth, the upper ones scattered; flowers in a pyramidal raceme; perianth campanulate, nodding, the segments revolute.

Wet meadows. Can. to Car. July. 2. —Stem 4—6 feet high. Flowers 3—20 or more in a large pyramidal raceme, orange, with dark spots. The characters of this plant seem to be constant, and both Torrey and Darlington consider it distinct. **Superb Lily.**

2. **ERYTHRONIUM. Linn.** —Dog-tooth Violet.

(From the Greek *erythros*, red; supposed to be in allusion to the purple spots on the leaves.)

Perianth campanulate, 6-parted; segments reflexed; the 3 inner ones with a callous tooth on each side near the base, and a nectariferous pore. Stamens 6. Style elongated. Stigma triangular. Capsule narrowed at base, or substipitate, 3-celled. Seeds ovoid.

1. *Erythronium americanum* Smith: leaves elliptic-lanceolate, punctate; segments of the perianth oblong-lanceolate, obtuse at the point; inner ones bidentate near the base; style clavate; stigma entire. **Erythronium americanum** Pursh. E. **Dens-canis** Mich.

Wet meadows. Can. to Geor. April, May. 2. —Scape 6—8 inches high. Leaves 2, radical, spotted with purple. Flower solitary, terminal, yellow, spotted near the base. **American Dog-tooth Violet.**

2. *Erythronium albidum* Nutt.: leaves elliptic-lanceolate, not punctate; segments of the perianth linear-lanceolate, obtuse; inner ones without dentures, subunguiculate; style clavate; stigma 3-cleft.

Wet meadows. Can. and N. Y. W. to Miss. April, May. 2. —Scape 6—8 inches high. Flower white, segments thick and somewhat obtuse. Very abundant near Albany, N. Y., and also found near the Clyde river, Wayne county, N. Y., and in Canada, by D. Thomas, Esq. I have observed a plant at New Brunswick, N. J., which agrees with this in the absence of dentures and in the trifid stigma, but the perianth is yellow. It is probably the same which is alluded to by Mr. Nuttall, (Gen. Pl. i. 223,) and may prove distinct. **White Dog-tooth Violet.**

3. *Erythronium bracteatum* Big.: leaves lanceolate, unequal; scape bracted.
High mountains, Ver. Boot. June. 363.—Leaves very unequal, one being two or three times as large as the other. Scape shorter than the leaves, with a narrow lanceolate bract 1–2 inches below the flower, which is yellow, half as large as in *E. Americanum*, and has the segments gibbous at base. *Bracted Dog-tooth Violet*.

II. HEMEROCALLIS.

3. HEMEROCALLIS. Linn.—Day Lily.

(From the Greek ἡμέρα, a day, and καλλος, beauty; its flower lasting but a day.)

Perianth tubular, 6-parted; tube cylindric; limb campanulate, marcescent. Stamens 6, declined. Ovary superior. Capsule 3-sided, 3-celled, 3-valved. Seeds numerous, roundish.

*H. fulva* Linn.: leaves linear, keeled; inner segments of the perianth obtuse, undulate.


III. SCILLEÆ.

4. ALLIUM. Linn.—Garlic. Onion.

(From the Celtic All, signifying acrid or burning.)

Flowers umbellate, arising from a 2-leaved spathe. Perianth inferior, petaloid, 6-leaved or deeply 6-parted, spreading. Stamens 6; the filaments sometimes tricuspidate. Capsule 3-celled, 3-valved, few-seeded. Seeds black and rough.

1. A. *vineale* Linn.: stem slender, somewhat leafy; leaves terete, fistulous, channelled above; umbel often bulbiferous; filaments alternately cuspidate, the middle cusp bearing an anther.

Meadows and pastures. N. S. June, July. 6.—Bulb ovoid, small. Stem about 2 feet high. Flowers rose-colored. A pernicious weed, introduced from Europe. Field or Crow Garlic.

2. A. *triflorum* Pursh: scape naked, terete, shorter than the leaves; leaves lanceolate, nerves; umbel few-flowered.


3. A. *cernuum* Roth: scape elongated, angular; leaves linear, acutely keeled; umbel nodding, many-flowered; leaflets of the perianth oblong-ovate, acute; filaments simple.


4. A. *Canadense* Linn.: stem terete, leafy at the base; leaves linear, flat, smooth; umbel few-flowered, bulbiferous; filaments simple, about as long as the perianth.

5. A. tricoccum Ait.: leaves lance-oblong, flat, smooth; umbel somewhat crowded; leaflets of the perianth oblong, obtuse, about as long as the stamens; filaments simple, dilated downwards. Moist woods. N. Y. to Virg. June, July. 2. — Bulb oblong-ovoid, rather large. Scape about a foot high. Flowers white, in a globose umbel. Capsule with the cells 1-seeded. Three-seeded Garlic.

5. ORNITHOGALUM. Linn. — Star of Bethlehem. (From the Greek ὄπις, ὄπιθος, a bird, and γάλα, milk; application unknown.)

Perianth deeply 6-parted, spreading above. Stamens 6, hypogynous; the filaments dilated at base. Ovary superior. Capsule roundish-angular, 3-celled. Seeds few, roundish or angular, black and rough.


IV. WACHENDORFEE. 6. LOPHIOLA. Ker.—Lophiola. (From the Greek λόφια, a crest; in allusion to its woolly perianth.)


V. ASPARAGEE. 7. ASPARAGUS. Linn.—Asparagus. (From the Greek ἀσπάραγος, an esculent vegetable.)

Perianth 6-parted, subcampanulate, the segments spreading at the apex. Stamens 6. Anthers peltate. Style very short. Berry 3-celled; cells 2-seeded.

A. officinalis Linn.: unarmed; stem herbaceous, erect, rounded, much branched; leaves setaceous, fasciculate and flexible; peduncles jointed in the middle.

Gravelly shores, near salt water, N. Y. June. 2. — Stem 1—3 feet high.
MELANTHACEÆ.

Flowers small, greenish-white, subaxillary, solitary, drooping. Berry globose, red. Introduced and naturalized in some places on Long Island and near the city of New York.

Common Asparagus.

ORDER CXXXIII. MELANTHACEÆ.—MELANTS.

Flowers often polygamous or dioecious. Perianth petaloid, 6-leaved or deeply 6-parted. Stamens 6; anthers turned outwards. Ovary 3-celled; styles 3, distinct, (sometimes 1, nearly entire or 3-cleft.) Fruit a capsule, generally divisible into three pieces, or a 3-celled berry. Seeds with a membranous integument and dense fleshy albumen.—Bulbous tuberous or fibrous-rooted plants, with sessile more or less clasping or sheathing leaves.

I. Veratree.

1. ZYGADENUS. Mich.—Zygadenus.

(From the Greek τυγυς, a yoke, and ανυ, a gland; the glands of the perianth being in pairs.)


Z. glaucus Nutt.: bulb tunicated; leaves very smooth, shorter than the stem; bracts lanceolate, shorter than the pedicels; segments of the perianth oval or obovate, obtuse; glands obcordate. (Nutt. Jour. Ph. Acad. vii. 56.) Melanthium glaucum Nutt. Gen.


2. MELANTHIUM. Linn.—Melanthium.

(From the Greek μέλας, black, and ανυ, a flower; the flowers becoming of a dark color.)


1. M. Virginicum Linn.: leaves linear-lanceolate, long; panicle very large, pyramidal, with simple racemose branches; segments of the perianth ovate, somewhat hastate or auriculate; glands approximated.

Rocky woods. Staten Island and Orange county, N. Y. Torr. and Dr. W. Horton. S. to Car. July. 24.—Stem 3—4 feet high, leafy. Leaves 9—15 inches
long, somewhat clasping at base. *Flowers* greenish-white, in a panicle which is a foot or more in length, perfect and sterile ones mixed.  

**Virginian Melanthium.**

2. *M. hybridum* Wall.: leaves long-linear, nearly smooth, clasping the stem; panicle long, composed of simple racemes; segments of the perianth orbicular, plaited, with long claws; glands united.  

*M. racemosum* Mich.  

Wet meadows.  

N. J. to Car.  

W. to Miss.  

June, July.  

2. — *Stem* 2 feet high, leafy.  

*Flowers* in a long panicle which is composed of simple racemes.  

**Hybrid Melanthium.**

3. **TOFIELDIA. Huds.—Tofieldia.**  

(In honor of Mr. Tofield, an English botanist.)

Perianth 6-parted, with a small 3-parted involucre.  

Stamens 6, smooth.  

Capsule 3—6-celled; cells united at base, many-seeded.  

*T. pubescens* Pursh.: leaves subradical, narrow-ensiform, smooth; rachis and pedicels rough; flowers in an oblong interrupted spike; capsule globose, scarcely longer than the involucre.  

*Narthecium pubens* Mich.  

Swamps.  

Del. to Car.  

July.  

2. — *Scape* 18 inches high.  

Leaves a foot long.  

*Flowers* greenish-white, in a racemed spike.  

**Downy Tofieldia.**

4. **XEROPHYLLUM. Mich.—Xerophyllum.**  

(From the Greek ἡρώς, dry, and φῶλον, a leaf; its leaves appearing as if withered.)

Perianth subtrotate, deeply 6-parted.  

Stamens 6, contiguous at base.  

Stigmas 3, revolute, partly united below.  

Capsule subglobose, 3-celled; cells united, opening at the summit.  

*X. setifolium* Mich.: leaves subulate-setaceous; flowers in a crowded oblong raceme; filaments dilated at the base, as long as the perianth.  

*Helonias asphodeloides* Linn.  

Sandy plains.  

N. J. to Car.  

June.  

2. — *Scape* 3—5 feet high.  

Radical leaves forming large tufts, a foot long and very narrow.  

*Flowers* white, in a large terminal raceme.  

**Grass-leaved Xerophyllum.**

5. **HEلونIAS. Linn.—Helonias.**  

(From the Greek ὅλος, a marsh; in allusion to its place of growth.)

*Flowers* sometimes dioecious.  

Perianth corolla-like, 6-parted, spreading; segments sessile and without glands.  

Stamens 6, hypogynous and at length exceeding the perianth.  

Styles 3, distinct.  

Capsule 3-celled, 3-horned; cells mostly few-seeded.  

1. *H. latifolia* Mich.: scape leafless; spike ovate, crowded; bracts linear-lanceolate; leaves lanceolate, mucronate, nerved.  

*H. bullata* Linn.  

Sandy swamps.  

N. J. to Virg.  

Pursh.  

May.  

2. — *Flowers* pale-purple.  

**Anthers** blue.  

2. *H. erythrosperma* Mich.: stem simple, leafy; leaves linear, very long; raceme oblong; bracts short; capsule shortened, with divaricate horns; seeds ovoid, with a purple fleshy coat.  

**Melanthium latum** Ait.
Shady woods. Penn. to Car. June, July. 2. —Stem 2 feet high, obtusely angular. Leaves slightly channelled above. Flowers greenish-white, in a simple terminal raceme which is sometimes 9 inches long, but mostly shorter. The root is said to be poisonous. Purple-seeded Helonias.

3. H. dioica Pursh.: stem leafy; leaves lanceolate; racemes dioecious, the sterile nodding at first, the fertile mostly erect; segments of the perianth linear; stamens exserted. H. lutea Ait. Veratrum luteum Linn.

Damp grounds. N. Y. and Conn. to Geor. W. to Miss. June. 2. —Sterile plant 1—2 feet, the sterile one often 3 feet high. Leaves becoming broader near the root, and often spatulate and somewhat obtuse. Flowers white, in a spike-like raceme which is 6—12 inches long. The root is a popular tonic. Unicorn Plant.

6. VERATRUM. Linn.—Veratrum.

(From the Latin vere atrum, truly black; in allusion to the color of the root.)

Polygamous. Perianth calyx-like, deeply 6-parted, spreading, persistent; segments sessile and without glands. Stamens 6, inserted upon the receptacle. Styles 3, short, subulate. Capsule ovoid, membranaceous, 3-lobed; the carpels distinct at the summit. Seeds numerous, with a broad membranaceous margin.

V. viride Ait.: leaves broad-ovate, plaited; panicle pyramidal, with compound racemose branches; bracts of the branches oblong-lanceolate; partial bracts longer than the pedicels. V. album Mich.


II. UVULARIE.

7. UVULARIA. Linn.—Bellwort.

(From the Latin diminutive of uva, a cluster, or uvula, the appendage to the palate; perhaps in allusion to the inflorescence.)


Moist woods. Can. to Car. W. to Miss. May, June. 2. —Stem 8—12 inches high, forked near the top. Flowers pale-yellow, mostly solitary, from one of the forks of the stem. Perfoliate Bellwort.

2. U. flava Smith.: leaves perfoliate, elliptic-oblong, obtuse, undulate at base; perianth tapering at base, rough within; anthers awned.

Sandy soils. N. J. to Car. May, June. 2. —Flowers larger and of a deeper yellow than in the preceding. Pursh. Perhaps only a variety. Yellow Bellwort.

Woods and hill sides. Can. to Car. W. to Miss. May, June. *Stem 12—15 inches high, with one or two forks near the summit. Flowers much larger than in either of the preceding and of a brighter yellow.*

Large-flowered Bellwort.


Sessile-leaved Bellwort.

8. PROSARTES. Don.—Prosartes.

(From the Greek προσαρτας, to hang upon; in allusion to the suspended ovules.)

Perianth 6-leaved, campanulate-spread; the leaflets with a nectariferous pit, or saccate at base. Stamens 6; the filaments inserted at the base of the perianth. Ovary 3-celled, with 2 ovules suspended from the summit of each cell. Style single. Stigmas 3, short, recurved. Berry ovoid, 3-celled.


Woods. Western N. Y. to Car. May. *Stem 12—18 inches high, with 2—3 forks near the summit. Flowers yellowish-green, on pubescent pedicels.*

Pale-flowered Prosartes.

9. STREPTOPUS. Mich.—Twisted Stalk.

(From the Greek στρεπτες, twisted, and ποδες, foot; in allusion to a twist in the pedicels.)

Perianth 6-leaved, campanulate at base; the three inner leaves carinate. Stamens 6, inserted at the base of the leaves. Anthers sagittate, longer than the filaments. Style single, tapering. Stigmas simple, obtuse. Berry globose, 3-celled.

1. *S. roseus* Mich.: leaves ovate-oblong, clasping, serrulate-ciliate on the margin, green on both sides; pedicels scarcely twice as long as the flower, slightly geniculate near the middle; anthers 2-cleft at the summit. *Uvularia rosea* Pers.


Rose Twisted Stalk.


Shady woods and swamps. Can. to Penn. May, June. *Stem about 2
feet high, forked. Flowers greenish-white, on filiform axillary pedicels which are longer than in the preceding. Smooth Twisted Stalk.

ORDER CXXXIV. PONTEDERACEÆ.—Pontederads.

Perianth tubular, colored, 6-parted, more or less irregular; aestivation circinate. Stamens 3—6, unequal, perigynous. Ovary free, more or less completely 3-celled; style 1; stigma 3—6-cleft. Capsule 3-celled, 3-valved, loculicidal. Seeds numerous, with somewhat mealy albumen.—Aquatic or marsh plants. Leaves sheathing at the base, with parallel veins.

1. PONTEDERIA. Linn.—Pickerel Weed.

(In honor of Julius Pontedera, professor of botany at Padua.)

Perianth tubular, 6-cleft, 2-lipped; under side of the tube perforated with 3 longitudinal foramina; the lower part persistent, calycine. Stamens 6, unequally inserted, 3 near the base and 3 near the summit of the tube. Utricle muricate, 1-seeded.

1. *P. cordata* Linn.: leaves subradical, oblong-cordate; flowers in crowded spikes; segments of the perianth oblong.


Beach pond, Westchester county, N. Y. Dr. S. B. Mead. Mountain lakes. N. Y. to Car. Pursh. July. 4. Flowers blue, smaller than in the preceding species, of which, however, it may be only a variety. Narrow-leaved Pickerel Weed.

2. HETERANTHERA. R. & P.—Heteranthera.

(From the Greek ἱππος, different, and ἄνθος, anther; the anthers in the same flower being dissimilar.)

Flowers in a spathe. Perianth with a long and slender tube; border 6-parted, equal. Stamens 3. Anthers of 2 forms. Capsule 3-celled, many-seeded, opening at the angles; dissemination contrary.


3. SCHOLLERA. Schreb.—Schollera.

(Dedicated to Frederick Adam Scholler, a German botanist.)


**Order CXXXV. ERIOCAULACEÆ.—Pipeworts.**

Flowers bracteate, monoeccious or dioecious. Perianth 2—6 parted, in two rows; the outer glumaceous; inner somewhat petaloid. Stamens 3—6. Ovary superior, 2—3-celled; style very short; stigmas as many as the cells of the ovary. Capsule 2—3-celled, loculicidal. Seeds solitary, coated with wings or rows of hairs.—Perennial marsh plants, with linear spongy leaves, and minute flowers which are collected into a head at the summit of the scape.

**ERIOCAULON. Linn.—Pipewort.**

(From the Greek *sphos*, wool, and *kavos*, a stem; in allusion to the woolly scapes of the species first described.)

Flowers monoeccious, rarely dioecious, collected into a compact scaly head. Sterile Fl. in the disk. Perianth 4—6-cleft, the inner segments united nearly to their summit. Stamens 3—6. Fertile Fl. in the margin. Perianth deeply 4-parted. Capsule 2—3-celled.

1. *E. septangulare* With.: scape slender, 6—7-furrowed, smooth; leaves subulate-ensiform, cellular and transversely reticulated; head small, hemispheric; scales of the involucre obovate, and with the flowers hairy at the summit. *E. bellucidum* Mich.

Ponds and swamps. Can. to Penn. Aug. **E.**—Scape varying in length from 2 or 3 inches to 6 feet, (Torr.) and like the leaves pellucid and cellular. Flowers minute, in a compact head, 4-cleft. Perianth with the outer segments purplish, the inner ones white. Stamens 4. Jointed Pipewort.

2. *E. decangulare* Mich.: scape 10-furrowed; leaves ensiform, smooth; head large, depressed-globose; scales of the involucre oval, acute, of the receptacle mucronate.

ORDER CXXXVI. XYRIDACEÆ.—XYRIDS.

Perianth 6-parted, in 2 rows; outer glumaceous; inner petaloid, unguiculate. Stamens 6, 3 fertile, inserted upon the claws of the inner segments of the perianth. Ovary single; style trifid. Capsule 1-celled, 3-valved, many-seeded, with parietal placentæ.—Herbaceous rush-like plants, with fibrous roots, ensiform or filiform radical leaves and flowers in terminal imbricate scaly heads.

XYRIS. Linn.—Yellow-eyed Grass.

(From the Greek ἱφός, sharp, in allusion to the pointed leaves.)

Perianth in 2 rows; outer row glumaceous, 2 of the segments somewhat boat-shaped; inner row petaloid; the segments with long nearly distinct claws and dilated laminae. Stamens 6; 3 fertile, the rest abortive. Capsule 1-celled.

1. X. Caroliniana Wall.: scape somewhat 2-edged; leaves linear, grass-like, much shorter than the scape; head roundish-ovoid; bracts orbicular-ovate. X. Jupacai Mich. X. flexuosa Ell.
Wet meadows. N. Y. to Flor. July. 4.—Stem a foot high, somewhat bulbous at the base, often spirally twisted. Leaves sheathing at base, flat or twisted. Flowers yellow, in a head 3—4 lines long. Common Yellow-eyed Grass.

2. X. brevifolia Mich.: leaves subulate, ensiform, short; head globose; inner segments of the perianth shorter than the outer one, slightly notched.

3. X. fimbriata Ell.: leaves long, ensiform; heads loosely imbricate, oblong; segments of the perianth fimbriate.
Fimbriate Yellow-eyed Grass.

ORDER CXXXVII. JUNCACEÆ.—RUSHES.

Flowers mostly perfect. Perianth 6-leaved, in a double row, more or less glumaceous. Stamens 6, rarely 3, inserted into the base of the segments. Ovary 1- or 3-celled; stigmas generally 3. Fruit capsular, with 3 valves. Seeds with a thin skin and firm albumen.—Mostly grass-like plants. Flowers small, generally brown or green, in cymes or heads.
1. LUZULA. D. C.—Wood Rush.

(Said to be derived from the Italian: lucciola, a glow-worm; because its flowers, when moistened with dew, sparkle by moonlight.)


1. L. pilosa Willd.: leaves broad-linear, hairy; peduncles in an umbellate corymb, 1-flowered, at length bent downward; leaflets of the perianth acuminate, shorter than the obtuse capsule; seeds with a curved appendage at the top. Juncus pilosus Linn.


2. L. campestris D. C.: leaves hairy; spikes sessile and peduncled; leaflets of the perianth acuminate, awned, longer than the obtuse capsule; seeds with an appendage at the base. Juncus campestris Linn.


3. L. parviflora Desv.: smooth; stem elongated; leaves broad-linear; flowers in a decumbent loose corymb, the peduncles elongated and capillary; pedicels 1-flowered; leaflets of the perianth ovate, acute, about the length of the oval obtuse apiculate capsule; seeds without an appendage. L. melanocarpa Desv. Juncus melanocarpus Mich.


4. L. spicata D. C.: leaves narrow, channelled, hairy at the throat; spike solitary, drooping, compound; spikelets shorter than the diaphanous mucronate bracts; leaflets of the perianth acuminate-mucronate, about as long as the rounded capsule. Juncus spicatus Willd.

White Mountains, N. H. Big. Aug. 2.—Stem 6—8 inches high, slender. Spike dark-colored, interrupted near the base, drooping. Spike-flowered Wood Rush.

2. JUNCUS. Linn.—Rush.

(From the Latin jungo, to join; the leaves and stems having been used as cordage.)


* Leaves none.

1. J. acutus Linn.: barren scapes and outer bracts pungent; panicle very compound, mostly compact; leaflets of the perianth equal; inner ones with a broad membranaceous margin at the apex, shorter than the broad-ovate abruptly acuminate capsule.
Sandy sea-coasts. N. J. to Car. July. \[2\].—Scape 2–3 feet high. Panicle 2–3 inches long, appearing as if lateral, though really terminal. **Great Sharp Sea Rush.**

2. *J. effusus* Linn.: scape not rigid, finely striate; panicle loose, very much branched, spreading; leaflets of the perianth lanceolate, spreading, very acute, as long as the obovoid apiculate capsule; stamens 3.

Wet grounds. Can. to Car. June, July. \[2\].—Scape 2–3 feet high, erect, terminating in a long tapering point. Panicle bursting from a fissure in the side of the scape above the middle, sessile. Flowers greenish. Sometimes used for making mats. **Soft Rush.**

3. *J. filiformis* Linn.: scape filiform, smooth; panicle few-flowered; leaflets of the perianth lanceolate, acuminate, nearly equal, larger than the obovoid apiculate capsule; stamens 6.

Borders of ponds. Northern and Western N. Y. Torr. White Mountains, N. H. Big. July. \[2\].—Scape 18 inches to 2 feet high, very slender. Panicle bursting from the side of the scape above the middle. Flowers greenish. **Slender Rush.**

4. *J. Balticus* Willd.: scape obscurely striate; panicle erect, branched; leaflets of the perianth nearly equal, very acute, as long as the elliptic mucronate capsule; stamens 6; style conspicuous.

Gravelly shores of the St. Lawrence and of Lake Ontario. Torr. July. \[2\].—Scape 2–4 feet high, often flexuous or twisted. Panicle with the branches slender and flexuous. Flowers dark brown. **Baltic Rush.**

**Stem leafy. Leaves terete, nodose.**

5. *J. nodosus* Linn.: stem nearly round; leaves distinctly nodose, terete; inflorescence terminal; heads few, globose, many-flowered; leaflets of the perianth linear-lanceolate, with a long subulate point; stamens 3; capsule triquetrous, attenuated at the summit, about as long as the perianth; seeds oblong.

Sandy banks of streams. Can. to Car. July. \[2\].—Stem 8 inches to 2 feet high. Heads in a loose more or less compound panicle, or in a dense cluster. Flowers brownish or greenish. Stamens 3–6. A very variable plant; which, however, according to Dr. Torrey, can always be distinguished from *J. polycephalus*, by its attenuated capsule, and by its oblong (not tailed) seeds. **Knotty Rush.**

6. *J. polycephalus* Mich.: stem erect; leaves compressed, nodose; panicle terminal, compound; heads many-flowered, globose; leaflets of the perianth lanceolate, somewhat awned; stamens 3; capsule oblong-triangular, abruptly acuminate, scarcely longer than the perianth; seeds tailed at each end. *J. echinatus* Muhl.

Boggy meadows. Can. to Geor. July, Aug. \[2\].—Stem 1–3 feet high. Panicle more or less compound. Flowers greenish. Seeds with a subulate appendage or tail at each end. (Torr.) A variable species. **Many-headed Rush.**

7. *J. subverticillatus* Willd: stem compressed; leaves few, subulate, nodose; panicle corymbose; heads about 5-flowered, fasciculate-verticillate; leaflets of the perianth linear-lanceolate, striate, as long as the obtuse capsule. **J. verticillatus** Persh.

Swamps. Can. N. Y. and Penn. July, Aug. \[2\].—Stem 1½–2 feet high,
slender, about 2-leaved. Panicle 4—8 inches long, the branches subverticillate and diverging. Flowers greenish, in somewhat hemispherical heads. Whorled Rush.

8. J. acuminatus Mich.: stem erect; leaves somewhat compressed, nodose; panicle terminal, compound; heads 3—6-flowered, pedunculate and sessile; leaflets of the perianth linear-lanceolate, mucronate, shorter than the acutely triangular capsule; stamens 3; seeds tailed at each end. J. sylvaticus Muhl.


9. J. pelocarpus Meyer: stem erect, bearing a single leaf, compressed; leaves setaceous, compressed, obscurely nodose; panicle pyramidal, spreading; heads about 2-flowered; leaflets of the perianth oblong, obtuse, the inner ones a little longer, shorter than the triquetrous ovate capsule. (Torr. N. Y. Fl.)


10. J. Conradi Tuckerman: stem erect, leafy; leaves erect, compressed, slightly nodose; inflorescence terminal, decompound, divaricate; flowers solitary; leaflets of the perianth lanceolate-acute, shorter than the oblong acuminate-rostrate capsule. (Torr. N. Y. Fl.) J. viviparus Conrad.


*** Leaves flat or channelled on the upper side.

11. J. tenuis Wild.: stems cespitose, slender, leafy at the base, erect, somewhat compressed; leaves setaceous-linear, channelled; panicle terminal, more or less compound; flowers solitary, unilateral; leaflets of the perianth lanceolate, a little longer than the obtuse capsule. J. bicornis Mich.

Low grounds. N. Y. to Car. June, July. 4.—Stems cespitose, 10 or 12 inches high. Panicle cymose; the peduncles unequal. Flowers solitary, greenish, somewhat racemose or unilateral on the branchlets. Slender Rush.

12. J. Greenei Tuckern. & Oakes: stem erect, leafy at the base, terete, rigid; leaves setaceous-linear, channelled above, rounded on the back; panicle terminal, compound, cymose; flowers solitary, erect, unilateral; leaflets of the perianth shorter than the ovoid-oblong rather obtuse capsule. Sandy borders of salt marshes. Mass. and N. Y. July. 4.—Stems cespitose, 12—18 inches high, striate. Panicle consisting of several much contracted cymes. Flowers unilateral, greenish. Greene's Rush.

13. J. Gerardi Loisel.: stem simple, leafy, compressed; leaves linear-setaceous, channelled; panicle terminal, compound, cymose, longer than the bracteal leaves; leaflets of the perianth oblong, somewhat obtuse, mostly shorter than the ovoid obtuse triangular capsule; stamens 6; seeds oblong-ovoid, strongly ribbed. J. bulbosus Pursh.

14. *J. bufonius* Linn.: stem diffuse, leafy, dichotomous above; leaves filiform-setaceous, channelled; panicle loose; flowers subsolitary, remote, unilateral; leaflets of the perianth lanceolate, very acuminate, much longer than the oblong obtuse capsule.


15. *J. marginatus* Rostk.: stem leafy, jointed; leaves flat and grass-like; panicle corymbose, compound; leaflets of the perianth about as long as the obtuse capsule, the outer ones and the bracts subaristate; stamens 3. *J. aristulatus* Mich.


16. *J. stygius* Linn.: stem filiform, erect, rigid, leafy; leaves setaceous, slightly flattened; flowers about 3, in a terminal head; leaflets of the perianth shorter than the oblong-elliptic acute capsule; stamens 3; seeds with an appendage at each end.

Sphagnous swamps, on Perch Lake, Jefferson county, N. Y. Dr. Gray. 4.—*Stem 6—12 inches high, simple. Flowers larger than in any of the preceding species, with 2—3 bracts at the base of the heads. Large-fruited Rush.*

17. *J. trifidus* Linn.: leaf mostly solitary, near the summit of the stem, linear-setaceous; sheaths ciliate; heads about 3-flowered, terminal; bracts foliaceous, very long, grooved.

White Mountains, N. H. Big. Summit of Mount Marcy, Essex county, N. Y. July, Aug. 4.—*Stem 6—10 inches high, rather rigid. Flowers mostly in a single head, supported by 2 long setaceous bracts or terminal leaves. Trifid Rush.*

18. *J. militaris* Big.: leaf solitary, jointed, longer than the stem; panicle terminal, proliferous, with sheathing lanceolate bracts at base; heads about 5-flowered.

Ponds, near Boston, Mass. Big. Stem 2—3 feet high, with a long sheath or two at base and commonly another above the leaf. Panicle terminal, erect, with proliferous branches. Bayonet Rush.

3. NARTHECIUM. Linn.—Narthecium.

(From the Greek *ναρθής*, a rod; probably from the elongated straight raceme of flowers.)


*N. Americanum* Ker: raceme sometimes interruptedly spiked, lax; pedicels with a setaceous bract below the flower, and another embracing its base; filaments with very short hair. *Phalangium ossifragum* Muhl.


American Narthecium.
ORDER CXXXVIII. \textit{Hæmodoraceæ}.—Blood Roots.

Perianth petaloid, 6-cleft, usually more or less woolly. Stamens inserted on the perianth, either 3 and opposite the inner segments, or 6; anthers bursting inwardly. Stigma undivided. Fruit capsular, somewhat nucamentaceous.—Herbaceous plants, with fibrous perennial roots and permanent ensiform equitant leaves.


\textit{L. tinctoria} \textit{Ell}. \textit{Dilatris tinctoria} \textit{Pursh}.
Sandy swamps. N. J. to Flor. July. \textit{f}.—Stem erect, 2 feet high, hairy at the top. \textit{Leaves} ensiform, shorter than the stem. \textit{Flowers} in a corymbose panicle, woolly, yellow within. The root yields a red color, which is used for dyeing. \textit{Red Root}.

2. \textit{Aletris}. \textit{Linn}.—Star Grass.
(From the Greek \textit{a}λειρ, meal; in allusion to the mealy appearance of the flowers.)

Perianth tubular or tubular-campanulate, rugose, 6-cleft. Stamens 6, inserted at the orifice of the tube. Style triquetrous, finally 3-parted. Capsule 3-celled, many-seeded, opening at the summit.

1. \textit{A. farinosa} \textit{Linn}.: leaves radical, lanceolate, acuminate, smooth; flowers pedicellate, oblong-tubular; perianthrugose-muricate. \textit{A. alb\textit{a}Mich}.
Sandy woods. Can. to Car. July. \textit{f}.—\textit{Scape} 2 feet high, with several bract-like leaves. \textit{Flowers} white, in a terminal raceme which is sometimes a foot in length. \textit{Perianth} appearing as if covered with a rough powder. The root is intensely bitter. \textit{Star-grass}. \textit{Colic Root}.

2. \textit{A. aurea} \textit{Walt}.: leaves radical, lanceolate, acuminate; flowers sub-sessile, short; perianth rugose and very rough.

ORDER CXXXIX. \textit{Commelynaceæ}.—Spiderworts.

Perianth in 2 rows; outer row herbaceous, 3-leaved; inner petaloid, 3-leaved or 3-cleft. Stamens 6 or fewer, some of them deformed or abortive. Ovary 3-celled; stigma 1. Cap-
sule 2—3-celled. Seeds often twin; albumen fleshy.—Herbaceous plants, with flat narrow mostly sheathing leaves.

1. COMMELYNA. Linn.—Day Flower.

(In honor of two Dutch botanists, John and Gaspar Commelyn.)

Perianth in 2 rows; outer one 3-leaved, calycine; inner 3-leaved, petaloid. Stamens 6, 3—4 sterile and furnished with cruciform glands. Capsule 3-celled, 3-valved; one of the valves often abortive.

1. C. angustifolia Mich.: assurgent, slender, weak, somewhat smooth; leaves linear-lanceolate, very acute, flat, smooth; sheaths subciliate; inner segments of the perianth unequal, one very minute; bracts peduncled, broad-cordate. C. erecta Willd.


Narrow-leaved Day-flower.

2. C. Virginica Linn.: stem stiffly erect, pubescent; leaves long-lanceolate, somewhat petiolate, the sheaths bearded at the throat; inner segments of the perianth nearly equal; bracts subsessile. C. longifolia Mich.


Broad-leaved Day-flower.

2. TRADESCANTIA. Linn.—Spiderwort.

(In honor of John Tradescant, gardener to Charles I. Torr.)

Perianth in 2 rows; the outer one 3-leaved, calycine; inner one 3-leaved, petaloid. Stamens 6, all fertile. Filaments villous. Stigma obtuse. Capsule 2—3-celled, 3-valved, few-seeded.

1. T. Virginica Linn.: stem erect, sometimes branching, smooth; leaves long, lanceolate, smooth; flowers in an imperfect umbel, sessile; calyx pubescent. T. cristata Wall.

Shady woods. N. Y. to Geor. W. to Miss. May. \(2^4\).—Stems about a foot high, often several from the same root. Flowers purple, in a terminal cluster or umbel, with a large 2-leaved involucre at base. *Virginian Spiderwort.

2. T. rosea Mich.: erect, simple; leaves linear, long, smooth; peduncles elongated; calyx smooth. T. Virginica Walt.

Moist woods. Penn. to Geor. May. \(2^4\).—Stem 8—12 inches high. Flowers smaller than in the preceding, with the inner segments rose-colored, and three times as long as the outer ones. *Rose-colored Spiderwort.*

ORDER CXL. ALISMACEÆ.—ALISMADS.

Perianth 6-leaved, in two rows; outer row herbaceous, inner petaloid. Stamens definite or indefinite. Ovaries several, 1-celled; styles and stigmas as many as the ovaries. Fruit not
opening, 1 or 2-seeded. Seeds without albumen; embryo shaped like a horse-shoe.—Floating or swamp plants, with fasciculate roots. Leaves with parallel veins.

1. SAGITTARIA. Linn.—Arrowhead.

(From the Latin sagitta, an arrow; in allusion to the general form of the leaves.)

Monœcious. Perianth 6-leaved; 3 outer leaves persistent, calycine; 3 inner colored, petaloid. Sterile Fl. Stamens numerous. Fertile Fl. Ovaries numerous, collected into a head. Carpels compressed, 1-seeded, crowned with the persistent style.

1. S. sagittifolia Willd.: scape simple; leaves sagittate or sometimes entire.
   var. 1. vulgaris Hook.: leaves ovate, acute; the lobes ovate-lanceolate, straight, acuminate. S. sagittifolia Mich.
   var. 2. latifolia Torr.: leaves very large and broad, more or less obtuse; the lobes ovate-lanceolate, spreading. S. latifolia Pursh.
   var. 3. hastata Torr.: leaves oblong-lanceolate, acute; the lobes divaricate, lanceolate, elongated; flowers mostly dioecious. S. hastata Pursh.
   var. 4. gracilis Torr.: leaves lance-linear; the lobes much divaricate, linear, very long and acute, sometimes wanting. S. gracilis and heterophylla Pursh.
   var. 5. pubescens Torr.: leaves and stem pubescent; bracts and outer leaves of the perianth very pubescent. S. pubescens Pursh.
   var. 6. simplex Hook.: leaves with the lamina linear-lanceolate and without lobes. S. simplex, graminea and acutifolia Pursh.
   var. 7. rigida Torr.: leaves narrow-lanceolate, very acute at each end, carinate below. S. rigida Pursh.

Ditches, ponds, and moist grounds. Can. to Flor. W. to the Platte River. July, Aug. 1.—Scape 6 inches to 2 feet high. Leaves very variable. Flowers white. I follow Dr. Torrey (N. Y. Fl.) in reducing all the above forms to one species. There seems to be no doubt concerning S. rigida, than any of the rest. But they all pass into each other by almost imperceptible gradations. Perhaps the following will hereafter also be found to be mere varieties of this polymorphous plant. According to Nuttall it exudes a milky sap which hardens into a white and hyaline gum.

Common Arrowhead.

2. S. obtusa Willd.: leaves sagittate, dilated-ovate, rounded at the extremity, mucronate; lobes approximate, oblong, obliquely acuminate, straight; flowers dioecious; sterile scape branched at base.

Ditches and ponds. Penn. to Virg. July. 2.—Leaves about as large as those of Calla palustris. Flowers white. Obtuse-leaved Arrowhead.

3. S. pusilla Nutt.: leaves linear, obtuse and short, the summits foliaceous; scape simple, mostly shorter than the leaves; flowers monoeious, few, the fertile one usually solitary. Alisma subulata Pursh.

Muddy Banks. N. Y. to Geor. Aug. 3.—Scape 2—4 inches high. Leaves rarely ever subulate, scarcely a line wide and obtuse. Flowers 3—6, only one of them usually fertile. Dwarf Arrowhead.


2. **ALISMA. Linn.—Water Plantain.**

(From the Celtic *alis*, water; in allusion to its place of growth.)

Perianth 6-leaved; 3 outer leaves persistent, calycine; 3 inner colored, petaloid, deciduous. Stamens 6. Ovaries and styles numerous. Carpels numerous, distinct, 1-seeded, crowned with the persistent style.

*A. Plantago Linn.*: stemless; leaves ovate-cordate, acute, nerved; flowers in a compound verticillate panicle; fruit obtusely triangular. *A. trivialis* and *parviflora* Pursh.


**Common Water Plantain.**

**Order CXLI. JUNCAGINACEæ.—Arrow Grasses.**

Perianth 6-leaved; the 3 inner leaves narrower. Stamens 6. Carpels 3–6, free, united or distinct. Fruit dry, 1 or 2-seeded. Seeds without albumen; embryo with a lateral cleft.—Herbaceous aquatic or marsh plants, with ensiform leaves and the flowers in spikes or racemes.

1. **TRIGLOCHIN. Linn.—Arrow Grass.**

(From the Greek ῥής, three, and γλῶς, a point; in allusion to the three points of the capsules.)

Perianth somewhat colored, deciduous; leaves concave. Stamens 6; anthers subsessile. Capsules 3–6, united by a longitudinal receptacle from which they usually separate at the base, 1-seeded.

1. *T. palustre Linn.*: fruit of 3 united carpels, nearly linear, subulate at the base.

Marshes. Salina and elsewhere in Western N. Y. N. to Arct. Amer. July. 24.—Scape about a foot high, very slender. Leaves very numerous, all radical or nearly so, linear, fleshy, slightly grooved on the upper side, nearly as long as the scape. Flowers small, greenish, in a terminal lax spike or raceme. The leaves, when bruised, give out a very fetid odor. *Marsh Arrow Grass.*


high and stouter than in the preceding. Leaves all radical, narrow, sheathing at base, shorter than the scape. Flowers very small, greenish, in a long terminal spike. Sea-side Arrow Grass.

2. SCHEUCHZERIA. Linn.—Scheuchzeria.
(In honor of the three Scheuchzers, Swiss botanists.)

Perianth of 6 somewhat petaloid persistent leaves; the 3 inner ones narrower. Stamens 6. Anthers on slender filaments. Capsules 3, inflated, united at base, 1—2 seeded.

S. palustris Linn.

ORDER CXLII. TYPHACEÆ.—Cat Tails.

Flowers monoecious, arranged upon a naked spadix. Perianth consisting of 3 or more scales or bristles. Sterile Fl. Stamens numerous; the filaments distinct or united below; anthers erect, 2-celled. Fertile Fl. Ovary single, 1-celled; style short; stigmas 1—2, linear. Fruit dry, indehiscent. Seed 1; albumen mealy.—Aquatic or marsh plants. Stem without nodes. Leaves rigid, ensiform, with parallel veins.

1. SPARGANIUM. Linn.—Bur Reed.
(From the Greek σπαργανον, a little band; in allusion to its long and narrow leaves.)

Monoecious. Flowers in dense spherical heads, the sterile ones above. Sterile Fl. Stamens numerous, intermixed with membranous scales. Fertile Fl. Pistils numerous, sessile, each surrounded with 3—6 scales. Style short. Fruit sessile.

1. S. ramosum Smith: leaves triangular at base, their sides concave; common peduncle branched; stigma linear. S. erectum Linn.

Stagnant waters. Can. to Virg. July, Aug. — Stem 2 feet high, round, flexuous, with 2 or 3 short axillary branches at the top. Lower leaves very long, linear-ensiform. Heads distantly placed; the sterile above more numerous and smaller than the fertile. Branching Bur-reed.

2. S. simplex Huds.: stem nearly simple; leaves triangular at base, the sides flat; stigma linear. S. Americanum Nutt.


3. S. natans Smith: stem simple; leaves floating, very narrow, flat; stigma linear, short; heads of sterile flowers subsolitary. S. angustifolium Mich.
ARACEÆ.

Lakes, &c. Can. and N. Y. Aug. 2.—Stems long and slender. *Leaves* very long, linear, pellucid. It may be only a variety of the preceding.

*Floating Bur-reed.*

2. **TYPHA. Linn.**—Cat-Tail.

(From the Greek ρηψ, a marsh; on account of its place of growth.)

Flowers collected into a long dense cylindric spike. **Sterile Fl.** above. Stamens numerous, intermixed with simple hairs inserted directly on the axis. Flaments slender, 2—4 forked. **Fertile Fl.** below the sterile on the same axis. Ovaries numerous, surrounded at base with numerous clavate bristles. Fruit oblong, very small, stipitate.

1. **T. latifolia Linn.**: Leaves linear, nearly flat; sterile and fertile spikes close together or almost continuous.

Borders of swamps and ponds. Can. to Car. July, Aug. 2.—*Stems clustered, 4—5 feet high, simple, round, leafy at base. Leaves very long. Flowers in a cylindric spike, the sterile yellowish, the fertile brownish.*

*Broad-leaved Cat-tail. Reed-mace.*

2. **T. angustifolia Linn.**: Leaves linear, channelled near the base; sterile and fertile spikes a little distant from each other.

Borders of swamps and ponds. N. Y. to Virg. July, Aug. 2.—*Stems and spikes more slender, and the leaves narrower, than in the preceding.*

*Narrow-leaved Cat-tail.*

**ORDER CXLIII. ARACEÆ.—Arums.**

Flowers mostly monoeious, arranged on a spadix within a spathe. **Sterile Fl.** Stamens very short; anthers turned outwards. **Fertile Fl.** at the base of the spadix. Ovary free, 1—3- or more-celled; stigma sessile. Fruit succulent. Seeds pulpy.—Herbaceous plants frequently with a fleshy cormus, or shrubs. Leaves sheathing at the base, sometimes compound.

1. **ARISÆMA. Mart. Torr.**—Dragon Arum.

(Origin of the name unknown.)

Spathe convolute below, the limb arched or flattish. Spadix naked above, the lower part covered with flowers, of which the upper are sterile and the lower fertile, or in some plants all sterile. Anthers somewhat verticillate and distinct. Filaments very short. Ovaries 1-celled, numerous. Stigma capitulate-peltate, almost sessile. Berry 1- several-seeded.

1. **A. triphyllum Torr.**: Leaves ternate; leaflets elliptic-ovate, sessile, acuminate, entire; spadix clavate, obtuse, shorter than the spathe. *A. atrorubens Blume. Arum triphyllum Linn. A. atrorubens Ait.*
ARACEÆ.

Wet woods. Can. to Car. W. to Miss. April, May, 2. — Scape 6—12 inches or more high, with a fleshy cormus at the base. Leaves 1 or 2, on long petioles; the leaflets variable in breadth. Spathe ovate; the upper portion arched over at the top, greenish, dark purple, or variegated. Berries forming a dense ovoid head. The recent tuber is very acrid, and almost caustic, but it becomes mild by boiling or drying. Big. Med. Bot., i. 52. Indian Turnip.

2. A. Dracontium Schott: leaf mostly solitary, pedate; the leaflets lance-oblong, acuminate, entire; spadix subulate, much longer than the oblong acuminate convolute spathe. (Torr. N. Y. Fl.) Arum Dracontium Linn.

Banks of streams. N. Y. to Flor. June, July. 2. — Scape about a foot long, with roundish corms, often clustered. Leaf on a petiole 8—15 inches long. Spadix greenish; the upper part tapering into a slender point, which rises 2—4 inches above the top of the spathe. Berries reddish-orange when ripe, forming an ovoid cluster. Darlington. Green Dragon.

2. PELTANDRA. Raf.—Arrow Arum.

(From the Greek πέλτην, a shield; and ἀνυπ, a stamen; in allusion to the form of the sterile organs.)

Spathe elongated, convolute, undulate on the margin, curved at the apex. Spadix covered with flowers. Perianth none. Anthers sessile, covering the upper part of the spadix in a tessellated manner. Ovaries 1-celled, on the lower part of the spadix. Berries ovoid, forming a dense cluster.


Swamps. N. Y. to Car. June, July. 2. — Scopes, several from one root, 12—18 inches long. Leaves all radical, and with the petiole about as long as the scape, oblong, hastate-sagittate, acuminate, the lobes spreading and usually obtuse. Spathe 3—5 inches long, narrow and somewhat fleshy. Spadix nearly as long as the spathe. Berries 1—3-seeded, green when ripe. Arrow-leaved Arum.

3. CALLA. Linn.—Water Arum.

(An ancient name of some plant allied to Arum.)

Spathe ovate, somewhat flattened. Spadix covered with flowers, which are destitute of a perianth, and consist of pistils surrounded by stamens. Anthers with slender filaments. Berries distinct, depressed, few-seeded.

C. palustris Linn.

4. SYMPOLOCARPUS. Salisb.—Skunk Cabbage.

(From the Greek συμπλων, connection, and καρπος, fruit; the berries being united.)

Spathe ventricose-ovate, acuminate. Spadix roundish, covered with perfect flowers. Perianth deeply 4-parted, persistent; segments cuculate, truncate, becoming thick and spongy. Stamens 4. Style pyramidal, 4-sided. Fruit baccate or capsular.

S. faetidus Salisb.: leaves cordate-ovate; spadix oval, much shorter than the spathe. Ictodes faetidus Big. Pothos faetida Mich.


5. ACORUS. Linn.—Sweet Flag.

(From the Greek α, without, and κορη, the pupil of the eye; a supposed remedy for sore eyes.)


A. Calamus Linn.: scape ancipital, with an ensiform point rising above the spadix.

Swamps. Can. to Car. June. 2%.—Rhizoma horizontal, creeping, aromatic. Leaves 2—3 feet long, and 6—10 lines wide. Scape similar to the leaves, somewhat triangular below the spadix. Spadix sessile on the side of the scape, 2—3 inches long, terete, covered with minute greenish flowers.

Common Sweet Flag.

6. ORONTIUM. Linn.—Orontium.

(An ancient name, supposed to refer to the river Orontes.)


O. aquaticum Linn.

Ponds and marshes. Can. to Flor. May. 2%.—Scape 8—18 inches long, clavate. Leaves on long petioles, floating, the lamina varying from oblong-lanceolate to elliptic-lanceolate, deep-green above, paler beneath. Spadix 1—2 inches long, yellow, somewhat tapering; the flowers crowded and sessile.

Order CXLIV. PISTIACEÆ.—Duckweeds.

Flowers 2—3, appearing from the margin of a flat frond, enclosed in a spathe but without a spadix, monoeccious; the sterile consisting of 1—2 stamens; the fertile of a 1-celled ovary, a short style and a simple stigma. Fruit membranous or capsular, not opening.—Floating or land plants, with very cellular, lenticular or lobed fronds, destitute of proper stems and leaves.

LEMNA. Linn.—Duckweed.

(From the Greek λέμνα, bark or scale; in allusion to the form of the fronds.)

Spathe membranous, urceolate, with 2 sterile flowers. Stamens 2, rarely wanting. Filaments longer than the style, curved. Style usually elongated. Stigma flat. Fruit an uricle.

1. L. trisulca Linn.: fronds thin, elliptic-lanceolate, cordate at one extremity, at the other serrate; root solitary.

Ditches and ponds. N. Y. to Virg.; rarely in flower. July. ①—Fronds half an inch or more in length, thin, margin pellucida; young fronds produced from lateral clefts, of the same shape as the parent plant, and again proliferous before they are detached. Flowers very minute. Root a single fibre.

Star Duckweed.

2. L. minor Linn.: fronds nearly ovate, compressed; root solitary.

Stagnant waters. N. Y. to Car. June, July. ①—Fronds a line and a half long, slightly convex beneath, somewhat fleshy, increasing rapidly by gemmae (young fronds) so as often completely to cover the surface of stagnant water.

Lesser Duckweed.

3. L. gibba Linn.: fronds obovate, almost flat above, hemispheric and pale beneath; root subsolitary.


Gibbos Duckweed.

4. L. perpusilla Torr.: fronds obovate, thin; root solitary; seed erect.

Ponds on Staten Island, N. Y. Aug. ①.—Fronds a line and a half long, bright-green on both sides. Flowers bursting from a cleft in the side of the frond. Spathe cyathiform. Seed oblong, erect.

Smallest Duckweed.

5. L. polyrhiza Linn.: fronds roundish-obovate, compressed; roots numerous, fascicled.

Stagnant waters. N. Y. to Car. June, July. ①—Fronds 3—4 lines long, succulent, of a firm texture, distinctly nerved above and often dark purple beneath. Root a bundle of 8 or 10 simple fibres in the middle of the frond. The largest of all the species. It is said never to have been seen in flower either in North America or in Great Britain.

Larger Duckweed.

Order CXLV. NAIADACEÆ.—Pondweeds.

Flowers mostly diclinous. Perianth of 2 or 4 pieces, rarely wanting. Stamens definite. Ovaries 1 or more, superior. Stigma
simple. Fruit a little nut or indehiscent capsule. Seed without albumen.—Water plants, with simple cellular leaves and membranous stipules. Flowers inconspicuous, often in terminal spikes.

1. ZOSTERA. Linn.—Grasswrack.

(From the Greek ζωστήρ, a girdle or ribbon, which the leaves sometimes resemble.)

Stamens and pistils separated, seated in 2 rows upon one side of a flat spadix. Anthers ovate, sessile. Pistils alternating with the anthers, ovate. Style subulate. Stigmas 2. Utricle with 1 seed, bursting irregularly.

Z. marina Linn.: stem roundish; leaves entire, somewhat 3-nerved.

Muddy shores. Mass. and N. Y. to Car. Aug. 7.—Stem terete, flexuous, throwing out roots from the joints. Leaves very long and narrow. Spadix linear, arising from a sheathing portion of the leaf. Flowers green; pistils and anthers alternate. This plant is used in Europe for packing glass and earthenware. Beds are also sometimes made of it. Common Grasswrack.

2. CAULINIA. Willd.—Caulinia.


1. C. fragilis Willd.: leaves ternate or opposite, linear-subulate, recurved, aculate-dentate, rigid.


3. ZANNICHELLIA. Linn.—Horned Pondweed.

(In honor of John Jerome Zannichelli; a Venetian apothecary and botanist.)


Z. palustris Linn. Z. intermedia Torr. Comp.


Horn Pondweed.
4. RUPPIA. Linn.—Ruppias.

(In honor of Henry Bernard Ruppius; a German botanist.)

Flowers 2, perfect, naked, on a spadix arising from the sheathing base of the leaves. Stamens 2 or 4, sessile. Anthers large, peltate. Ovaries mostly 4. Stigmas sessile, peltate. Fruit drupaceous, pedicellate.

*R. maritima Linn.*

Salt marshes. Can. to Geo. July. **[1]**.—Stem long, filiform, branched, floating. Leaves linear, setaceous, with inflated sheaths. Spadix with 2 naked green flowers, at first very short, but gradually increasing to the length of 5 or 6 inches. Anthers large, sessile, bursting horizontally. Drupes olive-green, smooth, crowned with a short oblique beak.

5. POTAMOGETON. Linn.—Pondweed.

(From the Greek παραγω, a river, and γειτων, a neighbor; in reference to its place of growth.)

Flowers perfect, on a spadix arising from a spathe. Perianth single, 4-leaved. Anthers 4, nearly sessile, alternating with the divisions of the perianth. Ovaries 4, becoming 4 compressed and somewhat cochlate nuts.

* Upper leaves floating.


2. *P. fluitans* Linn.: upper leaves floating, subcoriaceous, ovate-lanceolate, obtuse, tapering into a rather short petiole; lower very long, lanceolate, membranous and sessile. *P. natans* var. fluitans Torr.


Stagnant water. Can. to Car. Aug. **[2]**.—Smaller than the former. In flowing water the leaves are very long and narrow. Various-leaved Pondweed.


**Leaves all submersed.**


Lakes, &c. Can. to Penn. Aug. **Fl.**—Stem slender, dichotomously branched. Leaves an inch or more in length, appearing perfoliate, slightly waved on the margin, subpellucid. Spadix few-flowered, on a peduncle of about an inch in length. *Perfoliate Pondweed.*


Rivers and lakes. Can. to Car. W. to Miss. Aug. **Fl.**—Stem long, branched. Leaves large, very pellucid and finely veined. Spadix cylindric, many-flowered, on a thick peduncle which is sometimes shorter and at others much longer than the leaves. A very variable species. *Shining Pondweed.*

7. *P. zosterifolium* Schumach.: leaves all linear and grass-like, pellucid, with three primary and many smaller nerves, acuminate; spadix cylindric, on longish thick peduncles. *P. compressum* Torr. Fl.


8. *P. pusillum* Linn.: leaves narrow-linear, 3—5-nerved, rather obtuse, pellucid; spadix oblong, few-flowered, somewhat interrupted, much shorter than the peduncles.

Crooked Lake, N. Y. Dr. Sartwell. Aug. **Fl.**—Stem branching, slender, flexuous. Leaves 1—2 inches long, very narrow, mostly 5-nerved. Spadix about 6-flowered, on a thick peduncle which is about an inch in length. *Small Pondweed.*


**Subclass II.—GLUMACEALS.**

Flowers destitute of a true perianth, but consisting of imbricate colorless or herbaceous scales.

**Order CXLVI. CYPERACEÆ.—SEDGES.**

Flowers often monoeous or dioecious, consisting of imbricated solitary bracts, (scales,) rarely enclosing other opposite
bracts at right angles with the first, and called *glumes*. Perianth none, or consisting of hypogynous bristles. Stamens 1—12, but mostly 3. Style single, 2—3-cleft. Fruit an achenium or crustaceous nut. Embryo lenticular, within the base of the albumen.—Grass-like herbs, growing in tufts. Culms solid, seldom with joints, often 3-cornered. Leaves with their sheaths entire.

I. CYPEREE. Flowers perfect. Spikelets imbricate in two rows. Perigynium none or setaceous.

1. DULICHIUM. Rich.—Dulichium.

(From the Greek δύο, two, and λείχων, a scab or scale; in allusion to the two-rowed scales. *Eal. Man.*)


2. CYPERUS. Linn.—Galingale.

(From the Greek κυπαρίσσω; a name supposed to have been given to one of this genus.)

Spikelets 2-ranked, many-flowered. Scales mostly all fertile, equal. Stamens 2 or 3, rarely solitary, deciduous. Style 2—3-cleft, deciduous. Achenium compressed or triangular.

*Style* 2-cleft. *Achenium* compressed-lenticular.

1. C. flavescens Linn.: umbel of 2—4 short rays; involucre 3-leaved; spikelets linear, 14—20-flowered, at the end of the rays, rather obtuse; scales obtuse, 1-nerved.


2. C. Nuttalii Torr.: rays few, short or nearly sessile, loose; involucre 4-leaved, 2 of the leaves very long; spikelets linear-lanceolate, much compressed, acute; stamens 2; style 2-cleft. *C. caespitosus Spreng.* *C. tenuis Muhl.*

3. *C. diandrus* Torr.: umbel of 2—5 short rays; involucre 3-leaved, two of the leaves much longer than the umbel; spikelets lance-oblong, much-compressed, 14—24-flowered; scales oblong, rather obtuse, 1-nerved; stamens 2; style 2-cleft, much exserted.

var. *castaneus* Torr.: scales oblong-lanceolate; style scarcely exserted. *C. castanensis* Big.

Wet grounds. N.Y. to Del. W. to Ohio. Aug. \(2\).—Culms 6—12 inches high, often weak and somewhat decumbent, cespitose, obtusely triangular. Umbel sometimes without rays. Scales with a light-brown margin, the sides yellowish and the keel green; in the var. of a dark chestnut-color and firm texture. Stamens sometimes 3 in the upper flowers. *Dianthrous Galingale*.

**Style 3-cleft.** Achenium triangular. Inner scales adnate to the rachis.

† Culm subterete, noded.


†† Culm triangular. Umbel simple or compound.


6. *C. strigosus* Linn. : umbel simple or compound; rays numerous, elongated; involucre 5—9-leaved, very long; spikelets 8—10-flowered, linear-lanceolate, flattened, much crowded, spreading horizontally; scales oblong-lanceolate, nerved, rather acute.


8. *C. filiculmis* Vahl: culm triangular, often inclined; umbel simple, of 1—2 divaricate rays or wanting; spikelets collected into globose heads,
Cyperaceae.

Linear-lanceolate, 6—10-flowered; scales loose, ovate, obtuse or emarginate. C. mariscoides Ell.


9. C. Grayi Torr.: culm filiform; umbel 4—6-rayed, somewhat erect; heads composed of 5—10 spikelets, loose; spikelets linear-lanceolate, compressed, 5—7-flowered; scales ovate, rather obtuse when old, loosely imbricate.


10. C. dentatus Torr.: rhizoma creeping, tuberiferous; umbel compound, of 4—7 somewhat erect rays; involucre 3-leaved, longer than the umbel; spikelets 3—6 on each partial ray, oblong or ovate-lanceolate, much compressed, 6—30-flowered; scales very acute or mucronate, keeled. C. parviflorus Muhl.


11. C. inflexus Muhl.: umbel contracted, 1—3-rayed; involucre 3-leaved, very long; spikelets collected into ovoid heads, oblong-linear, about 8-flowered; scales cuspidate, squarrose at the tip: stamen 1. C. uncinatus Pursh.

Banks of streams. Throughout the U. S. N. to lat. 52°. Aug., Sept. 24. —Culms 2—3 inches high, densely cespitose. Leaves linear, as long as the culm. Umbel often sessile. Spikelets yellowish, in heads of 8—16 or more. It has a strong and durable odor like that of Trifolium caruleum. Dwarf Odorous Galingale.

12. C. Schweinitzii Torr.: culm triquetrous, with rough angles; umbel simple, the rays elongated; spikelets 6—8, lanceolate, alternate, approximate, 6—8-flowered, with a setaceous bract at the base of each; scales ovate, acuminate, mucronate, keeled.

Dry sandy shore of Lake Ontario, near Braddock’s Bay. W. to St. Peters River and Ark. Aug.—Culm 8—13 inches high, slender, the upper part rough on the angles. Leaves very narrow, shorter than the culm. Spikelets irregularly arranged, forming a loose oblong head. Scales rather rigid, yellowish. Schweinitz’s Galingale.

*** Inner scales herbaceous, free.

13. C. erythrorhizos Muhl.: umbel compound, many-rayed; involucre 4—5-leaved, very long; spikes cylindric-oblong, nearly sessile; spikelets very numerous, spreading horizontally, terete-compressed, many-flowered; scales lanceolate, mucronate. C. tenui flora MLS. Ell.

3. MARISCUS. Vahl.—Mariscus.

(From the Celtic mar, a marsh; in allusion to the place of growth of some species.)


2. M. retrorfractus Vahl: umbel simple, of numerous elongated rays; involucre 3-leaved; heads obovate, retrorsely imbricate; spikelets nearly terete, subulate, 1-flowered; two lowest scales very short, the uppermost one very narrow and involute. Scirpus retrorfractus Linn. Cyperus retrorfractus Torr.

Wet grounds. N. Y. to Flor. W. to Ark. July, Aug. 2. — Culm 2—3 feet high, obtusely triangular. Leaves mostly radical, half as long as the culm. Spikelets very numerous, slender, the uppermost ones spreading horizontally, the rest bent backwards against the peduncle. Bent-flowered Mariscus.

4. KYLLINGIA. Linn.—Kyllingia.

(Named in honor of Peter Kylling, a Danish botanist.)


K. monocephala Linn.: stem filiform, triangular; involucre 3-leaved; one of the leaves erect, the others horizontal; head globose, compact; spikelets 1-flowered, ovoid, acuminate; scales ciliate, nerved.

Moist grounds. N. J. to Geor. June. 2. — Root creeping, stoloniferous. Culm about a foot high. Leaves narrow, shorter than the culm. Head always single, mostly inclining to one side. Supposed to be distinct from the foreign plant. One-headed Kyllingia.

II. SCIRPÆ. Flowers perfect. Scales mostly imbricate on all sides. Perigynium composed of bristles hairs or scales, sometimes wanting.

5. ELEOCHARIS. Brown.—Spike Rush.

(From the Greek ἐλέος, ἐλεος, a marsh; and χαίρω, to delight in; in allusion to the place of growth.)

Scales imbricate on all sides, or imperfectly bifarious. Bristles 8—12, (rarely wanting,) rigid and persistent, usually rough
or hispid. Style 2—3-cleft, bulbous at the base. Achenium lenticular or obtusely triangular.

* Spike cylindric. Scales rigid, spirally arranged. Style 3-cleft.

1. *E. equisetoides* Torr.: culm terete, remotely nodose, papilllose; scales suborbicular-ovate, very obtuse or slightly pointed; bristles 6, as long as the obovate biconvex achenium; tubercle conic-rostrate, acute. *Scirpus equisetoides* Ell.


2. *E. quadrangulata* Brown: culm acutely and unequally quadrangular, three of the sides concave, the other wider and flat; scales broad-ovate, very obtuse; bristles 6, as long as the obovate striate achenium; tubercle conic, compressed. *Scirpus quadrangulatus* Mich.


** Spike ovate or oblong. Scales membranaceous, very numerous, irregularly imbricated. Style mostly 2-cleft.

3. *E. palustris* Brown: culm terete, striate, spongy; spike oblong-lancolate; scales somewhat obtuse, the two lowest large and empty; bristles 3—6, hispid, longer than the lenticular smooth achenium. *Scirpus palustris* Linn.


4. *E. olivacea* Torr.: culm filiform, compressed, sulcate, soft; spike ovoid, mostly somewhat obtuse, many-flowered; scales ovate, obtuse, membranaceous; bristles 6—8, retrorsely hispid, nearly twice as long as the obovoid lenticular achenium. *Scirpus intermedius* Gray.


5. *E. rostellata* Torr.: culm compressed, sulcate; spike ovoid-lancolate, acute; scales ovate, obtuse, loose, with a scarious margin; bristles 4—6, longer than the biconvex shining achenium; tubercle conic-rostrate. (Torr. N. Y. Fl.) *Scirpus rostellatus* Torr. Cup.


6. *E. intermedia* Schulles: culm setaceous, diffuse, compressed, angular and sulcate; spike ovoid-lancolate, acute; scales somewhat acute; bristles 6, longer than the obovoid compressed achenium; style 3-cleft; tubercle distinct. *Scirpus intermedius* Muhl.

7. E. obtusa Schultes: culm terete or slightly compressed, spongy; spike globose-ovoid, many-flowered; scales very obtuse; bristles 6, longer than the obovate lenticular achenium; tubercle dilated at base. Scirpus capitatus Linn.


*** Spike ovoid. Scales coriaceous. Bristles 6, rigid. Style 3-cleft. Tubercle nearly as large as the achenium.

8. E. tuberculosa Brown: culm terete, filiform, striate; spike globose-ovoid, somewhat acute; scales broad-ovate, very obtuse, loosely appressed; bristles 6, longer than the oblong and striate achenium; tubercle large, ovoid, obtuse. Scirpus tuberculatus Mich.


**** Spike ovoid or elongated. Scales membranaceous. Bristles 1—4, slender, rarely none. Achenium roundish or triangular.

9. E. acicularis Brown: culm setaceous, angular; spike ovoid, acute, few-flowered; scales oblong, rather obtuse; bristles 4, slender, shorter than the obovate achenium; tubercle minute. Scirpus acicularis Linn. S. capitillus Mich.


10. E. tenuis Schultes: culm filiform, angular, the sides concave; spike elliptic, acute at each end; scales ovate, obtuse; bristles 2, 3, or none; achenium obovoid-triangular, rugose; tubercle minute, triangular. Scirpus tenuis Willd.

Swamps and wet meadows. Can. to Car. W. to Ark. July. 34.—Culm 8—13 inches long, very slender, with one or two purple sheaths at base. Spike when young somewhat obtuse. Scales dark chestnut color, with the margins white. Slender Spike Rush.

11. E. melanocarpa Torr.: culm compressed, sulcate; spike oblong or cylindric-oblung; scales ovate, obtuse, membranaceous; bristles 3—4, slender, mostly as long as the somewhat turbinate and obtusely triangular achenium; tubercle broad, triangular, short-acuminate.


12. E. pigmeca Torr.: culm setaceous or acicular, much compressed and sulcate; spike ovate-compressed, few-flowered; scales ovate; bristles 6,
slender, mostly longer than the ovoid acutely triangular achenium; tubercle very minute or almost wanting. *Scirpus pusillus* Pursh, not of Vahl.

Salt marshes. N. Y. and N. J. July, Aug. 24.—Culm 1—2 inches high, often destitute of spikes. Spikes 3—8-flowered, only 1 or 2 flowers perfect. Bristles sometimes wanting.  

13. *E. microcarpa*, var. *filiculmis* Torr.: culms cespitose, capillary or filiform, quadrangular, wiry; spikes oblong; bristles nearly as long as the obovate-oblong achenium; tubercle very minute, closely sessile.  


*Wiry-stalked Spike Rush.*

6. SCIRPUS. *Linn.—Club Rush.*  

(An ancient Latin name for the Bulrush, which belongs to this genus.)  

Spikes many-flowered, the scales imbricate on all sides. Bristles 3—6, rigid, persistent. Style 2—3-cleft, simple at base, deciduous. Achenium biconvex or triangular.

* Spike solitary, terminal.

1. *S. caespitosus* *Linn.*: culms cespitose, filiform, terete; the sheaths with rudiments of leaves; spike ovoid, few-flowered; the two lowest scales bract-like, as long as the spike; bristles smooth; style 3-cleft; achenium obtusely triangular.


*Scaly-stalked Club Rush.*

2. *S. planifolius* Muhl. : culm triangular; leaves linear, flat, about as long as the culm; spike oblong, compressed; scales carinate, cuspidate, the lowest one longer than the spike; achenium triangular.


*Flat-leaved Club Rush.*

3. *S. subterminalis* Torr.: culm floating, sulcate, leafy at the base; spike oblong-lanceolate, shorter than the bract at the base; scales ovate-lanceolate; style 3-cleft; achenium triangular.


*Floating Club Rush.*

** Culm many-spiked.

† Spikes lateral.

4. *S. debilis* Pursh.: culm terete, with a few subulate leaves at base, striate; spikes 3—5, ovoid, closely sessile, below the top of the culm; scales broad-ovate, obtuse, mucronulate; style 2—3-cleft; achenium plano-convex, broad-ovulate.

5. *S. triquetra* Linn.: culm nearly naked, triangular or slightly winged, two of the sides concave; spikes 1—6, ovoid, aggregated and sessile; scales round-ovate, mucronate; achenium doubly convex, acuminate. *S. Americanus Pursh.*


6. *S. mucronatus* Linn.: culm leafy at base, triangular, the sides concave; spikes 2—4, oblong-lanceolate, sessile; scales ovate, mucronate, smooth; anthers acute, (not fringed); achenium angular-convex externally, mucronate.


7. *S. lacustris* Linn.: culm terete, attenuate above, leafless; panicle growing from the side of the culm near the top; spikes ovoid, mostly pedunculate; scales ovate, mucronulate, ciliate; achenium obovate, convex on the back. *S. acutus Muhl.* *S. validus Pursh.*


†† Spike terminal.

8. *S. maritimus* Linn.: culm triangular, leafy; corymb clustered, shorter than the 3-leaved involucre; spikes ovoid-oblong, rather obtuse; scales ovate, 3-cleft or 3-toothed, the middle segment subulate and reflexed; style 3-cleft; achenium broad-ovate, lenticular. *S. robustus Pursh.* *S. macrostachyos Muhl.* (in part.)


9. *S. atrovirens* Muhl.: culm triangular, leafy; cyme compound, proliferous; involucre 3-leaved; spikes ovoid, acute, densely glomerated in heads of 10—20; scales ovate, mucronate, pubescent; style 3-cleft; achenium compressed-triangular, sharply acuminate.

10. *S. brunneus* Muhl.: culm obtusely triangular, leafy; cyme decom- pound; involucre 3—4-leaved; spikes round-ovoid, clustered in heads of 3 to 6 or 8; scales ovate, obtuse, slightly mucronate; style 3-cleft; achenium minute, plano-convex, short-acuminate.


Wet grounds. Hudson’s Bay to Flor. W. to Ohio and Ken. July, Aug. 2.—*Culm 2—5 feet high, leafy nearly to the top. Leaves 1—2 feet long, flat above, rough on the margin. Panicle usually very large, the spikes distinct and pedunculate, or in small clusters at the ends of the rays. Scales with the sides brown and the keel green. Bristles at length so much extended as to give the whole panicle a woolly appearance. Brown Wool-grass.*


Boggy places. N. Y. to Geor. W. to Miss. and Texas. Aug. 2.—*Culm 1—3 feet high, very leafy, distinctly triangular. Leaves rough on the margin. Panicles somewhat umbellate, the terminal one largest, the lateral ones sometimes wanting. Scales rusty colored. Bristles crisped, somewhat exserted. A smaller plant than the preceding. Loose-flowered Wool-grass.

**7. ERIOPHORUM. Linn.—Cotton-Grass.**

(From the Greek εριοφόρος, wool, and φοι, to bear; the fruit being covered with wool-like hairs.)

Scales of the spike imbricate on all sides. Achenium densely invested with long soft woolly or cottony hairs. Stamens 3. Style 3-cleft.

* Spike solitary.


2. *E. vaginatum* Linn.: culm terete below, obtusely triangular above, somewhat rigid; sheaths inflated; spike oblong-ovoid; scales scarious; hairs straight, dense. *E. cespitosum* Pursh.

Swamps, especially on mountains. Arct. Amer. to Virg. July. 2.—*Culms about a foot high, cespitose. Leaves longer than the culm, very narrow. Scales dark-colored when in fruit. Hairs very numerous, white, 2—3 times the length of the scale. Hare’s-tail Cotton-grass.
**Spikes numerous.**


Bogs and marshes. Can. to Geor. W. to the Rocky Mountains. June. **4.**—Culm 1—2 feet high, smooth. **Spikes** 4—12, on long filiform peduncles. **Scales** green, at length brown. **Hairs** very numerous, long, white with a reddish tinge.

4. *E. Virginicum* Linn.: culm nearly terete below, obtusely triangular above; leaves flat, very long; involucre 2—3-leaved; spikes clustered, erect, nearly sessile.


5. *E. angustifolium* Roth.: culm somewhat triangular, roughish above; leaves triangular, channelled; involucre mostly 1-leaved; peduncles smooth, nodding; scales broad-ovate, obtuse. *E. tenuifolium* Nutt.

Wet meadows. Arct. Amer. to Del. June. **4.**—Culm 12—18 inches high, leafy. **Spikes** 4—10, ovoid; 1 or 2 nearly sessile, the others on peduncles. **Hairs** very numerous, long, white and cottony. *Narrow-leaved Cotton-grass.*

8. **FIMBRISTYLIS** *Vahl.*—Fimbristylis.

(From the Latin *fimbria*, a fringe, and *stylus*, a style.)

Scales imbricate on all sides. Bristles none. Style compressed, 2-cleft, more or less bulbous at the base, wholly deciduous, mostly ciliate on the margin.

1. *F. spadicea* Vahl: culm compressed, nearly naked; leaves semi-terete, filiform, channelled; involucre rigid, 2-leaved; umbel of few rays, simple or compound; spikes ovoid-oblong; scales rigid, broad-ovate, obtuse. *Scirpus spadiceus* Linn.


2. *F. Baldwiniana* Torr.: culm somewhat compressed, deeply striate, leafy at base; leaves narrow-linear, striate, serrulate; involucre subulate; umbel subcompound; spikes ovoid-lanceolate, acute; scales smoothish, ovate, mucronate. *Scirpus Baldwinianus* Schultes.

Moist places. Penn. to the Gulf of Mexico. W. to Miss. July. **4.**—Culm 4—12 inches high. **Leaves** about as long as the culm. **Umbel** small, some of the rays divided. **Scales** with the keel greenish and the sides chestnut brown. *Baldwin's Fimbristylis.*

3. *F. cylindrica* Vahl: involucre about 1-leaved, rigid, as long as the simple umbel; spikes cylindrical, very obtuse.

Quaker's Bridge, N. J. *Schweinitz.* **4.**—An obscure species. *Cylindrical Fimbristylis.*
9. ISOLEPIS. Brown.—Isolepis.

(From the Greek ἴσος, equal, and λέσις, a scale.)

Scales imbricate on all sides. Bristles none. Style 3-cleft, simple at the base, or with a minute bulb from which it separates. Achenium triangular, often crowned with the base of the style.

*I. capillaris* R. & S.: culm capillary, angular and sulcate, nearly naked; leaves setaceous, much shorter than the culm; spikes umbelled, usually 4, terminal, on short rays, ovoid-oblong; scales somewhat 4-rowed, oblong, obtuse. *Scirpus capillaris* Linn.


Culms 1—8 inches high, densely cespitose. Leaves mostly radical, setaceous. *Spikes* umbelled, somewhat quadrangular. *Scales* rusty brown with a green keel.

10. TRICHELOSTYLI S. Lestil.—Trichelostylis.

(From the Greek τρίχηλος, hairy, and στυλις, a style; the style being often hairy. *Torr. N. Y. Fl.*)

Scales mostly 4—8-ranked, keeled. Bristles none. Style 3-cleft, more or less bulbous at the base, deciduous below the bulb. Achenium triangular.

*T. mucronulata* Torr.: culm compressed, ancipital; involucre 2—3-leaved, shorter than the compound spreading umbel; spikes oblong, acute; scales about 4-rowed, ovate-lanceolate, mucronate, with the points somewhat spreading. *Scirpus autumnalis* Pursh. *S. mucronulatus* Mich.


Culms 8—12 inches high, cespitose, often spreading or decumbent. *Leaves* very acute. *Spikes* solitary or 2—3 at the extremity of the rays. *Scales* rusty colored, keeled.

III. FUIRENEE. Spikelets perfect. Scales imbricate on all sides. Achenium with three scales or leaflets often alternating with three bristles. Stamens 3. Style 3-cleft.

11. FUIRENA. Rothb.—Fuirena.

(Named in honor of G. Fuiren; a Danish botanist.)

Character same as that above given.

*F. squarrosa* Mich.: culm obtusely triangular, sulcate; leaves ciliate; sheaths hairy; spikes 3—12, clustered, ovoid; bristles none; scales cordate or ovate, unguiculate. *F. squarrosa* and *Torreyana Beck Bot. 1st Ed.*


—Culm varying in height from 2—18 inches. Leaves smoothish or somewhat hairy. *Spikes* 4—12 inches long, forming an irregular terminal umbel. *Scales* hairy, with a long slender recurved bristle.

*Squarroso Fuirena*.
IV. Hypolytree. Flowers perfect. Scales of the spikes imbricate on all sides, each 1-flowered; the flowers with a 1—4-valved (not bristle-form) perigynium.

(From the Greek ἡμι, half, and καρπος, straw; the flowers having a valve only on one side.)

Spikes ovoid. Scales very numerous, deciduous. Flowers with a single valve, which is opposite the scale. Stamen 1. Style 2-cleft. Achenium oblong.

H. subsquarrosa Nees: culm setaceous, compressed, sulcate; involucre 2-leaved, long, unequal; spikes 2—3, ovoid, sessile, lateral; scales rhombic-obovate, with a short mucronate recurved point; achenium obovate-oblong, somewhat compressed. (Torr. N. Y. Fl.) Scirpus subsquarrosus Muhl.


(From the Greek κλαδος, a twig; but the application is not understood.)


C. mariscoides Torr.: culm obscurely triangular; cymes compound, 2—4-rayed, nearly naked, the rays elongated; spikelets in heads of 3—8 together; style 3-cleft. Schecnus mariscoides Muhl.


VI. Rhynchosporeae. Flowers perfect or polygamous. Spikelets mostly few-flowered. Scales irregularly imbricate, obscurely two- or three-rowed. Perigynium of several rough or plumose bristles, rarely wanting. Achenium beaked.

(From the Greek ρυγχος, a beak, and σπορα, a seed.)

Spikelets few-flowered. Scales loosely imbricate; the lower ones smaller and empty. Bristles 6, rarely 10—12. Stamens
3, rarely 2, 6 or 12. Style 2-cleft. Achenium crustaceous, crowned with the persistent base of the style.

* Achenium smooth, mostly lenticular.


**White Beak Rush.**

2. *R. gracilenta* Gray: culm and leaves very slender; clusters of spikelets 2—4, small, somewhat crowded, the terminal one nearly sessile; bristles 6, longer than the smooth ovoid-lenticular achene; tubercle long, subulate.


**Tall Slender Beak Rush.**

3. *R. Kneiskernii* Carey: culm triangular, slender; spikes numerous, in 4—6 distant clusters; bristles 5, retrorsely hispid, about as long as the obvate somewhat stiped achene; tubercle triangular, compressed, broad at the base. (Carey, *Sill. Jour. July, 1847.)*

Pine Barrens, N. J. Dr. Kneiskern. *Culm 12—18 inches high, branching from the base. Leaves short and narrow. Spikelets small, setaceous, forming small distant clusters throughout the whole length of the culm. It resembles the preceding, but differs in its achenium and bristles.*

**Kneiskern’s Beak Rush.**

4. *R. glomerata* Vahl: culm obtusely triangular; spikelets ovoid-oblong, in corymbose clusters, distant, mostly in pairs; bristles 6, hispid, as long as the obovate-lenticular achene; tubercle lanceolate. *Schoenus glomeratus* Linn.


5. *R. capillacea* Torr.: culm triangular, slender; spikelets 3—6, nearly terminal; bristles 6, about twice as long as the oblong-ovate compressed achene; tubercle lanceolate, rostrate. *Schoenus setaceus* Muhl.


**Capillary Beak Rush.**


7. *R. cephalantha* Gray: heads somewhat globose, dense, many-flowered,
axillary and terminal, often in pairs; spikelets oblong-lanceolate; bristles hirsute, twice as long as the orbicular-ovate margined achenium.

Sandy swamps. N. Y. to Flor. and Louis. Aug. **4.—Culm obtusely triangular, stout. Leaves narrow-linear, flat. Scales dark brown, oblong, acute or acuminate. Resembles the preceding, but has the heads larger and compact.

Round-headed Beak Rush.

8. *R. macrostachya* Torr.: culm triangular; axillary corymbs simple, terminal ones compound; upper spikelets densely fascicled; bristles 6, hirsutous upward, twice as long—and the persistent style four times as long—as the obovate achenium.


Long-headed Beak Rush.


Long-styled Beak Rush.

** Achenium transversely rugose.

10. *R. cymosa* Nutt.: culm acutely triangular; corymbs somewhat cymose, terminal and axillary; spikelets clustered, ovoid; bristles 6, shorter than the obovate subcompressed achenium; tubercle depressed-conic. *Scapanus cymosus* Willd.


Tufted Beak Rush.

11. *R. Torreyana* Gray: culm slender, somewhat terete; panicle cymose, rather loose; spikelets ovoid, mostly pedicellate; bristles 6, a little more than half the length of the oblong-ovate compressed achenium; tubercle compressed-conic.


Torrey’s Beak Rush.

15. **PSilocarya. Torr.—Psilocarya.**

(From the Greek *ψιλος*, naked, and *καρυα*, a nut; the achenium being destitute of bristles.)

Scales imbricate on all sides, membranaceous or chartaceous, all fertile. Perigynium none. Stamens 2. Filaments long and persistent. Style 2-cleft, compressed, dilated at base. Achenium biconvex, crowned with the broad persistent tubercle or rostrate with the persistent style.

*P. scirpoides* Torr.: spikes oblong-ovate, many-flowered; scales lance-
ovate, acute, membranaceous; style long, rostrate, persistent, much dilated at the base, and decurrent at the edges of the tumid rugose achenium. (Torr. Cyp.)


**VII. Sclereæ.** Flowers diclinous. Fertile spikelets 1- or rarely 2-flowered. Scales fasciculate; the lower ones empty, often seated in a cup or torus. Perigynium of 3 scales, often wanting. Achenium nut-like.

16. SCLERIA. Linn.—Nut Rush.

(From the Greek σκληρός, hard; in allusion to the hard bone-like achenium.)

Monoecious. Fertile spikelets 1-flowered; the sterile several-flowered. Scales 2–6. Disk shallow, saucer-like or lobed. Perigynium coriaceous or crustaceous, sometimes wanting. Achenium globose or ovoid.

* With a perigynium.

1. *S. reticularis* Mich.: culm erect, rough on the angles below; fascicles lateral and terminal, remote, loose; achenium globose, reticulated and deeply pitted between the lines; perigynium 3-lobed.


Reticulated Nut Rush.

2. *S. laxa* Torr.: culm weak, somewhat diffuse, nearly smooth; fascicles lateral and terminal, remote, on long slender peduncles, loosely flowered; scales and bracts smooth; achenium globose, pitted and marked in a somewhat spiral manner with transverse hairy wrinkles; perigynium 3-lobed. *S. reticularis* Muhl.


Loose-flowered Nut Rush.

3. *S. triglomerata* Mich.: culm acutely triangular, rough; leaves broad-linear, somewhat hairy; fascicles lateral and terminal, triglomerate; bracts ciliate; scales cuspidate; achenium ovoid-globose, smooth and polished; perigynium annular.


Three-clustered Nut Rush.

4. *S. pauciflora* Muhl.: culm triangular, slender, smoothish; leaves narrow-linear, with pubescent sheaths; fascicles lateral and terminal, few-flowered, the lateral on long peduncles; bracts ciliate; scales smoothish; achenium globose-ovoid, warty; perigynium of 6 tooth-like processes.

** Perigynium none.

5. *S. verticillata* Muhl.: culm filiform, triangular and with the leaves smooth; fascicles 4—6, alternate, sessile, distinct; bracts minute, setaceous; scales smooth; achenium globose, mucronate, rugose-verrucose. *Hypoporum verticillatum* Nees.


VIII. **Cariceæ.** Flowers dicipinous. Scales of the spikes imbricate on all sides. Achenium entirely enclosed in an urceolate perigynium, which is often 2-toothed or 2-lobed at the orifice.

17. **CAREX.** Linn.—Sedge.

(Supposed to be derived from the Greek κερας, to shear or cut; in allusion to its sharp leaves and stems.)

Spikes one or several, androgyneous, monoeious or rarely dioecious. Sterile Fl. Stamens 3, rarely 2 or 1. Ferfile Fl. Perigynium membranaceous or somewhat coriaceous, 2-toothed, emarginate or truncate at the apex. Style single, included. Stigmas 2—3, elongated, exserted. Achenium lenticular, plano-convex or triangular, crowned with the lower portion of the style. (Torr.)

A. Spike single.

* Monoeious. Stigmas 2.

1. *C. capitata* Linn.: spike capitate or nearly globose, staminate at the summit; perigynium roundish-ovoid, close, compressed, convex-concave, smooth, longer than the ovate and somewhat obtuse scale.

Alpine regions of the White Mountains, N. H. Dr. Robbins.—Culm triangular. Leaves filiform. **Capitate Sedge.**

** Dioecious.

† Stigmas 2.

2. *C. dioica* Linn.: spike simple, oblong; perigynium somewhat erect or spreading, oblong-ovoid, nervèd, hispid toward the summit on the margin. *C. Davalliana* Dew.

Swamps. Yates county, N. Y. Dr. Sartwell. 2-4—Culm 6—8 inches high, filiform. Leaves setaceous. Scales ovate. **Dioecious Sedge.**

† Stigmas 3.

3. *C. scirposita* Mich.: spike oblong-cylindric, somewhat acute; perigynium ovoid or oval, subrostrate, pubescent, longer than the ovate somewhat acute scarious scale.
White Mountains, N. H. *Oakes.—Culm 4—10 inches high, erect. Leaves flat and long.  
* * * Spike androgynous.

† Stigmas 2.

4. *C. exilis Dew.*: fertile spike staminate below, ovoid, rather densely flowered; perigynia ovate-lanceolate, convex on both sides, finally spreading or recurved, a little longer than the ovate acute scale.

Slender Sedge.

†† Stigmas 3.

5. *C. paniculata Lightf.*: spike simple, about 4-flowered; staminate flowers subsolitary, terminal; perigynia lanceolate, terete, reflexed; scales caducous. *C. leucoglochin Linn.*  

6. *C. Fraseri Sims*: spike simple, ovoid; perigynium ovoid-subglobose, entire at the point, striate, longer than the oblong scale. *C. lagopus Muhl.*  
Mountains. Penn. to N. Car. April. 2. —Culm about a foot high, sheathed at base. Leaves radical, broad, undulate. Fraser's Sedge.

7. *C. polytrichoides Muhl.*: spike simple, oblong-linear, few-flowered; perigynia oblong-lanceolate, compressed, triquetrose, obtuse, emarginate, twice as long as the ovate scale.


8. *C. Willdenovii Schk.*: spike simple; sterile and fertile flowers about 6; perigynium ovoid-oblong, acuminate-rostrate; scales ovate, acuminate, the inferior ones foliaceous and often longer than the spike.


9. *C. Backii Boott*: spike simple; sterile flowers above, about 3, the fertile 2—4; fertile scales foliaceous, the lower one much longer than the spike; perigynium globose-ovoid, acuminated, with a conical smooth beak, entire at the point. (Torr. N. Y. Fl.) *C. Willdenovii Gray.*  

B. Spikelets aggregated, androgynous, sessile. Stigmas 2.

* Spikelets sterile at the summit.

10. *C. disperma Dew.*: spikelets about 3, rather remote, mostly 2-flowered, somewhat erect, the lowest one bracteate; perigynium ovate, rather obtuse, nerved, plano-convex, smooth, with a scabrous margin, entire at the point, twice as long as the ovate obtuse submucronate scale.

11. *C. chordorrhiza* Linn.: spikelets 3—5, in an ovoid head; perigynium ovate, acuminate, subrostrate, convex above, equaling the broad-ovate acute scale.

Sphagnous swamps. N. Y. to Mich. May. 2l. —Culm branching at the base, and rooting at the joints. *Leaves* of the culm short, of the sterile shoots longer.

12. *C. cephalophora* Muhl.: spikelets collected into an oval head; perigynium ovate, scabrous on the margin above, about equal to the ovate subaristate scale.

Fields and woods. Can to Car.; common. May. 2l. —Culm 1—2 feet high, wiry, leafy at base. Whole plant green.

13. *C. Muhlenbergii* Schk.: spikelets 5—7, crowded at the summit of the culm, bracteate at the base; perigynium broad-ovate, compressed, bifid, somewhat diverging, scabrous on the margin, rather shorter than the ovate mucronate scale.


14. *C. siccata* Dev.: spikelets 4—8, staminate above, often wholly staminate, ovoid, close, or approximate; perigynium ovate-lanceolate, acuminate, compressed, scabrous on the margin, bifid, nerved, nearly equal to the ovate-lanceolate scale.


15. *C. rosea* Schk.: spikelets 4—6, remote, about 9-flowered, the lowest one with a setaceous bract exceeding the spike; perigynium oblong-lanceolate, acuminate, diverging and radiate, rough on the margin, twice as long as the ovate obtuse scale.


16. *C. retroflexa* Muhl.: spikelets about 4, subapproximate, the lower ones with a short bract; perigynium ovate, acutish, 2-toothed, smooth on the margin, spreading or reflexed, nearly as long as the ovate acute scale.

Meadows and pastures. N. S. May. 2l. —Culm about a foot high, slender. *Spikelets* mostly 4, the two lower ones a little distant, 5—8-flowered. *Retroflexed* Sedge.

17. *C. stipata* Muhl.: spike compound, oblong; spikelets numerous, 10—15, oblong, aggregated, bracteate; perigynium lanceolate, subterete and smooth below, spreading, with a long tapering beak which is rough on the margin, twice as long as the ovate-lanceolate scale.

Wet meadows. Throughout the U. S. April, May. 2l. —Culm 1—3 feet high, thick and succulent, smooth except at the summit. *Spike* 2 inches long; straw-color.

18. *C. muricata* Linn.: spikelets about 5, ovoid, sessile, approximate, bracteate, lower ones sometimes remotish; perigynium ovate-lanceolate, plano-convex, 2-toothed, horizontal, scabrous on the margin, sometimes longer than the ovate-lanceolate scale. (Dev.)

19. *C. sparganoides* Muhl.: spikelets 6—10, ovoid; the upper approximate; lower somewhat distant, bracteate; perigynium ovate, compressed, acute, diverging, rough on the narrowly winged margin, about twice as long as the ovate mucronate scale.

Swampy grounds. N. Y. and Mass. to Car. W. to Ohio. May. \[4\].—**Culm** 2 feet or more high, rough on the angles above. **Leaves** broad-linear, pale-green. **Bur-reed Sedge.**

20. *C. vulpinoides* Mich.: spike oblong, decomposed, more or less interrupted, bracteate; spikelets glomerate, ovoid, obtuse; perigynium compressed, ovate, acuminate, bifid, 3-nerved, diverging, rather shorter than the ovate cuspidate scale. *C. multiflora* Muhl.

Low grounds. N. Eng. and N. Y. to Car.; common. May, June. \[7\].—**Culm** 1½—2 feet high, obusely triangular above, leafy. **Spike** consisting of 8—10 clusters of spikelets.

21. *C. setacea* Dew.: spike oblong, decomposed, bracteate; spikelets glomerate, ovoid, obtuse; perigynium ovate-lanceolate, acuminate, compressed, bifid, somewhat diverging, as long as the ovate-lanceolate awned scale.

Wet meadows. Mass. and N. Y. to Del. June, July. \[1\].—**Culm** about 2 feet high, acutely triangular, siliate, rough above. Resembles the preceding, but it has a more compact spike, and the perigynia are narrower and more compressed. **Setaceous Sedge.**

22. *C. bromoides* Schlk.: spikes 4—6, alternate, oblong, erect, uppermost one fertile above, the rest pistilliferous or androgynous, with staminate and fertile flowers both above and below; perigynium erect, lanceolate, acuminate, scabrous, nerved, longer than the lanceolate scale.

Swampy grounds. Mass. N. Y. and Penn. to Ohio; common. May. \[4\].—**Culm** 12—18 inches high, slender, rough above. **Scales** light brown. **Brome-like Sedge.**

23. *C. alopecoides* Tuckerman: spike compound, oblong; spikelets 8—10. ovoid, aggregated, staminate above; perigynium ovate, plano-convex, nearly nerveless, about as long as the ovate mucronate scale; the beak acuminate, serrulate-scabrous on the margin. (Torr. N. Y. Fl.) *C. cephalophora var. maxima* Dew.

Woods. Penn-Yan, N. Y. \[4\].—**Culm** 2—4 feet high, rough on the angles. **Spike** yellowish-green. **Fox-tail Sedge.**

24. *C. Sartwellii* Dew.: spike compound; spikelets 12—20, ovoid, sessile, compact, bracteate; lower ones fertile; upper often staminate; perigynium ovate-lanceolate, convex-concave, subulate, somewhat 2-toothed, about as long as the ovate acute scale.

Junius, Seneca County, N. Y. *Dr. Sartwell*. \[4\].—**Culm** 1½—2 feet high, somewhat rigid, rough on the angles, leafy below. **Leaves** flat, linear, shorter than the culm. Closely allied to *C. disticha* of Europe. **Sartwell’s Sedge.**

25. *C. terciuscula* Good.: spike decomposed, oblong, dense, at length brown; spikelets ovoid, acute, sessile; perigynium ovate, acuminate, convex and gibbous, ciliate-serrulate on the margin, longer than the ovate acute scale.

Marshes and bogs. N. Eng. and N. Y. May. \[4\].—**Culm** 2 feet or more high, rough on the angles, leafy below. **Scales** brownish. **Smaller-panicled Sedge.**
26. *C. decomposita* Muhl.: spike decomposed and paniculate; spikelets very numerous, ovate, alternate, at length brown; perigynium ovate, sessile, convex on both sides, acute or short-rostrate, about as long as the ovate acuminule scale.


**Large-panicled Sedge.**

27. *C. trisperma* Dev.: spikelets mostly 3, about 3-flowered, remote, alternate, sessile, ovoid, uppermost one without a bract; perigynium oblong, acute or short-rostrate, entire at the point, nervsed, subscarious above, somewhat diverging, longer than the oblong acute whitish scale.

Marshes and wet woods. N. Eng. and N. Y. June. 2—Culm 1—2 feet high, triangular, slender and weak, leafy. *Leaves* very narrow.

**Three-seeded Sedge.**

28. *C. Deweyana* Schw.: spikelets about 3, sessile, ovate-lanceolate, alternate, rather distant, the uppermost with a bract; perigynium oblong-lanceolate, acuminate-rostrate, 2-toothed, slightly scabrous on the margin, rather longer than the ovate-lanceolate awned hyaline scale.

Woods. N. Eng. and N. Y. June. 2—Culm 1—4 feet high, weak and slender, subprocumbent. *Leaves* yellowish-green, mostly radical, narrow.

**Dewey's Sedge.**

29. *C. stellulata* Good.: spikelets 3—4, roundish or ovoid, rather remote; perigynium ovate, acuminate, scabrous on the margin, at length spreading horizontally, a little longer than the ovate somewhat obtuse scale. *C. sterilis* Willd.


**Star-like Sedge.**

30. *C. scirpoides* Schk.: spikelets about 4, ovoid, obtuse, approximate, sessile, lowest bracteate; perigynium ovate, cordate, compressed, lanceolate or rostrate, scabrous on the margin, diverging or horizontal, longer than the ovate-lanceolate acute scale.

Wet meadows. N. Eng. to Car. May. 2—Culm 6—12 inches high, leafy at base. *Perigynium* erect, or spreading horizontally. Perhaps only a variety of the preceding.

**Scirpus-like Sedge.**

31. *C. canescens* Linn.: spikelets about 6, rather remote, cylindric-ovoid, with minute bracts at base; perigynium broad-ovate, plano-convex, rather acute, somewhat rough on the margin, nearly entire at the orifice, about as long as the scale. *C. curta* Good. *C. spathrostachya* Dev.

Wet meadows. Can. N. Eng. and N. Y. May, June. 2—Culm about 2 feet high, clustered, triangular; rough above. *Spikelets* silvery white when mature.

**Canescent Sedge.**

32. *C. tenuiflora* Wahl.: spikelets 2—3, roundish-elliptic, approximate, the lowest bracteate at base; perigynium elliptic, obtuse, compressed, erect, about as long as the broad-ovate somewhat obtuse scale.


**Slender-spiked Sedge.**
33. *Cyperus scoparia* Schk.: spikelets ovoid, sessile, approximate, aggregate, lowest bracteate; perigynium ovate-lanceolate, margined, nerved, smooth, bifid, longer than the lanceolate acuminate scale.

Swamps. Mass. to Car. May. 2.-*Culm* 1—2 feet high, triangular, rough above. Leaves long and narrow. Fruit tawny when mature, not winged, 9-nerved. **Broom-like Sedge.**

34. *Cyperus lagopodioides* Schk.: spikelets 8—20, cylindric-ovoid, rather crowded, alternate and sessile; bract beneath the lowest overtopping the culm; perigynium lanceolate, tapering at both ends, nerved, bidentate, with a narrow serrulate margin, twice as long as the ovate-lanceolate scale.

Wet meadows. Mass. to Car. May. 2.-Culm 1—2 or more feet high, furrowed. Spikes large, subcylindric when young. Dr. Torrey considers it a variety of the preceding. **Hare’s-foot-like Sedge.**

35. *Cyperus straminea* Schk.: spikelets 3—15, ovoid, roundish-ovoid or ovoid globose; perigynium ovate or broad-ovate, much compressed, acuminate, with a broad-winged ciliolate-scabrous margin, a little longer than the lanceolate scale.

Wet meadows and swamps. N. Eng. to Penn. W. to Ohio. May, June. 2.-A very variable species, including, according to Dr. Torrey, *Cyperus Muhl*. *C. festucacea*, *mirabilis*, *cristata* and *tenera* Dew. Straw-colored Sedge.

C. Spikes several, (rarely solitary,) all androgynous. Stigmas 3.

* Staminate at the summit.

36. *Cyperus pedunculatus* Muhl.: spikes about 4, on long peduncles, very remote; perigynium obovoid, triquetrous, entire, a little longer than the oblong cuspidate scale.

Rocky hills. Can. to Penn.; rare April. 2.-Culm 4—12 inches high, cespitose, slender. **Peduncles mostly radical.** Peduncled Sedge.

** Staminate at the base.

37. *Cyperus squarrosa* Linn.: spikes 1—3, very thick, oblong-cylindric; perigynium ovate, subglobose, long-rostrate, smooth, squarrose, 2-toothed at the summit, longer than the lanceolate scale. *Cyperus typchima* Mich.

Bogs. Can. to Geor. W. to Miss. May, June. 2.-Culm 2 feet high, triangular, rough, leafy. Spike 1—2 inches long, and from half to three-fourths of an inch in diameter. **Squarrose Sedge.**

D. Spikes several: terminal one androgynous; the others fertile. Stigmas 3.

38. *Cyperus Buxbaumii* Wahl.: spikes about 4, obovoid or oblong, rather remote; upper one androgynous and pedunculate; the rest sessile, with very long bracts; perigynium elliptic, obtuse, rather compressed, slightly 2-lobed, shorter than the ovate cuspidate scale.

Sphagnous swamps. N. Eng. and N. Y. W. to Mich.; rare. May. 2.-Culm 1—2 feet high, leafy at base. **Scales chestnut brown.** Buxbaum’s Sedge.

39. *Cyperus kirsuta* Willd.: spikes 3, oblong, approximate; upper one pedunculate; the others nearly sessile and bracteate; perigynium obovate, obtuse, nerved, smooth when mature, entire at the orifice, about as long as the ovate acuminate scale. *Cyperus triceps* Mich.

40. C. virescens Mühl.: spikes 2—4, oblong, erect; upper one pedunculate, sterile below; the rest fertile, subsessile and bracteate; perigynium ovoid, obtuse, costate, pubescent, rather longer than the ovate mucronate scale. C. costata Schw.


41. C. gracilima Schw.: spikes mostly 4, distant, slender, pedunculate, loosely-flowered, nodding; uppermost androgynous, fertile above; the rest all fertile; perigynium oblong, triangular, obtuse, smooth, longer than the oblong-mucronate scale. C. digitalis Schw. & Torr.


42. C. formosa Dew.: spikes 3—4, oblong, thick, distant, on exsert peduncles, nodding, uppermost one sterile at the base; perigynium oblong, triquetrous, somewhat inflated, rather acute at each end, nearly entire or 2-lobed at the orifice, twice as long as the ovate acute scale.


43. C. Davisii Schw. & Torr.: spikes mostly 4, somewhat distant, oblong-cylindric, few-flowered, pedunculate and somewhat nodding; perigynium oblong, somewhat inflated, acute, smooth, slightly 2-toothed, about as long as the awned scale. C. aristata and Torreyana Dev.

Wet meadows. Mass. and N. Y. May. 24.—Culm 1—2 feet high, triangular, leafy, rough above. Leaves sometimes pubescent, rough on the margin. Davis's Sedge.

E. Spikes several; one or more of the terminal ones entirely staminate; the rest pistillate.

* Stigmas 2.

44. C. rigida Good.: sterile spike mostly solitary, erect; fertile spikes 2—4, oblong-cylindric, subremote, erect, loose-flowered, on short peduncles; perigynium oval, acute at each end, compressed, shortly beaked, smooth, about equalling the ovate-oblong acutish scale. C. Washingtoniana Dew. C. nigra Schw. & Torr.


45. C. acuta Linn.: sterile spikes 1—3; fertile mostly 3, subpedunculate, somewhat nodding, cylindric, remote; perigynium oval or oblong, obtuse, short-rostrate, about as long as the oblong acute scale. C. stricta Lam. C. angustata Boott.

46. *C. espressosa* Linn.: sterile spikes solitary or sometimes 2, cylindro-
oblong; fertile mostly 3, cylindric, obtuse, distant, the lower on a short
exsert peduncle; perigynium ovoid or oval, somewhat acute, smooth, mostly
longer than the oblong obtuse blackish scale. *C. concolor* Brown.

Mountain bogs. Can. to Penn. May. *Culm* 12—18 inches high, slightly
Smaller Bog Sedge.

47. *C. aquatilis* Wahl.: sterile spikes 1—4, erect, oblong; fertile mostly
3, on short peduncles, cylindric, thick-clavate above, dense-flowered, sub-
erect, sometimes sterile at the apex; perigynium elliptic, sublenticular,
smooth, with the orifice entire and protruded, about equal to the ovate
acute scale.

Marshes and wet places. Mass. and N. Y. June. 4—*Culm* 20—30 inches
high, triangular, nearly smooth. *Leaves* smoothish, pale green and glaucous.
Water Sedge.

48. *C. aurea* Nutt.: sterile spike solitary, pedunculate; fertile spikes
3—4, oblong, loose-flowered, subpendulous, rather approximate, lower ones
pedunculate; perigynium obovoid or pyriform, obtuse, nerved, entire at the
orifice, longer than the ovate acute scale.

4—10 inches high, subprocumbent, slender. *Perigynium* orange-yellow when
mature.

Golden Sedge.

49. *C. crinita* Lam.: sterile spikes one or more, lax oblong, sometimes
with a few fertile flowers; fertile spikes 4—5, dense, distant; perigynium
roundish-ovoid, ventricose, slightly rostrate, entire at the orifice, much
shorter than the oblong scabrous awned scale. *C. paleacea* Wahl.

Swamps and meadows. Can. to Geor. June. 4—*Culm* 2—4 feet high,
Fringed Sedge.

**Stigmas 3.**

† *Perigynium inflated, with a more or less elongated beak.***

50. *C. oligosperma* Mich.: sterile spike mostly solitary, slender, peduncu-
late; fertile spikes 1—3, ovoid, sessile, distant, bracteate, few-flowered;
perigynium ovoid, somewhat inflated, acute, nerved, short-rostrate, entire
at the orifice, smooth, a little longer than the ovate acute scale. *C. Oake-
siana* Dew.

Borders of lakes. Arct. Amer. N. Eng. and N. Y. June. 4—*Culm* 1—2
feet high, triangular, rough above. *Leaves* linear, light green, at length
involute. Few-fruited Sedge.

51. *C. bullata* Schk.: sterile spikes 2—3; fertile mostly 2, oblong-cylind-
ric, rather loose, exsertly pedunculate and somewhat nodding, distant;
perigynium globose-ovoid, inflated, erect, smooth, costate, rostrate-acumina-
te, twice as long as the lanceolate scale. *C. monile* Dew.

Wet grounds. Mass. N. Y. Penn. and Ohio. May. 4—*Culm* 1½—2½ feet
high, triangular, rough above, leafy. *Leaves* longer than the culm.
Inflated Sedge.

52. *C. cymbrica* Tuckerm.: sterile spikes 2—3; fertile 1—3, remote,
cylindric, on short peduncles, erect or inclined; perigynium ovoid, inflated,
conic-rostrate, 2-forked, smooth, about twice as long as the ovate-lanceolate scale. *C. Tuckermanii Dew.*


**Cylindrical Sedge.**

53. *C. vesicaria Linn.*: sterile spikes about 3, erect, oblong; fertile mostly 2, cylindric, erect, long-bracteate; perigynium oblong-conic, inflated, rostrate, nerved, bicuspidate, nearly twice as long as the oblong-lanceolate scale. *C. utriculata Booth.*


**Bladder Sedge.**

54. *C. ampullacea*: sterile spikes 2—4, oblong, cylindric, erect; fertile 2—3, cylindric, erect, close-flowered, short-pedunculate; perigynium subglobose, inflated, diverging, rostrate, bifurcate, longer than the lanceolate scale.


**Bottle-like Sedge.**

55. *C. subulata Mich.*: sterile spike solitary, short-pedunculate; fertile spikes mostly 3—4, sessile, or with included peduncles, very remote, few-flowered, sparingly stamineate at the top; perigynium subulate, reflexed, bifid at the orifice, longer than the lanceolate scale. *C. Collinsii* and *Michauxii Dew.*

*Cedar swamps. Long Island, N. Y. and N. J. June. 24.—Culm 1—2 feet high, almost filiform, leafy. Leaves* deep green.

**Awl-fruited Sedge.**

56. *C. folliculata Linn.*: sterile spike solitary; fertile spikes 2—4, ovoid, distant, few-flowered, pedunculate; perigynium oblong-conic, somewhat inflated, tapering to a long point, horizontal or diverging, twice as long as the ovate mucronate scale. *C. xanthophysea Wahl.*


**Tall Yellow Sedge.**

57. *C. intumescens Rudge*: sterile spike oblong, pedunculate; fertile spikes 1—3, roundish, approximate, few-flowered, upper one sessile, lower on a short peduncle; perigynium ovoid, acuminate-rostrate, much inflated, diverging, three times as long as the ovate-cuspidate scale. *C. folliculata Schl.*


**Swollen Sedge.**

58. *C. hypnina Muhl.*: sterile spike on a short peduncle; fertile spikes 3, ovoid-oblong, approximate; bracts very long and leafy; perigynium ovoid, inflexed, nerved, long-rostrate, bicuspidate, much longer than the ovate or lanceolate scale.

var. 1. *polystachya Torr.*: fertile spikes 5, oblong-cylindric; lowest one remote, on a long peduncle.

var. 2. *pedunculata Gray*: fertile spikes all pedunculate; the lower long-pedunculate, distant; the 3 upper subumbellate.
Swamps. Hudson's Bay to Geor. June, July. \( \text{Culm} \) 2—3 feet high, very thick, triangular, smooth. \textit{Leaves} longer than the culm, bright green. Var. 1. is found in Putnam County, N. Y.; var. 2. in Chester County, Penn., and on the shores of lake Erie. Hop-like Sedge.

59. \textit{C. scabrata} Schw.: fertile spikes about 5, rather remote, cylindric, nearly erect; lower ones long-pedunculate; perigynium ovoid, acuminaterostrate, subventricose, scabrous, orifice oblique and somewhat bifid, longer than the ovate-lanceolate ciliate scale.

Swamps. N. H. to Penn. May. \( \text{Culm} \) 18 inches high, rather slender, triangular. \textit{Leaves} long, very rough, dark green. Rough Sedge.

60. \textit{C. Schweinitzii} Dev.: sterile spikes 2, the lower one often pistillate at the base; fertile about 3, oblong-cylindric, somewhat pendulous, loose-flowered, rather remote, lowest often long-pedunculate; perigynium oblong-ovoid, inflated, rostrate, bicuspidate, longer than the lanceolate-solubulate scale.

Wet sandy soils. N. Eng. N. Y. and N. J. June.—\textit{Culm} about a foot high, rough above, very leafy. \textit{Leaves} taller than the culm, yellowish-green. Schweinitz's Sedge.

61. \textit{C. retrorsa} Schw.: sterile spikes about 3, lower one often fertile at the base; fertile about 5, oblong-cylindric, approximate, dense-flowered, the lowest often remote and long-pedunculate; perigynium ovoid, inflated, reflexed, rostrate, bicuspidate, much longer than the lanceolate scale.

Near ponds. N. Eng. and N. Y. May.—\textit{Culm} 2 feet high, slightly rough on the edges. \textit{Fertile spikes} thick. Retrorse Sedge.

62. \textit{C. tentaculata} Muhl.: sterile spike solitary; fertile spikes 2—3, ovoid or ovoid-cylindric, bracteate, mostly approximate, spreading, the peduncles included; perigynia crowded, ovoid, ventricose, very long-rostrate, 2-toothed at the apex, longer than the lanceolate-solubulate scale.

Wet meadows. Can. to Geor. May. \( \text{Culm} \) 12—18 inches high, triangular, rough on the angles. \textit{Leaves} longer than the culm, bright green. Long-pointed Sedge.

63. \textit{C. rastrata} Mich.: sterile spike short and small; fertile spikes 2—3, subglobose or capitate, bracteate; perigynia crowded, erect, or diverging, very long-rostrate, oblong-paniculate, slightly inflated, twice as long as the ovate-oblong acutish scale.


64. \textit{C. hysterica} Willd.: sterile spike solitary; fertile spikes 2—4, thick, at length cernuous, upper one nearly included, the rest on exsert peduncles; perigynium ovoid, inflated, spreading, many-nerved, rostrate, bifid, twice as long as the oblong awned scale.


65. \textit{C. Pseudo-Cyperus} Linn.: sterile spike solitary, long and slender; fertile spikes 2—5, cylindric, thick, pendulous, pedunculate, upper ones somewhat geminate; perigynium ovoid-lanceolate, rostrate, reflexed, many-
nerved, divaricately bifid at the summit, a little longer than the lanceolate awned scale.


Cyperus-like Sedge.

65. C. longirostris Torr.: sterile spikes mostly 3, short; fertile 2—3, cylin-drìc, loose, at length pendulous, long-pedunculate, rather distant; perigynium globose-ovoid, smooth, with a very long beak, bifid, a little longer than the lanceolate scale.


Long-beaked Sedge.

66. C. trichocarpa Muhl.: sterile spikes 2—4; fertile 2—3, distant, pedunculate, erect, oblong-cylindric; perigynium ovoid-conic, acuminate, bicuspïdate, pubescent, longer than the ovate acuminate scale.


Hairy-fruited Sedge.

67. C. aristata Brown: sterile spikes 2—4; fertile 2—4, distant, closeflowered, erect; perigynium ovoid-oblong, somewhat inflated, smooth, long-rostrate, many-nerved, deeply bifid, longer than the oblong awned scale. C. mirata Dew.


Awned Sedge.

† Perigynium villous, not inflated.

69. C. umbellata Schk.: cespitose; sterile spike short, erect; fertile spikes mostly 4, ovoid, few-flowered; one sessile at the summit of the culm; the rest on radical peduncles, subumbellate; perigynium ovoid, acuminate, rostrate, subpubescent, as long as the ovate acuminate scale.

Rocky grounds. N. Eng. N. Y. and Penn. May. 24.—Culms in dense tufts, 1—6 inches high. Leaves radical, narrow, rough, longer than the culm. 

Umbellate Sedge.

70. C. varia Muhl.: sterile spike erect, sessile or on a short peduncle; fertile spikes 2—3, ovoid, sessile, approximate, few-flowered; perigynium ovoid or subglobose, acuminate-rostrate, bifid, obtusely triangular, hispidly pubescent, as long as the ovate acuminate scale. C. Emmonsii and collecta Dew.

Dry woods. Hudson’s Bay to Geor. April. 24.—Culm 8—12 inches high, erect, filiform. Leaves pale green. Torrey considers it a variety of the next. 

Variable Sedge.

71. C. Pennsylvanica Lam.: sterile spike erect, pedunculate, somewhat triangular; fertile spikes 1—3, ovoid, subsessile, subapproximate, few-flowered; perigynium ovoid-globose, short-rostrate, bifid, about as long as the ovate mucronate or acuminate scale. C. marginata Muhl.

Dry woods. Can. to Car.; common. April. 24.—Culms growing in tufts, 4—12 inches high, slender, rough above. Leaves short, somewhat glaucous. 

Pennsylvanian Sedge.

72. C. Nore-Anglica Schw.: sterile spike on a short peduncle; fertile spikes 2—3, sessile, ovoid, few-flowered, rather remote; perigynium oblong-
ovoid, subtriquetrous, rostrate, minutely pubescent, longer than the ovate-mucronate scale. *C. collecta* Dew.


73. *C. filiformis* Linn.: sterile spikes 2—3; fertile spikes 2—3, ovoid-oblong, close-flowered, somewhat remote; perigynium ovoid, short-rostrate, bifurcate, about as long as the ovate acute scale.


74. *C. lanuginosa* Mich.: sterile spikes 2; fertile 2—3, ovoid-cylindric, remote, erect, nearly sessile; perigynium ovoid, somewhat triangular, woolly, short-rostrate, bicuspidate, about as long as the ovate-lanceolate awned glume. *C. pellita* Muhl.


75. *C. vestita* Willd.: sterile spikes 1—2, cylindric-oblong; fertile 2, ovoid-oblong, sessile, subapproximate, often staminate at the summit; perigynium ovoid, triangular, nerved, short-rostrate, pubescent, rather longer than the ovate mucronate scale.


76. *C. pubescens* Muhl.: sterile spike sessile; fertile spikes 3, oblong, erect, rather loosely flowered, the lowest on a short peduncle; perigynium obovoid-triangular, rostrate, pubescent, nearly entire at the orifice, a little longer than the ovate-oblong mucronate scale.


77. *C. praecox* Jacq.: sterile spike single, erect, subclavate; fertile spikes 1—3, ovoid, bracteate, approximate, the lower one short-pedunculate; perigynium globose-ovoid, triangular, short-rostrate, about as long as the ovate mucronate scale.


†† *Perigynium* smooth, short, not inflated. *Spikes* dark purple or black.

78. *C. limosa* Linn.: sterile spike solitary, pedunculate; fertile spikes 1—3, ovoid or oblong, pedunculate, somewhat distant, pendulous; perigynium roundish-elliptic, compressed, very short-rostrate, about as long as the oblong or ovate cuspidate scale. *C. lenticularis* and *irrigua* Dew.


79. *C. rariflora* Smith: sterile spike single; fertile spikes about 2, linear, loose-flowered, long-pedunculate, nodding; perigynium ovoid-oblong, triangular, depressed, as long as the ovate subcircinate (brown) scale.
White Mountains, N. H. Dewey.—Culm 10 inches high, glaucous.

*Cyperaceae.*

80. *C. Grayana Dew.:* sterile spike oblong; fertile spikes 2—3, oblong-cylindric, rather loosely flowered; perigynium ovoid-oblong, subtriangular, subinflated, obtuse or acutish, entire at the orifice, longer than the oblong obtuse scale.

Sphagnous swamps. N. Y. and N. J. June. 24.—Culm 6—16 inches high, erect, triangular. Leaves about as long as the culm. glaucous. Torrey thinks it identical with *C. livida Wild.,* but according to Dewey it differs in several respects. 

††† *Spikes green.*

81. *C. flava Linn.:* sterile spike on a short peduncle; fertile spikes 2—4, ovoid-oblong, rather distant, sometimes androgynous; perigynia ovoid, densely imbricate, bidentate, with a curved and reflexed beak, shorter than the ovate-lanceolate scale.

Wet meadows. Can. to N. Y. June. 24.—Culm 10—20 inches high, obtusely triangular, leafy. Whole plant yellowish green. 

*Large Yellow Sedge.*

82. *C. Æderi Ehrh.:* sterile spike on a short peduncle; fertile spikes 2—4, ovoid-oblong, nearly sessile, densely flowered; perigynium ovoid-globose, horizontal, with a subulate beak, a little longer than the ovate scale.

Rocky banks. Hudson's Bay to N. J. June. 24.—Culm 3—12 inches high, obtusely triangular, leafy. Resembles *C. flava,* but differs in having the spikes more densely flowered and the perigynium much smaller. 

*Æder's Sedge.*

83. *C. palescens Linn.:* sterile spike solitary, on a short peduncle; fertile spikes 2—3, ovoid-cylindric, on exserted peduncles, densely flowered, at length somewhat nodding; perigynium ovoid-oblong, obtuse, smooth, about as long as the ovate scale.

Wet grounds. Mass. and N. Y. May. 24.—Culm a foot high, erect, slender, and with the leaves light green and slightly pubescent. 

*Pale Sedge.*

84. *C. Torreyi Tuckerman:* sterile spike solitary, oblong, on a short peduncle; fertile spikes, 2—3, short, subsessile, erect; perigynium ovoid, obtuse, smooth, somewhat triangular, entire at the orifice, subrostrate, a little longer than the acute scale.

N. Y. *Tuckerman.—Culm 12—18 inches high, erect, triangular. Plant pale green and pubescent.* 

85. *C. striata Mich.:* sterile spikes 1—2; fertile mostly solitary, rarely 2 and distant, cylindric-oblong, punctulate, erect, loose; perigynium oblong-ovoid, subtriangular, nerved, rough-punctulate, erect, with an oblique conical beak, rather longer than the ovate acutish scale. 

*Halseyana Dew.*


*Striped Sedge.*

86. *C. granularis Muhl.:* sterile spike sessile or short-pedunculate; fertile spikes mostly 3, oblong-cylindric, remote, dense, the two lowest peduncled; perigynium globose-ovoid, nerved, entire at the orifice, with a very short recurved beak, twice as long as the ovate acuminate scale.

87. *C. laxiflora* Lam.: sterile spike solitary, subsessile; fertile spikes mostly 3, rather loose, remote, pedunculate, erect; perigynium ovoid-oblong, ventricose, obtuse, somewhat shining, longer than the ovate cuspidate scale.


88. *C. conoidea* Schk.: sterile spike pedunculate; fertile spikes 2—3, oblong, remote, rather loose, uppermost sessile, the lower on a long peduncle; perigynium oblong-conic, obtuse, smooth, nerves, subdiverging, entire at the orifice, as long as the ovate subulate scale. *C. granularoides* Schw.


89. *C. tetanica* Schk.: sterile spike long-pedunculate; fertile spikes 2—3, oblong-cylindric, loose, the lowest on a long peduncle; perigynium obovoid, smooth, nerves, recurved and entire at the apex, shorter than the ovate acute or mucronate scale.


90. *C. oligocarpa* Schk.: sterile spike solitary, pedunculate; fertile spikes 2—3, erect, 3—4-flowered, on exserted peduncles; perigynium roundish-triangular, short-rostrate, longer than the ovate mucronate scale.


91. *C. digitalis* Willd.: sterile spike solitary; fertile spikes mostly 3, few-flowered and loose, remote, slender, on long and somewhat cernuous peduncles; perigynium oblong, triangular, nerves, smooth, short-rostrate, entire at the orifice, longer than the ovate mucronate scale. *C. retrocurva* Dew.?


92. *C. anceps* Muhl.: sterile spike solitary, pedunculate; fertile spikes mostly 3, remote, subcylindric, loosely flowered, lower ones pedunculate; perigynium oval, triangular, acute, striate, recurved at the apex, nearly entire at the orifice, about as long as the ovate cuspidate scale. *C. plantaginea* Muhl.

Woods. Can. to Car. May. \[—\]Culm 9—18 inches high, somewhat 2-edged above. Leaves very variable; the radical ones sometimes nearly an inch wide; those of the culm much narrower. Two-edged Sedge.

93. *C. blandia* Dew.: sterile spike solitary, triangular; fertile spikes 2—4, oblong-cylindric, sparse-flowered, the lowest on a long 2-edged peduncle; perigynium ovoid, somewhat triangular, nerves, recurved and entire at the apex, a little longer than the ovate mucronate scale. *C. conoidea* Muhl.
Dry woods. Mass. to Penn.; common. May. 94.—Culm 6—12 inches high, triangular, leafy near the base. Leaves as long as the stem, pale green and somewhat glaucous. Resembles the preceding. *Pale Sedge.*

94. *C. Cravei Dew.*: sterile spike single, oblong; fertile 2—3, oblong-cylindric, distant, erect, rather closely flowered, the lowest on a longish peduncle; perigynium ovoid-oblong, with a short beak, slightly nervet, entire at the orifice, twice as long as the ovate scale. (*Torr. N. Y. Fl.*)

Banks of Black River, near Watertown, N. Y. Dr. Crave. Culm 4—8 inches high, erect, leafy. Leaves smooth, as long as the culm, light green.

*Crave's Sedge.*

95. *C. plantaginea Lam.*: sterile spike solitary, pedunculate; fertile spikes 3—4, arising from included or exserted peduncles; the lower ones with subulate bracts, loose-flowered; perigynium oblong, triangular-elliptic or cuneiform, acute at each end, recurved at the apex, longer than the ovate cuspidate scale. *C. latifolia Schk.*


96. *C. Careyana Torr.*: sterile spike solitary; fertile spike 2—3, oblong, few-flowered, loose, lower ones on exserted peduncles; perigynium ovoid, triangular, smooth, nerved, acuminate, tapering at base, entire at the orifice, twice as long as the ovate mucronate scale.

Shady woods. N. Y. and Ohio. May. 94.—Culm 1—2 feet high, erect, leafy near the base. Leaves linear-lanceolate, strongly nerved, dark green. Closely allied to the preceding. *Carey's Sedge.*

97. *C. ebena Bztt.*: sterile spike solitary; fertile spikes 2—3, erect, 3—6-flowered, ovoid, with white leafless sheaths and the upper higher than the sterile spike; perigynium obovoid, triangular, short-rostrate, shining, twice as long as the white ovate hyaline scale. *C. alba Dew.*

Rocky banks. N. H. Ver. and N. Y. May. 94.—Culms 4—12 inches high, densely cespitose, erect, setaceous, naked. Leaves in a radical tuft, shorter than the culm, setaceous. *Bristly White Sedge.*

98. *C. flexilis Rudge*: sterile spike solitary, oblong, pedunculate; fertile spikes 2—4, oblong-cylindric, on nodding naked peduncles; perigynium ovoid, rostrate, hidcentate, about as long as the ovate ciliolate scale. *C. blepharophora Gray.*

Moist shady places. N. Y. June. 94.—Culm 12—18 inches high, erect, striate. Leaves narrow, short, pale green, and with the bracts ciliate. *Fringed Sedge.*

99. *C. debilis Mich.*: sterile spike solitary, pedunculate; fertile spikes 3—4, on long nodding peduncles, filiform, remote, loose-flowered; perigynium oblong, subtriangular, alternate, rostrate, bifid, twice as long as the ovate-lanceolate scale. *C. flexuosa Muhl.*


100. *C. arcata Bztt.*: sterile spike cylindric; fertile spikes 3—4, remote, on long nodding peduncles, slender, loose-flowered; perigynium ovoid-elliptic, triangular, nerved, beaked, bifid at the orifice, rather longer than the ovate membranaceous mucronate scale. *C. sylvatica Dew.*
Moist woods. Can. and N.Y.; common. May. 4.—Culm 9—18 inches high, slender, leafy. Leaves narrow, shorter than the culm, pale green.

Narrow Sedge.

101. C. millifica Muhl.: sterile spike solitary, pedunculate; fertile spikes 3, slender, cylindrical, on filiform nodding peduncles; perigynium ovoid, triangular, nerveless, slightly rostrate, entire at the orifice, as long as the ovate-lanceolate scale.

Wet grounds. Can. to Geor. June. 4.—Culm 1—2 feet high, slender, leafy below. Leaves narrow, about as long as the culm, yellowish-green.

Millet-like Sedge.

102. C. lacustris Willd.: sterile spikes 2—4; fertile 2—3, erect, oblong-cylindrical, short-pedunculate; perigynium oblong, many-nerved, subrostrate, smooth, bifurcate, somewhat longer than the oblong mucronate scale. C. riparia Muhl.

Marshes. Can. to Car. June. 4.—Culm 3—5 feet high, stout, acutely triangular, rough above, leafy. Leaves long, somewhat glaucous, green.

Lake Sedge.

103. C. capillaris Linn.: sterile spike single, small; fertile spikes 2—3, ovoid-oblong, about 6-flowered, loose, on long and recurved peduncles; perigynium oval, short-rostrate, oblong, oblique, longer than the ovate-oblong obtuse scale.

Alpine regions of the White Mountains, N.H. Dr. Robbins. Culms 2—7 inches high, in tufts, leafy at base. Leaves long and narrow, pale green.

Capillary Sedge.

104. C. panicacea Linn.: sterile spike single; fertile spikes 2—3, loose-flowered, distant, the lowest long-pedunculate; perigynium subglobose, obtuse, entire at the mouth, a little larger than the ovate acute scale.


Farinaeous Sedge.

105. C. binervis Smith: sterile spike single; fertile spikes 3, oblong-cylindrical, somewhat dense-flowered; perigynium round-ovoid, short-rostrate, bicuspidate, smooth, 2-nerved, twice as long as the ovate subacute glume.

Near Boston, Mass. Dewey. Culm a foot or more high, triangular, leafy near the base, pale green.

Two-nerved Sedge.

106. C. Greeniana Dew.: sterile spikes 1—2, erect; fertile 2—3, oblong, bracteate, pedunculate; perigynium ovoid-lanceolate, triangular, nerved, rostrate, bifurcate, about as long as the ovate cuspidate scale.


Greene’s Sedge.

ORDER CXLVII. GRAMINACEÆ.—GRASSES.

Flowers consisting of imbricated bracts; of which the outer (usually 2) are called glumes, the two inner immediately enclosing the stamens, paleæ, and the 2 or 3 innermost at the base of the ovary (sometimes wanting), scales. Stamens 1—6 or more, but usually 3; anthers versatile. Ovary simple; styles 2 or 3, rarely united into 1; stigmas feathery or hairy. Pericarp mem-
branous; albumen farinaceous. Stem (culm) cylindric, usually hollow and closed at the joints, sometimes solid. Leaves narrow and undivided, alternate, with a split sheath, and a membranous expansion (ligule) at the junction of the stalk and blade. Flowers green, in small spikelets, arranged in a spikèd racemèd or panicled manner.

**I. Oryzæ.** Spikelets either one-flowered, with the glumes mostly abortive, or 2—3-flowered, one or both of the lower flowers with a single palea and neutral, the terminal one fertile. **Pialeæ somewhat coriaceous.** Stamens 1—6.

1. **Leersia.** Swartz.—White Grass.

(named in honor of J. D. Leers, a German botanist.)

Spikelets 1-flowered, compressed. Glumes none. **Pialeæ 2, compressed-carinate, awnless; lower one much broader.** Stamens 3—6, rarely solitary.—Panicle simple or branched.

1. **L. Virginica** Willd.: panicle simple, the lower branches spreading; flowers appressed, monandrous, sparingly ciliate on the keel.


2. **L. oryzoides** Swartz: panicle branched, diffuse, often sheathed at base; spikelets rather spreading; flowers triandrous; paleæ strongly ciliate on the keel.


2. **Zizania.** Linn.—Wild Rice.

(A Greek name, supposed to have been originally applied to Lolium perenne.)

Monoeccious. Spikelets one-flowered. **Sterile.** Fl. Glumes none, or only rudimentary. **Pialeæ 2, herbaceous, concave, nearly equal, awnless.** Stamens 6. **Perfect.** Fl. Glumes none. **Pialeæ 2, herbaceous; lower one longer, oblong, keeled, terminating in a straight awn.** Styles 2, short.—Panicle large, terminal.

1. **Z. aquatica** Linn.: panicle pyramidul; lower branches spreading, sterile; upper branches nearly erect, fertile; spikelets on clavate pedicels; awns long; caryopsis slender, linear. **Z. clavulosa** Mich.

Swamps and overflowed banks. Can. to Flor. W. to Miss. Aug. 1—Culm 4—8 feet high, stout, terete, smooth. **Leaves** very long, broad-linear. **Panicle** terminal, a foot or more long, with verticillate branches. Wild Rice. Water Oats.
2. *Z. miliacea* Mich.: panicle effuse, pyramidal; sterile and fertile flowers intermixed; style 1; palea with short awns; caryopsis ovate, smooth.


*Millet-like Zizania.*

II. *Phalaris.* Spikelets perfect, polygamous or rarely monocious; either 1-flowered, with or without a rudimentary stipe-like flower; or 2-flowered, the flowers perfect or sterile; or 2—3-flowered, the terminal flowers perfect, the rest imperfect. Glumes mostly equal. Palea often shining and indurated in fruit.

3. *Crypsis.* Ait.—Crypsis.

*(From the Greek κρυψις, concealment; the flowers being hidden in the sheath of the leaf.)*


*C. Virginica* Nutt.: culm procumbent and geniculate; leaves at length involute, rigid, pungent; spike oblong-cylindric, thick and lobed. *Agrostis Virginica* Willd.


*Virginian Crypsis.*

4. *Alopecurus.* Linn.—*Fox-tail Grass.*

*(From the Greek ἀλοπέκαρος; a fox, and ουπα, a tail; in allusion to the form of the spike.)*

Spikelets 1-flowered. Glumes 2, boat-shaped and keeled, awnless, nearly equal, united at base. Lower palea membranaceous, compressed, with the margins united below, awned on the back below the middle; upper palea wanting. Styles often connate at the base.—Panicle spiked, cylindric, terminal.

1. *A. pratensis* Linn.: culm erect, smooth; spike cylindric, obtuse; glumes ciliate, connate below the middle, as long as the palea.


*Introduced from Europe. Common Fox-tail-grass.*

2. *A. geniculatus* Linn.: culm ascending, geniculate at base; spike cylindric, obtuse; glumes cuneate at base, obtuse, hairy on the back and margin; awn twice as long as the flower.


*Wet meadows. Arct. Amer. to N. Y. W. to Ohio; rare. June. 2.—Culm 12—18 inches high, knee-jointed and rooting below, terete, smooth. Leaves linear-lanceolate, very acute. Spike nearly 2 inches long.*

*Water Fox-tail-grass.*
5. PHLEUM. **Linn.**—Cat-tail Grass.

(An ancient Greek name; supposed however to have been originally applied to a different plant.)

Glumes 2, much longer than the paleæ, distinct, equal, boat-shaped, beaked or mucronate. Paleæ 2, included in the glumes, awnless, truncate.—Panicle spiked, dense, cylindric.

*P. pratense* **Linn.**—Culm erect; spike cylindric; glumes truncate, mucronate, with a ciliate keel; awn shorter than the glume.

*P. pratense* **Linn.**—Culm 2—3 feet high, simple, smooth. Leaves flat, smooth and glaucous. **Spike long**, cylindric, green. Introduced from Europe.

6. PHALARIS **Linn.**—Canary Grass.

(From the Greek **phalos**, shining; in allusion to the smooth and polished paleæ.)

Spikelets 3-flowered; the two inferior flowers scale-like and minute; upper flowers perfect. Glumes 2, nearly equal, membranaceous, gibbous on the back, keeled, awnless. Paleæ 2, coriaceous, shorter than the glumes, awnless; upper one surrounded by the lower.—Panicle dense and spike-like.

1. *P. arundinacea* **Linn.**—panicle ovoid, spiked; glumes boat-shaped, serrulate; paleæ unequal; abortive flowers hairy. **Calamagrostis colorata Nutt.**

Swamps. Can. to Car. July, Aug. 2. —Culm 2—5 feet high, erect, a little branching. **Leaves** deep green, lanceolate. **Panicle** 2—4 inches long, at length a little spreading. The **Ribbon-grass**, sometimes cultivated in gardens, is a variety of this species. **Reed Canary-grass.**

2. *P. Canariensis* **Linn.**—panicle spike-like, oval; glumes boat-shaped, entire at the apex; abortive flowers smooth.

In pastures and wet places, N. Y. July. 1.—Culm a foot and a half high, simple. **Leaves** broad-linear, pale green. **Glumes** twice the length of the paleæ, yellowish-green. Introduced from Europe. **Common Canary-grass.**

7. HOLCUS. **Linn.**—Soft Grass.

(From the Greek **holkos**, derived from **elkeo**, to extract; because of its supposed virtue in drawing out thorns from the flesh.)

Spikelets 2-flowered, polygamous. Glumes herbaceous, somewhat boat-shaped, mucronate. Lower flower perfect, awnless; upper one staminate or neutral, pedicellate; the lower palea awned on the back.—Panicle more or less contracted.

*H. lanatus* **Linn.**—panicle oblong, rather contracted; flowers shorter than the glumes, the upper one with a recurved awn.

III. PANICEE. Spikelets 2-flowered; the lower flower imperfect, usually neutral, rarely staminate. Glumes of a thinner texture than the palea; the lower one often (rarely both) abortive. Palea more or less coriaceous, mostly awnless; the lower one concave.

8. PASPALUM. Linn.—Paspalum.

(From the Greek πασπαλος, millet; on account of the resemblance of its grain.)

Spikelets 2-flowered. Glume single. Lower flower neutral, of a single palea, membranaceous, awnless, as long as the glume. Perfect flowers with 2 coriaceous awnless palea; the lower concave and embracing the upper. Stamens 3.—Flowers in unilateral spikes.

1. P. setaceum Mich.: culm erect or decumbent, slender; leaves and sheaths hairy; spikes mostly 2, the one on a long, the other on a short peduncle from the same sheath; spikelets in 2 rows. P. pubescens Muhl.

Sandy fields. N. Y. to Car. July, Aug. —Culm prostrate or erect, 1—2 feet high. Leaves narrow, mostly very hairy and ciliate on the margin. Terminal spike on a peduncle which is 2—6 inches long. Hairy Paspalum.

2. P. ciliatifolium Mich.: culm decumbent; leaves hairy and ciliate; sheaths hairy; spikes 1—2, rather lax; spikelets indistinctly 3-rowed. P. ciliatum Pursh.


3. P. laxe Mich.: culm erect, very smooth, rather stout: leaves short, mostly smooth, hairy at base; spikes 3—6, alternate; spikelets in two rows, ovoid-roundish, smooth.


4. P. stoloniferum Bosc.: culm prostrate at base; leaves short, subcordate; spikes in elongated racemes, somewhat verticillate, spreading; flowers serrulate-ciliate, transversely rugose.


9. MILIUM. Linn.—Millet Grass.

(Supposed to be derived from the Latin mille, a thousand; on account of its fertility.)

Spikelets 2-flowered. Glume single, membranaceous, concave. Lower flower neutral, and consisting of a single palea resembling the glume; upper flower perfect, the palea awnless. Lower palea concave and embracing the upper. Stamens 3. —Panicle spreading.

1. M. effusum Linn.: panicle diffuse, compound, branches horizontal; glumes ovate, very obtuse; palea awnless, smooth and shining.


Sandy Swamps, N. J., Aug., Sept. 4.—Culms numerous, 1–2 feet high, assurgent. Panicle appressed. Glumes acuminate. This species is well figured by Pursh.

10. DIGITARIA. Scop.—Finger Grass.

(From the Latin digitus, a finger; the spikes being digitate or finger-like.)

 Spikelets unilateral, in pairs, on short bifid pedicels. Glumes mostly 2-valved; lower valve very small, sometimes wanting. Lower flower abortive; palea single, membranaceous. Upper flower perfect; palea 2, coriaceous, nearly equal, lance-oblong.

—Spikelets linear, digitate or fasciculate.

1. D. sanguinalis Scop.: leaves and sheaths somewhat hairy; spikes numerous, fascicled, somewhat spreading; spikelets oblong, in pairs; flowers pubescent on the margin. Panicum sanguinale Linn.


2. D. glabra R. & S.: leaves and sheaths smooth; spikes digitate, somewhat alternate, (3–4,) spreading; spikelets ovoid, crowded; lower glume almost wanting, upper as long as the abortive flower, both hairy. Panicum glabrum Gaud. Torr. (Torr. N. Y. Fl.)


3. D. filiformis Beauv.: culm filiform, erect; leaves short; lower sheaths very hairy; spikes 2–4, filiform, alternate and opposite; spikelets in twos and threes, all pedicellate, elliptic-oblong; glume 1-valved, as long as the abortive flower, pubescent. Panicum filiforme Linn.

Sandy fields. N. Y. to Geor. Aug. 1.—Culm 1–2 feet high, very slender. Leaves 1–2 inches long, sometimes a little hairy. Spikes mostly 2, 1–2 inches long; rachis rough, flexuous. Slender Finger-grass.

11. PANICUM. Linn.—Panic Grass.

(Said to be derived from the Latin panis, bread; the grain of some species being used for food.)

Spikelets 2-flowered, naked. Glumes 2, unequal, membranaceous, concave. Lower flower of one or two palea, staminate or neutral, membranaceous. Upper flower perfect; the palea 2, coriaceous, nearly equal, concave. Stamens 3.—Spikelets in loose or somewhat racemose panicles.
1. *P. virgatum* Linn.: whole plant very smooth; panicle diffuse, very large; spikelets scattered; flowers acuminate; the lower one stamine, with nearly equal paleæ.

Wet banks, especially near salt water. N. Y. to Car. July, Aug. 2. — *Culm* 3—5 feet high. Leaves very long, flat. *Panicle* virgate, at length spreading, often a foot long. 

Tall Smooth Panic-grass.

2. *P. capillare* Linn.: culm erect, straight; sheaths very hairy; panicle large, capillary, expanding, loose; spikelets on long peduncles, acuminate, smooth; abortive flower without an upper palea.


Hair-stalked Panic-grass.

3. *P. depauwperatum* Muhl.: culms cespitose; panicle nearly simple, on a long peduncle, few-flowered, with flexuous branches; spikelets obovoid, alternate, pedicellate, large and somewhat turgid; upper palea of the neutral flower very small. *P. rectum* R. & S. *P. involutum* Torr. Fl.

Dry sandy soils. N. Y. to Virg. May, June. 2. — *Culm* about a foot high, mostly simple. Leaves short, becoming longer above, narrow-linear, hairy beneath, at length involute. *Panicle* terminal, on a slender peduncle; branches mostly in pairs, the lower longer and bearing 2 spikelets.

Few-flowered Panic-grass.

4. *P. dichotomum* Linn.: culm at first nearly simple, with a single pedunculate terminal compound panicle, but at length more or less branched and fastigiate with small lateral nearly simple panicles; spikelets minute, on long peduncles, obovoid, mostly pubescent; lower glume one-third the length of the upper; lower flower neutral, the upper palea minute. (Torr. N. Y. Fl.) *P. nitidum* Lam. *P. barbulatum* and *ramulosum* Mich.

Moist meadows and woods. N. Y. to Car. July—Sept. 2. — *Culm* 8—24 inches high, mostly erect, but sometimes procumbent, smooth or pubescent. Radical leaves short and very broad, often purplish; upper ones narrower and much longer. *Panicle* changing its form, often purplish. A very variable species.

Variable Panic-grass.

5. *P. verrucosum* Muhl.: culm slender, decumbent and geniculate, branching from the base, and with the leaves smooth; panicle capillary, widely spreading, few-flowered; spikelets ovoid; flowers verrucose; neutral flowers without an upper palea.


Warty-flowered Panic-grass.

6. *P. clandestinum* Linn.: culm with short axillary branches, the nodes smooth; leaves broad-lanceolate, somewhat cordate at the base; sheaths hispid, enclosing the short lateral panicles; spikelets ovoid, pubescent; the lower flower neutral, with 2 paleæ; upper valve obtuse. *P. latifolium* var. clandestinum Pursh.

var. pedunculatum Torr.: sheaths less hispid; terminal panicle on a long peduncle. (N. Y. Fl.) *P. pedunculatum* Torr. Fl.

Moist woods. N. Y. to Car. July, Aug. 2. — *Culm* 1—3 feet high, erect, rigid, very leafy. Leaves broad, strongly nerved. *Panicles* terminal and lateral,
the former wholly concealed in the leaves, exserted, or on a long peduncle. **Anthers and stigmas purple. Hidden-flowered Panic-grass.**

7. *P. latifolium* Linn.: culm mostly simple, bearded at the joints; leaves oblong-lanceolate, smooth, or with the sheaths somewhat pubescent; panicule terminal, a little exserted, simple, pubescent; spikelets oblong-ovoid; lower flower stamine, of 2 paleae; upper palea somewhat herbaceous, nearly as long as the lower, acute.


8. *P. scoparium* Lam.: whole plant softly villous; leaves lanceolate; panicule erect, compound, setaceous, much branched; spikelets turgid, ovoid, pubescent.


9. *P. nervosum* Muhl.: culm simple, with the nodes smooth; leaves broad-lanceolate, smooth, a little ciliate on the margin; panicle much branched, smooth, many-flowered; spikes oblong; lower flower stamine; upper palea somewhat herbaceous, shorter than the lower.

Marshy grounds. N. J. to Car. July. **3**.—Culm 2—4 feet high. **Panicle** 4—5 inches long, decompound. Allied to *P. latifolium*, but is taller, and has the joints smooth and the panicles decompound and smooth. Nerved Panic-grass.

10. *P. xanthophyllum* Gray: culm erect, simple or branching from the base; leaves lanceolate, strongly nerved, ciliate at the base; sheaths hairy; panicle nearly simple, few-flowered, the branches erect; spikelets globose-ovate, pubescent; lower flower stamine, of 2 paleae, as long as the obovate perfect flower.


11. *P. macrocarpon* Torr.: culm erect, simple; leaves linear-lanceolate, erect, a little hairy beneath; joints naked; sheaths hispid; panicle rather compound, smooth; spikelets globose-ovoid; abortive flower neutral.


12. *P. pubescens* Linn.: erect, much branched, leafy, softly pubescent; leaves lanceolate, ciliate; panicle small, few-flowered, free; spikelets sub-globose-ovoid, pubescent.


** Spikelets in somewhat racemose panicles.

13. *P. agrostoides* Muhl.: culm erect, compressed, smooth; leaves very long; panicles terminal and lateral, pyramidal, spreading; the spikelets ovoid-oblong, acute, appressed, and somewhat racemose; lower flower neutral, with 2 nearly equal paleae. *P. elongatum* Pursh.
GRAMINACEÆ.


14. *P. anceps* Mich.: culm compressed; sheaths acipital, hairy near the throat and on the margin; panicles erect, oblong, with simple branches; spikelets interruptedly racemose, acuminate; neutral flower with the upper palea oblong obtuse or emarginate. *P. rostratum* Muhl.


15. *P. proliferum* Lam.: smooth; culm assurgent or procumbent, branching and geniculate at base; panicles terminal and lateral, compound; spikelets somewhat racemose; abortive flower without an upper palea. *P. dichotomum* florum Mich. *P. geniculatum* Muhl.


16. *P. longifolium* Torr.: very smooth; culm compressed, erect, simple, slender; leaves very long and narrow; panicle simple, elongated, racemose; spikelets acuminate; abortive flower with 2 pales.


17. *P. Crus-Galli* Linn.: spikes alternate and in pairs, simple or compound; spikelets imbricate; glumes and outer palea of the neutral flower hispid, awned or mucronate; rachis hispid, about 5-angled; sheaths smooth. *Oplismenus Crus-Galli* Kunth.


12. SETARIA. *Beauv.*—Bristle Grass.

(From the Latin *seta*, a bristle; in allusion to the bristly involucres of the spikelets.)

Spikelets 2-flowered, invested with an involucre of 2 or more bristles. Glumes 2, unequal, herbaceous. Lower flower abortive; palea 1 or 2, herbaceous. Upper flower perfect; palea cartilaginous.—Flowers in a compound cylindric spike.


Green Bristle-grass.
2. *S. glauca Beauv.*: spike cylindric; involucre of 6—10 fascicled bristles, much longer than the spikelets; glumes smooth; paleae of the perfect flower transversely rugose. *Panicum glaucum Linn.* *Pennisetum glaucum* *Brown.*


Glaucous Bristle-grass.

3. *S. verticillata Beauv.*: spike subverticillate; bristles of the involucre in pairs, retrorsely scabrous; spikelets solitary; paleae of the perfect flower roughish-punctate. *Panicum verticillatum Linn.* *Pennisetum verticillatum* *Null.*


Rough Bristle-grass.

4. *S. Italica Beauv.*: involucre many times longer than the flowers; spike compound, interrupted at base, nodding; spikelets glomerate. *Panicum Italicum Linn.* *Pennisetum Italicum* *Null.*

Wet grounds. N. J. to Car. July. (1)—Culm 4, (at the South sometimes 10,) feet high. Spike or panicle 6—8 inches long. A naturalized foreigner; of little value as a grass.

Italian Bristle-grass.


(From a Greek word signifying *millet*; supposed to have been originally applied to some other plant.)

Spikelets 2-flowered, 1—3, enclosed in a laciniate spiny or bristly involucre which is finally hardened. Glumes 2, unequal, membranaceous. Flowers dissimilar; the lower staminate or neutral; the upper perfect.—Inflorescence racemose.

*C. tribuloides Linn.*: involucres globose, pubescent, muricate-spinose, split on one side, enclosing 2—3 spikelets. *C. echinatus* *Muhl.*

Dry sandy soils. Throughout the U. S. Aug. (1)—Culm erect or decumbent, 1—2 feet long, geniculate, branching. Leaves rather short, flat. Spikes about 2 inches long; consisting of 8—10 sessile bur-like heads. A very troublesome weed.

Bur-grass. Hedgehog-grass.

IV. STIPEE. Spikelets 1-flowered. Lower palea involute, usually indurated in fruit, awned at the tip; the awn simple or 3-cleft, mostly twisted and articulated at the base. Ovary more or less stipitate. Scales mostly 3.


(From the Greek ορυζα, *rice,* and οψης, resemblance.)

Glumes herbaceo-membranaceous, equal, awnless. Paleae 2, elliptic, nearly equal, coriaceous, with an articulated awn at the tip. Scales linear-elongated.—Inflorescence panicled.

1. *O. asperifolia* *Mich.*: radical leaves elongated; sheaths of the culm
nearly leafless; panicle racemose; awn longer than the flower; paleae whitish when mature.

Rocky woods. Subarct. Amer. to N. Y. April, May. **2.**—Culm about 18 inches high, simple, smoothish, purple at base. **Radical leaves** as long as the culm, rough. **Panicle** very simple; the branches short and appressed.

*White Mountain Rice.*

2. *O. melanocarpa* Muhl.: culm leafy; panicle nearly simple, the lower branches more or less spreading; flowers somewhat racemose; glumes ovate-lanceolate; paleae blackish when mature, somewhat hairy; the lower one with an awn 2—3 times as long as the flower. *Piptatherum nigrum* Torr. *Fl.*


3. *O. Canadensis* Torr.: leaves very short, pungent; panicle contracted, the branches usually in pairs, ovoid; paleae hairy; awn short, often deciduous or wanting. (Torr. N. Y. *Fl.*) *Militum pungens* Torr. *Fl.*


15. **STIPA.** Linn.—Feather Grass.

(From the Greek στίπα, a feathery substance; particularly applicable to one of the species.)

Spikelets 1-flowered; the flower stipitate. Glumes 2-valved, membranaceous. Paleae 2, longer than the glumes, somewhat coriaceous, cylindric-involute; the lower awned at the summit. Awn twisted at the base. *Caryopsis* terete, furrowed.—Inflorescence panicled.

*S. avenacea* Linn.: leaves setaceous; panicle spreading, somewhat second, the branches mostly in pairs; glumes as long as the paleae; awn very long, naked. *S. barbata* Mich.

Sandy woods. N. Y. and Mass. to Geor. June. **2.**—Culm about 2 feet high, slender, simple. **Leaves** mostly radical, 6—8 inches long. **Panicle** nodding, at length diffuse.

16. **ARISTIDA.** Linn.—Three-awned Grass.

(From the Latin arista, an awn or beard.)

Flower stipitate. Glumes membranaceous, unequal. Paleae mostly 2; lower one coriaceous, involute, 3-awned at the tip; upper very minute or obsolete. Scales 2, entire, smooth.—Spikelets racemose or paniculate.

1. *A. dichotoma* Mich.: culm cespiteose, dichotomously branched; panicle contracted, racemose; lateral awns very short; the intermediate one nearly as long as the paleae, contorted.

2. *A. gracilis* Ell.: culm very slender, erect; panicle spiked, the flowers appressed; lateral awns rather shorter than the palea, erect; middle one longer, bent, not twisted; lower palea spinulose on the keel. *(Torr. N.Y. Fl.)* *A. stricta* Darlington. not of Mich.


Slender Three-awned Grass.

3. *A. purpurascens* Poir.: culm filiform, erect, simple; leaves very narrow, flat; flowers in a long spiked panicle; awns nearly equal, twice as long as the palea, divaricate.


V. AGROSTEÆ. Spikelets 1-flowered, rarely with the subulate rudiment of an upper flower. Glumes and palea 2, membranaceously herbaceous; lower palea often awned. Stigma mostly sessile.

17. MUHLENBERGIA. Schreb.—Muhlenbergia.

(In honor of the late Henry Muhlenberg, D.D., one of the most distinguished American botanists.)

Glumes 2, very minute, unequal, one scarcely perceptible. Paleæ much longer than the glumes, linear-lanceolate, nerved, hairy at base; the lower one terminating in a long slender bristle.—Panicle more or less contracted.

1. *M. diffusa* Schreb.: culm decumbent, diffuse; leaves linear-lanceolate; panicle slender, branched, the branches appressed; bristles about twice as long as the palea.


*Spreading Muhlenbergia.* Drop-seed Grass.

2. *M. erecta* Schreb.: culm erect, simple; leaves lanceolate, pubescent; panicle simple, loose; awn twice as long as the palea; upper palea with an awn at base lodged in a groove on the back. *Brachyelytrum aristatum Beauv.*


Erect Muhlenbergia.

18. CINNA. Linn.—Cinna.

(From the Greek κίννα, a kind of grain.)

Glumes nearly equal, compressed, the upper one 3-nerved. Paleæ 2, nearly equal, compressed, shortly stipitate, naked at the base; the lower one larger, enclosing the upper, with a short awn near the summit. Stamen 1.—Panicle loose.
**430 GRAMINACEÆ.**

*C. arundinacea* Willd.: culm simple, smooth; leaves linear-lanceolate; panicle large, loose, with the branches somewhat in fours, capillary. *Muhlenbergia Cinna* Trin. *Agrostis Cinna* Pursh.

Wet grounds. Can. to Car. Aug. 2.—Culm 2–5 feet high. Leaves a foot or more in length, rough on the margin. Panicle terminal, 8–12 inches long. Flowers green or purplish. Reed-like Cinna.

19. **AGROSTIS. Linn.—Bent Grass.**

(From the Greek aýpos, a field; in reference to the place of growth.)

Glumes 2, nearly equal, usually longer than the flower, pointless. Palea 2; the lower one mostly awned on the back; upper often minute or nearly wanting.—Panicle diffuse.

1. *A. stricta* Willd.: culm erect; panicle elongated; the branches verticillate, nearly erect; glumes equal, oblong acute; paleae two, smaller than the glumes, unequal; the lower one twice as long as the upper, with an awn at the base about twice as long as the palea.

Sandy fields. N. Eng. and N. Y. June. 2.—Culm about a foot high, smooth, with black nodes. Leaves linear-lanceolate, rough on the margin. Panicle oblong, the primary branches whorled in fives. Spikelets somewhat crowded. Upright-flowered Bent-grass.

2. *A. vulgaris* With.: culm ascending; panicle oblong, spreading, the branches smoothish and at length divericate; paleae unequal, the outer one 3-nerved. *A. alba* Muhl. *A. polymorpha* Gray.

Pastures and meadows. Throughout the U. S. July. 2.—Root creeping, throwing out many mostly ascending culms 1–2 feet high. Leaves linear-lanceolate, flat, scabrous, the ligule very short. Panicle 4–6 inches long, purplish, the branches a little rough. Introduced, but now completely naturalized. *Herd’s-grass*. Red-top.


Wet meadows. Throughout the U. S. June, July. 2.—Root creeping. Culm 1–2 feet high, ascending, often rooting at the lower joints. Leaves roughish, the sheaths smooth. Panicle pale green or purplish. Closely allied to the preceding, but generally stouter and taller. Introduced, but everywhere naturalized. *Herd’s-grass*. Fiorin-grass.


Moist grounds. N. Y. to Virg. Aug., Sept. 2.—Root creeping. Culm 2 feet or more high, much branched, often geniculate. Leaves broad-linear, flat. Panicles numerous, terminating the branches, pale green or purplish. Lateral-flowered Bent-grass.

5. *A. sobolifera* Muhl.: culm erect, branched; panicle contracted, filiform, simple, with appressed alternate branches; paleae equal, longer than the glumes, awnless, hairy at base, the lower one mucronate at the tip. *Muhlenbergia sobolifera* Trin.

6. A tenuiflora Willd. : culm nearly simple, pubescent about the joints; branches appressed; panicle contracted, filiform; paleae twice as long as the glume, hairy at base, the lower one three or four times as long as the spikelet. Muhlenbergia Willdenovii Trin.


7. A. sylvatica Torr. : culm ascending, much branched, diffuse, smooth; panicle slender, rather dense-flowered; paleae longer than the glumes; awn about three times as long as the flower. A. diffusa Muhl. Muhlenbergia sylvatica Torr & Gr.


8. A. compressa Torr. : whole plant very smooth; culm erect, compressed, simple; panicle oblong, subcontracted; glumes equal, shorter than the paleae, acute; paleae rather obtuse, smooth at the base.


10. A. canina Linn. : var. ? tenuella Torr. : panicle loose, somewhat contracted; the branches mostly in threes, slightly hispid; glumes nearly equal, lanceolate, very acute, rough on the keel; lower palea narrow-lanceolate, rather acute, with a geniculate awn a little below the middle; the awn about twice the length of the flower; upper palea nearly wanting. (Torr. N. Y. Fl.)

Mountains in Northern N. Y. Aug. 24.—Culm about a foot high, slender, smooth. Leaves very narrow, flat. Panicle very slender, the branches somewhat flexuous. Differs from A. canina in its less diffuse panicle, narrow glumes and flat leaves. Brown Bent-grass.

20. TRICHODIUM. Mich.—Thin Grass.

(From the Greek όρίος, hair, and τεχνή, form; in allusion to the hair-like inflorescence.)

Glumes 2, nearly equal, very acute, scabrous on the keel. Palea 1, shorter than the glumes, sometimes awned. Caryopsis loose, covered by the palea. —Flowers in loose panicles.


Dry fields. Subarct. Amer. to Car. May, June. 24.—Culm 18 inches high, very slender. Lower leaves 3—6 inches long, becoming involute and fili-
form. Panicle purple, very loose, the lower branches in fives or sixes, the upper ones in threes, at length spreading. Spikelets clustered at the extremity of the branchlets. A somewhat variable species. *Loose-flowered Thin-grass.*


3. *T. elatum* Pursh.: culm stiffly erect; leaves narrow-linear, flat, scabrous, the sheaths smooth; panicle verticillate, somewhat spreading; glumes nearly equal. *Agrostis dispar* Mich.?


21. VILFA. Adans.—Vilfa.

(Origin unknown.)

Glumes carinate; the lower one smaller. Paleæ awnless; the lower one rather acute, longer than the glumes; the upper 2-keeled. Stigmas simply plumose. Caryopsis deciduous.—Panicle diffuse or contracted and spike-like.

1. *V. vaginaeflora* Torr.: culms numerous, assurgent; leaves distichous, involute, rigid; panicles lateral and terminal, spike-form; the lateral ones concealed in the sheaths; glumes equal, about as large as the paleæ. *Agrostis Virginica* Muhl.


2. *V. aspera* Beauv.: leaves very long, filiform and recurved towards the apex; panicle contracted, spiked, partly exserted from the uppermost sheath; paleæ much longer than the glumes, subequal, smooth or hairy, without awns. *Agrostis aspera* Mich.

Sandy fields and hill sides. N. Y. and Mass. to Car. Sept., Oct. \[.—Culm 2—4 feet high, simple, terete. Leaves 1—2 feet long, tapering to a filiform extremity, rough on the margin. Panicles lateral and terminal, the former more or less exserted. *Rough-leaved Vila.*

3. *V. serotina* Torr. & Gr.: culm filiform, much compressed; leaves very narrow, keeled, erect; panicle elongated, capillary, somewhat diffuse; glumes ovate, unequal, about half as long as the awnless paleæ. *Agrostis serotina* Torr. *Fl.*

Sandy swamps. N. Y. and N. J. Sept. \[.—Culm 12—18 inches high. Leaves short, almost filiform. Panicle slender, with the branches flexuous. *Late-flowering Vila.*

4. *V. heterolepis* Gray: leaves setaceous; panicle pyramidal, sparsely flowered; lower glume subulate; the upper one ovate, cuspidate, about
twice the length of the lower; paleae nearly equal, pointless, a little shorter than the upper glume.  (*Torr. N. Y. Fl.*)

On rocks. Watertown, Jefferson County, N. Y. W. to Ohio.  

5. *V. cryptandrus* *Torr.* .- panicle pyramidal, the base usually enclosed in the sheath, with spreading mostly alternate branches, which are hairy on the axis; spikelets racemose; flowers awnless; lower glume very short; the upper one as long as the nearly equal lanceolate acute palea.  (*Torr. N. Y. Fl.*)


22. *POLYPOGON*. Desf.—Beard Grass.

(From the Greek πολυς, many, and πατος, a beard; in reference to the unusual number of awns.)

Glumes 2-valved, 1-flowered; valves membranaceous, awned. Palea 2; the lower one with a long awn; the upper one bidentate.—Panicle spike-form.


VI. *ARUNDINAE*. Spikelets either 1-flowered, with or without an abortive pedicel, or many-flowered. Flowers usually with long soft hairs at the base. Glumes and palea 2, membranaceous herbaceous.

23. *CALAMAGROSTIS*. Adans.—Small Reed.

(From the Greek καλαμος, a reed, and Agrostis, a genus of grasses.)

Spikelets 1-flowered. Glumes 2, nearly equal, acute or acuminate. Paleae 2, mostly shorter than the glumes, surrounded with hairs at the base; lower one mucronate, mostly awned be-
low the tip; upper with a stipitate pencil-form pappus at base.
—Flowers in a loose panicle.

1. C. Canadensis Beauv.: panicle oblong, loose; glumes nearly equal, serrulate on the keel, somewhat rough on the sides; paleæ as long as the glumes, the lower with an awn on the back. Arundo Canadensis Mich. A. cinnoides Muhl.


2. C. coarctata Torr.: panicle contracted, thick, and somewhat spike-form; glumes narrow-lanceolate, nearly equal, a little longer than the paleæ, keeled; lower palea awned a little below the summit; pappus two-thirds as long as the flower. C. Canadensis Nutt. Agrostis glauca Muhl.


3. C. inaequansa Gray: panicle contracted, elongated; glumes oblong-lanceolate; paleæ nearly equal, as long as the glumes, the lower one with a scarcely exserted awn inserted below the middle; pappus nearly as long as the flower. (Torr. N. Y. Fl.)


24. AMMOPHILA. Host.—Sea Reed.

(From the Greek ἄμμος, sand, and φίλος, a lover; in allusion to its place of growth.)

Glumes nearly equal, keeled. Paleæ shorter than the glumes, surrounded with short hairs at the base, keeled, awnless. Abortive pedicel plumose above.—Panicle spiked, dense and cylindric.

A. arundinacea Host.: glumes acute; hairs or pappus about one-third as long as the paleæ. Arundo arenaria Linn. Psamma arenaria R. & S.

Sandy sea-coast. Can. N. Y. and N. Eng. Aug. '4.—Root branching and extensively creeping in the sand. Culm 2—3 feet high, erect. Leaves long, smooth, and glaucous. Panicle 8—12 inches long, close and spike-like, whitish. The roots of this grass form a mat, which prevents the motion of sand; and it is sometimes planted on shores to protect them from the inroads of the sea. It is used in Massachusetts for the manufacture of paper. Common Sea-reed or Mat-weed.

25. PHRAGMITES. Trin.—Reed.

(From the Greek φράγμος, a partition or hedge; in allusion to the use said to have been made of it.)

Spikelets 3—7-flowered. Glumes 2, lanceolate, unequal. The lower flower stamineate and naked at base; the others per-
fect, and surrounded by a tuft of hairs. Paleæ very unequal; the lower one elongated, acuminate; the upper 2-keeled.—Panicle terminal, very large.


Margins of swamps and ponds. Can. to Geor. W. to Miss. Aug. 4.—*Culm 9—12 feet high, very leafy, with numerous joints. Leaves 1—2 feet long, linear-lanceolate, flat, glaucous, rough on the margin. Panicle terminal, very large, loose, somewhat nodding. The largest grass in the Northern States; and at a distance somewhat resembling Broom-corn.*

**VII. CHLOREÆ.** Spikelets arranged in unilateral digitate or paniculate (rarely solitary) spikes, 1—many-flowered; upper flowers imperfect. Glumes and paleæ 2, membranaceously herbaceous; the latter often awned. Rachis not articulated.


(From the Greek κυων, a dog, and οδος, a tooth.)

Spikelets filiform, unilateral, with one perfect flower and one abortive rudiment. Glumes membranaceous, persistent, shorter than the flower and only embracing it at the base. Fertile flower with the upper palea bifid-toothed. Rudiment minute, pedicellate. Caryopsis loose, not furrowed.—Spikelets digitate or racemose.

*C. Dactylon* Pers.: culm creeping; spikes digitate, 3—5, spreading; glume with the keel scabrous; paleæ smooth, longer than the glume, the lower one with a bristle at the base. *Digitalia Dactylon* Muhl.


27. ELEUSINE. Gart.—Dog’s-tail Grass.

(Eleusiva was one of the names of Ceres, the goddess of harvests; probably from *Eleusis,* where she was worshipped.)

Spikelets sessile, 2—6-flowered. Glumes unequal, shorter than the flowers. Paleæ unequal, awnless; the lower keeled; upper shorter, channelled on the back. Caryopsis triangular-ovoid, transversely rugose.—Spikelets digitate, unilateral.

*E. Indica* Gart.: culm oblique, compressed; leaves smooth; spikes 2—4, linear, straight; spikelets closely imbricate, lanceolate, about 5-flowered. *Cynosurus Indicus* Linn.

23. SPARTINA. Schreb.—Marsh Grass.

(Said to be named on account of its similarity to Lygeum Spartum.)

Spikelets imbricate, one-flowered, much compressed. Glumes and paleae unequal, awnless. Styles mostly united below.—Spikes unilaterally.

1. S. cynosuroides Willd.: leaves very long, filiform at the end, at length convolute; spikes numerous, (8—40.) scattered, pedunculate, forming a long secund panicle; glumes serrulate on the keel, with a long slender point; style 2-cleft at the summit. (Torr. N. Y. Fl.) S. polystachya Muhl. Limnetis cynosuroides and polystachya Pers.

Marshes and banks of streams. Can. to Car. W. to the Platte River. Aug. 44.—Culm 3—8 feet high, smooth, terete. Leaves 1—3 feet long, narrow. Spikes linear, about 3 inches long, on scabrous spreading peduncles.

Tall Marsh-grass.

2. S. juncea Willd.: leaves distichous, convolute, spreading; spikes few, (1—3.) on smooth peduncles; paleae rather obtuse; styles distinct nearly to the base. Limnetis juncea Pers.


Rush-like Marsh-grass.

3. S. alternifolia Loisel.: leaves channelled, erect; spikes numerous, (8—14), elongated, sessile, erect, appressed; glumes and paleae nearly smooth; styles distinct nearly to the base. S. glabra Muhl.

Salt marshes. N. Y. and Mass. to Car. Aug., Sept. 44.—Root creeping extensively. Culm 3—5 feet high, smooth and somewhat succulent. Leaves broad at the base, tapering to a long point. Spikes unequal, closely appressed to the common rachis. For thatching it is said to be preferable to wheat straw. It has a strong rancid smell, which renders it unfit for cattle.

Smooth Marsh-grass.

29. ATEROPOGON. Muhl.—Atheropogon.

(From the Greek ἀθρός, a bristle, and πώγος, a beard; the beards being bristle-like.)

Spikelets unilateral, nearly sessile, alternate, 2—3-flowered; the terminal flower abortive. Glumes 2, membranaceous, unequal; the lower shorter, setiform. Perfect flower, subcoriaceous. Lower palea 3-toothed or 3-bristled; upper bifid. Abortive flower pedicellate, neutral.—Spikes short, arranged in a raceme.


Dry rocky banks. N. Y. N. J. and Penn. W. to the Rocky Mountains; rare. Aug. 44.—Culm 2—3 feet high, geniculate at base, smooth. Leaves lanceolate,
attenuate at the end, involute when dry, slightly hairy above. Spikes 20—40, on short flat peduncles, each containing 6—8 spikelets. Authors bright red.

Racemed Atheropogon.

30. GYMNOPOGON. Beav.—Gymnopogon.

(From the Greek ὑμος, naked, and πυρων, a beard; in allusion to the awn of the neutral flower.)

Glume 2-valved, carinate, nearly equal; the lower one with a long and straight bristle a little below the tip. Neutral rudiment pedicellate, of one minute valve produced into an awn.—Flowers in a compound spike or panicle.

G. racemosus Beav.: culm ascending; leaves distichous, ovate-lanceolate, nerved, short; spikes numerous, arranged in a somewhat whorled panicle; flowers appressed. Andropogon ambigius Mich. Anthopogon lepturoides Nutt.

Sandy fields. N. J. to Geor. Aug. 7t. —Culm about 2 feet high, decumbent at base. Leaves 2 inches or less in length, very acute. Panicle large, spreading.

Racemed Gymnopogon.

VIII. AVENEE. Spikelets 2—many-flowered; terminal flower commonly imperfect. Glumes and palea 2, membranaceously herbaceous; lower palea usually with a twisted awn on the back.

31. HIEROCHLOA. Gmel.—Holy Grass.

(From the Greek ἱερος, sacred, and χλως, a grass; because in some parts of Prussia it is used on festival days.)

Spikelets 3-flowered, pedicellate. Lateral flowers stamineate, triandrous and mostly awned; terminal or central one perfect, diandrous, awnless.—Flowers in a contracted panicle.

1. H. borealis R. & S.: panicle somewhat one-sided, a little spreading; peduncles smooth; flowers awnless; lower palea ciliate on the margin. Holcus odoratus Linn.


Northern Holy-grass. Vanilla-grass.

2. H. alpina R. & S.: panicle ovate, contracted; spikelets compressed, longer than the branches; glumes lanceolate, almost nerveless; lateral flowers triandrous, obtuse, awned on the back. Holcus alpinus Wahl.


32. ANTHOXANTHUM. Linn.—Vernal Grass.

(From the Greek ἀνθος, a flower, and χαλος, yellow; in allusion to the color of its spike.)

Spikelets 3-flowered; the two lower flowers neutral and each
consisting of a single awned palea; the upper flower perfect, of 2 paleæ, diandrous, nearly equal, short, awnless.—Panicle contracted or spike-like.

*A. odoratum* Linn.: panicle spiked, ovoid-oblong; flowers pubescent, shorter than the awns.


**Culm** about a foot high, erect, rather slender. Leaves short, more or less pubescent. Panicle contracted into an oblong or ovoid-oblong spike, yellow when mature. When cut and partially dry it gives out a very fragrant odor. Introduced from Europe, but completely naturalized.

*Sweet-scented Vernal-grass.*

33. AIRA. Linn.—Hair Grass.

(From the Greek *aio*, to destroy; a name originally applied to a poisonous plant, *Lolium temulentum*.)

Spikelets 2—3-flowered; the flowers without an abortive rudiment between them. Glumes 2, unequal, about as long as the flowers. Paleæ thin and membranaceous, the lower one awned on the back below the middle.—Flowers usually in a compound spreading panicle.

1. *A. flexuosa* Linn.: leaves setaceous, smooth; panicle loose, spreading, trichotomously branched; branches smoothish, flexuous; flowers scarcely longer than the glumes; awn geniculate, longer than the palea.


**Culm** 1—2 feet high, smooth. Leaves mostly radical or near the base of the culm, involute, slender. Panicle capillary, loose, whitish, the lower branches somewhat whorled.

*Common Hair-grass.*

2. *A. capillosa* Linn.: leaves flat, scabrous; panicle at length diffuse; glumes about as long as the paleæ; awn short, straight. *A. aristulata* Torr. Fl.


**Culms** 2—3 feet high, capitose, smooth. Leaves narrow, rough above, smooth beneath. Panicle large, oblong or pyramidal, capillary, dull purplish; the branches somewhat whorled.

*Tufted Hair-grass.*

3. *A. atrapurpurea* Wahl.: leaves flat; panicle divaricate, of few spikelets; flowers much shorter than the glumes; paleæ a little hairy at the summit; awn from the middle of the back, nearly twice as long as the flowers. (*Torr. N. Y. Fl.*)

High mountains of Essex County, N. Y. Aug. 

**Culm** 8—15 inches high, erect, slender. Leaves short, smooth. Panicle loose, purplish or yellowish-green; branches mostly in pairs and flexuous.

*Purple Alpine Hair-grass.*

4. *A. praecox* Linn.: leaves setaceous; panicle somewhat spiked; flowers scarcely villous at the base, about as long as the glumes; awn twisted, inserted below the middle, longer than the flowers. *Avena praecox* Beauv.

Sandy fields. N. J. to Virg. June. 

**Culms** 3—4 inches high, capitose, smooth, leafy. Leaves short, smooth. Panicle somewhat compact, few-flowered, greenish. Introduced?

*Early Hair-grass.*
34. ARRHENATHERUM. *Beauv.*—Oat Grass.

(From the Greek άπραυ, male, and ṁαν, an awn; the staminate flower being awned.)

Spikelets 2-flowered. Lower flower staminate; the lower palea with a long twisted awn below the middle. Upper flower perfect; the lower palea with a short straight bristle below the point.—Panicle loose.

*A. avenaceum* *Beauv.* *Avena elatior* *Linn.*


*Common Oat-grass.* *Grass of the Andes.*

35. AVENA. *Linne.*—Oat.

(Name of doubtful origin.)

Spikelets 3—many-flowered; flowers rather remote, the upper ones often imperfect. Glumes loose and membranaceous, nearly equal. Paleæ 2; the lower one bifid at the summit, with a twisted awn above the base.—Panicle compound, loose.

1. *A. Pennsylvanica* *Linn.*: panicle attenuated, loose, nodding, the branches somewhat verticillate; spikelets 2—3-flowered; flowers smooth, lower one often awnless, upper one on a hairy pedicel; lower palea with a slender awn below the bifid tip, about twice the length of the flower. *A. palustris* *Mich.* *Trisetum Pennsylvanicum* *Beauv.* *T. palustre* *Torr.* *Fl.*


2. *A. striata* *Mich.*: panicle nearly simple, loose, few-flowered; spikelets 3—5-flowered, somewhat terete, the flowers bearded at the base; lower palea with a slender nearly straight awn below the tip. *Trisetum purpurascens* *Torr.* *Fl.*


36. TRISETUM. *Pers.*—Trisetum.

(From the Latin, in allusion to the three bristles of the flowers.)

Spikelets 2—4-flowered. Glumes membranaceous, keeled, awnless. Paleæ herbaceous; lower one with 2 long cusps at the summit and a twisted awn on the back; upper 2-keeled. Caryopsis smooth, with a longitudinal groove.—Panicle contracted.

*T. molle* *Kunth*: whole plant minutely and softly pubescent; panicle
contracted and somewhat spiked; glumes 2-flowered, the flowers not bearded; awn about the length of the palea, not twisted, diverging or recurved. (Torr. N. Y. Fl.) T. subspicatum Beck Bot. 1st Ed. Avena mollis Mich.


37. DANTHONIA. D. C.—Danthonia.

(In honor of M. Danthoine, a French botanist.)

Spikelets 2—10-flowered; the upper flowers often imperfect. Glumes nearly equal, mostly longer than the flower. Paleae hairy at the base; lower one 2-toothed at the summit, with a twisted awn between the teeth; upper one obtuse, entire.—Flowers in a spiked panicle.

D. spicata Beauv.: leaves subulate; lower sheaths hairy at the throat; panicle spike-form, simple; spikelets 7—9, about 7-flowered; lower palea hairy. Avena spicata Linn.


38. URALEPIS. Nutt.—Uralepis.

(From the Greek ovipa, a tail, and aorís, a scale; in allusion to the appearance of the lower palea.)

Spikelets 2—3-flowered, somewhat terete; flowers alternate, distinct, longer than the glumes. Paleae very unequal, distinctly villous on the margin; lower palea tricuspidate, the central cusp produced into a short bristle; upper entire, concave, incurved. Caryopsis gibbous.—Panicle simple, racemose.

U. aristulata Nutt.: lateral panicles concealed in the sheaths of the leaves, terminal one more or less exserted; spikelets 3-flowered; awn as long as the lateral cusps.


IX. FESTUCEÆ. Spikelets usually many-flowered. Glumes and palea 2, of nearly similar texture, usually keeled. Lower palea often awned; the awn not twisted.

39. POA. Linn.—Meadow Grass.

(Greek poa, grass, or pasturage; applied by way of distinction to this genus.)

Spikelets 2- many-flowered; the flowers distichous, perfect.
GRAMINACEÆ.

Glumes 2, pointless, shorter than the flowers. Paleæ nearly equal, membranaceous, awnless, often with a villous web at the base; the lower one keeled or concave; upper one 2-keeled. Stigmas simply plumose. Caryopsis free.—Spikelets in diffuse or contracted panicles.

* Flowers webbed at base.

1. *P. pungens* Nutt.: culm compressed; leaves very short, cuspidate; panicle somewhat simple, spreading; spikelets lance-ovate, 3—4-flowered, crowded at the extremities of the branches; flowers rather obtuse. *P. flexuosa* Muhl.

Rocky woods. N. Y. to Car. April, May. 1. —Culm 1—2 feet high, compressed, smooth, somewhat cespitose. Leaves erect, cuspidate; the radical ones long, linear; those of the culm usually 2, very short. Panicle small, semiverticillate.

2. *P. pratensis* Linn.: culm terete, smooth; leaves keeled, linear, abruptly acute; ligule short, truncate; panicle somewhat crowded, finally spreading; spikelets oblong-ovate, about 4-flowered; flowers acute, 5-nerved. *P. viridis* Muhl.

Fields and meadows. Can. to Car. May—July. 1. —Root creeping. Culm 2—3 feet high. Leaves deep green, the lower very long, the upper much shorter. Panicle at length pyramidal, spreading. Introduced from Europe.

Smooth-stalked Meadow-grass.

3. *P. trivialis* Linn.: culm and sheaths somewhat rough; ligule elongated, acuminate; panicle equal, diffuse; spikelets oblong-ovate, 2—3-flowered; flowers 5-nerved. *P. stolonifera* Muhl.


Rough Meadow-grass.

4. *P. compressa* Linn.: culm decumbent or oblique, much compressed, smooth; panicle contracted, somewhat secund; spikelets ovate-oblong, 4—8-flowered; flowers obscurely nerved.

var. *sylvestris* Torr.: culm slender, nearly erect; panicle loose, somewhat spreading; spikelets 2—3-flowered.


Blue-grass. Wire-grass.

5. *P. scrotila* Ehrh.: culm erect, smooth; panicle elongated, diffuse, at length somewhat nodding at the top; spikelets ovate-lanceolate, 2—3-flowered; flowers yellowish at the tip, obscurely 5-nerved. *P. palustris* Muhl.


Red-top.

6. *P. nemoralis* Linn.: culm and leaves smooth; ligule almost wanting; panicle slender, a little attenuated, loose; the branches rough and flexuous;
spikelets ovate-lanceolate, about 3-flowered; flowers rather distant, hairy, acute, very obscurely nerved.


7. P. laxa Henke: culms cespitose; leaves narrow-linear, acute; ligules all lanceolate; panicle contracted, somewhat nodding at the apex; the branches smooth, mostly in pairs; spikelets ovate, about 3-flowered; flowers acute, hairy. (Torr. N. Y. Fl.) Summit of Mount Marcy, Essex county, N. Y. Aug. 2L.—Culms 6—3 inches high, cespitose, very slender. Leaves numerous, glaucescent, smooth. Panicle 1—2 inches long, the branches flexuous. Allied to P. alpina. Wavy Meadow-grass.

8. P. debilis Torr.: culm slender; leaves and sheaths smooth; ligule oblong, acute; panicle loose, few-flowered, somewhat spreading; the branches mostly in pairs, flexuous, a little rough; spikelets ovate, obtuse, 3-flowered; flowers smoothish; lower palea oblong, obtuse, slightly 3-nerved. Rocky banks of streams. N. Y. May. 2L.—Culm about 2 feet high, erect, smooth. Leaves pale green, rough on the margin. Panicle oblong, somewhat contracted. Weak Meadow-grass. **Flowers free, or not webbed at base.**


10. P. capillaris Linn.: culm much branched at base; sheaths hairy at the throat; panicle very large, loose, expanding; the branches capillary and much divided; spikelets about 3-flowered, ovate, acute.


11. P. hirsuta Mich.: culm erect, simple, compressed; sheaths hairy; panicle very large, capillary; branches expanding, at length reflexed, bearded in the axils; spikelets oblong, 5—15-flowered; upper palea ciliate on the double keel. P. spectabilis Pursh.


12. P. pilosa Linn.: culm oblique, geniculate; leaves hairy at the base; panicle capillary, pyramidal, the lower branches hairy in the axils; spikelets lance-linear, 5—12-flowered; glumes very unequal; upper palea persistent. P. pectinacea Mich. P. tenella Pursh.


13. P. repens Mich.: dioecious; culm branched, creeping; panicle
somewhat simple, ovate; spikelets approximated on the short branches, linear-lanceolate, 12—20-flowered; flowers acuminate, smooth; lower palea 3-nerved.


14. P. dentata Torr.: culm oblique or decumbent; panicle loose, somewhat spreading; branches capillary, flexuous; spikelets lanceolate, about 5-flowered; flowers rather distant; glumes unequal, the upper 3-nerved and obtuse; lower palea 5-nerved, at length 5-toothed at the apex.

Wet sandy places. N. Eng. and N. Y. W. to Ohio. June, July. ②.—Culm 1—3 feet long, rooting at the lower joints. Leaves flat, pale green. Panicle large, weak, nodding when young. Toothed Meadow-grass.

15. P. maritima Huds.: culm somewhat geniculate; leaves convolute; panicle erect, somewhat crowded; spikelets linear, about 5-flowered, terete; flowers rather obtuse, indistinctly 5-nerved.


16. P. brevifolia Muhl.: culm oblique; leaves very short; ligule acuminate; panicle loose; branches in pairs, horizontal; spikelets 3—4-flowered; palea pubescent.


17. P. conferta Ell.: culm erect, geniculate; panicles terminal and axillary, erect; spikelets about 8-flowered, compressed; flowers clustered, smooth. P. glomerata Walt.


18. P. Eragrostis Linn.: culm oblique; sheaths smooth; panicle spreading, pyramidal; the lower branches hairy in the axils; spikelets ovate-oblong and linear-lanceolate, 8—30-flowered; flowers obtuse; glumes nearly equal. Briza Eragrostis Linn. Megastachya Eragrostis Beauv.

Sandy fields, road sides, &c. N. Eng. and N. Y. to Flor. July, Aug. ⑥.—Culm 12—18 inches long, geniculate and branching at base. Leaves narrow, roughish above. Panicle pyramidal; the branches subdivided, short and flexuous. Introduced from Europe, and now extensively naturalized; but it is of little or no value for pasturage. Quake-grass.


40. **GLYCERIA. Brown.**—Manna Grass.

(From the Greek γλυκα, sweet; on account of the sweet taste of the grains.)

Spikelets long, linear, many-flowered; rachis jointed. Glumes 2, membranaceous, nearly equal, pointless. Paleæ membranaceous, nearly equal, awnless; the lower one usually obtuse, 7-nerved; the upper 2-keeled. Stigmas decompound.

—Panicle nearly simple.

1. *G. fluitans* Brown: panicle secund, slightly branched, divaricate; spikelets linear-terete, appressed, 8—12-flowered; flowers very obtuse. *Festuca fluitans* Linn.


2. *G. acutiflora* Torr.: panicle simple, elongated, appressed; spikelets linear-terete, 4—12-flowered; flowers attenuated, acute, indistinctly nerved. *Festuca acutiflora* Big.


Wet meadows. Can. to Virg. July, Aug. ¶—Root creeping. *Culm* 3—5 feet high, thick. *Leaves* broad-linear, a foot or more in length. *Panicle* very large, often purplish. **Reed Manna-grass.**


6. *G. Canadensis* Trin.: panicle large, effuse; branches semiverticillate, at length pendulous; spikelets broad-ovate, tumid, 5—8-flowered; lower palea somewhat acute, 7-nerved; upper shorter and very obtuse; stamens 2. *Briza Canadensis* Mich.

7. **G. obtusa**; panicle dense, ovate; spikelets ovate, tumid, 5—7-flowered; glumes scarious; paleae ovate, smooth, obtuse; lower one indistinctly 7-nerved. *Poa obtusa* Muhl.


41. **BRIZA. Linn.**—Quaking Grass.

(From the Greek βριζω, to balance; the spikelets being delicately suspended.)

Spikelets cordate-ovate, many-flowered. Glumes shorter than the lower flowers. Paleae ventricose; lower one cordate at base, embracing the upper, which is nearly round and much shorter. Caryopsis beaked.—Panicle loose.


42. **MELICA. Linn.**—Melic Grass.

(A name given in Italy to the *Sorghum vulgare*, on account of the sweet flavor of its stem, from mel, honey, and applied by Linnaeus to this genus. *Hook. Br. Fl.*)

Spikelets 2—4-flowered, one or more of the upper flowers incomplete and abortive. Glumes 2-valved, unequal. Paleae membranaceous, unarmed. Caryopsis loose, not furrowed.—Panicle loose.

**M. speciosa** Muhl.: smooth; panicle loose, erect, few-flowered; branches simple; flowers obtuse. *M. glabra* Mich.


43. **KCELERIA. Pers.**—Kæleria.

(In honor of M. Kæler, a German botanist.)

Spikelets compressed, 2—4-flowered. Glumes 2, shorter than the flowers; the lower much narrower, keeled. Paleae membranaceous, unequal; the lower acute or obtuse, unawned or with a short awn below the tip; the upper 2-keeled. Styles very short.—Panicle contracted or spike-like.

1. **K. Pennsylvanica** D. C.: lower leaves and sheaths softly pubescent; panicle long, very slender, rather loose; spikelets mostly 2-flowered; upper glume oblancolate, obtuse or slightly pointed; lower palea rough. *Aira mollis* Muhl.
GRAMINACEÆ.

var. major Torr.: taller; leaves broad-linear, and with the sheaths smooth; panicle more dense.

Moist woods. N. Y. to Car. May, June. 4. —Culm about 2 feet high, simple. Leaves short, flat. Panicle 4—8 inches long, very slender, with yellowish-green spikelets.

2. K. truncata Torr.: leaves and sheaths smooth or pubescent; panicle oblong, contracted; branches short, racemose; spikelets somewhat clustered, 2-flowered; upper glume broad-ovate, very obtuse or truncate; upper palea smoothish. Holcus striatus Linn. Aira truncata Muhl.


44. DACTYLIS. Linn.—Orchard Grass.

(From the Greek δακτυλος, a finger; in allusion to the form of the spike.)

Spikelets 2—7-flowered, aggregated, subsecund. Glumes unequal; the larger keeled, mucronate. Paleæ herbaceous, mucronate; the lower 5-nerved, with a fringed keel; upper bifid. Stigmas plumose.—Panicle contracted, glomerate.

D. glomerata Linn.: panicle distantly branched, somewhat secund; spikelets 3—4-flowered, in dense unilateral clusters at the ends of the branches.

Fields and meadows. N. Y. and Mass. to Car. June. 2. —Culm 2—3 feet high. Leaves broad-linear, acuminate, rough. Panicle glaucous, contracted; somewhat secund; the clusters ovate, or lance-oblong. Introduced from Europe, where it is sometimes cultivated for cattle. It is thought, however, to be inferior to Timothy.

45. TRICUSPIS. Beauv.—Tricuspis.

(From the Latin tres, three, and cuspis, a point; in allusion to the lower palea.)

Spikelets nearly terete, many-flowered. Glumes shorter than the flowers. Lower palea bifid at the apex, and tricuspidate by the projecting keel and marginal nerves, the base and sides villous; upper palea slightly bicuspidate.—Panicle compound, spreading.


Sandy fields. N. Eng. and N. Y. to Car. Aug. 2. —Culm 3—5 feet high, erect, smooth. Leaves long, flat, nerved, the sheaths bearded at the throat. Panicle very large, at length spreading and pendulous, usually purple. It is a harsh grass, but is sometimes cut for hay.

46. FESTUCA. Linn.—Fescue Grass.

(Said to be derived from the Celtic fest, signifying food, pasturage.)

Spikelets oblong, 3—many-flowered; the flowers distichous,
free. Glumes unequal, mostly keeled. Paleae herbaceous; the lower somewhat rounded on the back, acute, mucronate or awned at the summit. Stigmas simply plumose. Caryopsis compressed, somewhat adhering to the upper palea.—Panicle usually compound.

1. *F. Myurus Linn.*: culm leafy in the upper part; panicle securd, elongated, contracted; spikelets about 4-flowered; flowers shorter than the awn, hairy, monandrous.

Dry fields. N. J. to Geor. June. ①.—Culm 8—12 inches high. Leaves linear, setaceous. Panicle 4 or 5 inches long. Introduced?

Wall Fescue-grass.

2. *F. tenella Willd.*: culm filiform; leaves setaceous; panicle simple, spike-form, rather securd; spikelets about 7-flowered; awns shorter than the subulate flowers. *F. bromoides* Mich.

Sandy fields. N. Y. and Mass. to Car. June. ①.—Culms often clustered, 6—12 inches high, geniculate at base. Leaves linear, short. Panicle 2—4 inches long, the spikelets brownish when old.

Slender Fescue-grass.

3. *F. duriuscula Linn.*: root fibrous; culm leaves flat, radical ones setaceous; panicle somewhat contracted, subsecund; spikelets oblong, 5—6-flowered, nearly terete; flowers with short awns.


Hard Fescue-grass.

4. *F. rubra Linn.*: root creeping; leaves pubescent on the upper side; panicle securd, erect, spreading; spikelets somewhat terete; flowers longer than their awns.


Creeping Fescue-grass.

5. *F. elatior Linn.*: root creeping; panicle much branched, rather loose and spreading; spikelets ovate-lanceolate, 4—6-flowered; flowers cylindric, acuminate or mucronate.

Wet meadows. N. Y. and Mass. to Car. June. ①.—Culm 3—5 feet high. Leaves broad-linear, 9—15 inches long. Panicle 6—8 or 10 inches long, mostly nodding, the branches usually in pairs. Introduced, but extensively naturalized.

Tall Fescue-grass.

6. *F. pratensis Huds.*: root fibrous; leaves linear; panicle spreading, branched, erect; spikelets oblong or linear-lanceolate, many-flowered; flowers cylindric, awnless; outer palea acute.

Meadows and fields. N. Y. and Mass. to Del. W. to Ohio. June, July. ①.—Culm 2—3 feet high. Leaves broad-linear, nerved, smooth, rough on the margin. Panicle 4—8 inches long, somewhat securd. Introduced, but extensively naturalized. It is said to be a much more valuable grass than the preceding.

Meadow Fescue-grass.

7. *F. nutans Willd.*: panicle slender, diffuse, at length nodding; branches long, in pairs, naked below; spikelets lance-ovate, 2—5-flowered; flowers smooth, awnless, very obscurely nerved.
47. DIPLACHNE. _Beauv._—Diplachne.

(From the Greek _dipl_ο_ōs, _double_, and _a_χυν, _chaff_; in allusion to the division of the outer palea.)

Spikelets at first terete, 7—9-flowered. Paleæ unequal, mucronate, villous on the margins; lower one slightly bifid at the tip, with a straight bristle between the teeth, 3-nerved; upper bifid, flat on the back. Stigmas simply plumose. Pericarp loose.—Panicle somewhat second.

_D. fascicularis_ _Beauv._ _Torr._ _N. Y._ _Fl._ _Festuca fascicularis_ _Lam._ _F._ _procumbens_ _Muhl._

Brackish meadows. N. Y. to Car. Aug. (I)._—Culm 8—15 inches long, branched from the base, procumbent. _Leaves_ longer than the culm, narrow, pointed at the end; _ligule_ lacerate. _Panicle_ erect, with spreading spike-like branches. _Spikelets_ one-sided, on short peduncles.

_Cluster-flowered Diplachne._

48. BROMUS. _Linn._—Brome Grass.

(From _βρόμος_, a name given by the Greeks to a kind of oats.)

Spikelets oblong, 3—many-flowered; the flowers in two rows. Glumes unequal, shorter than the flowers. Lower palea bifid at the apex, and usually awned a little below the tip; upper 2-kkeeled, the keels pectinate-ciliate. Stigmas simply plumose.—Panicle diffuse or contracted.

1. _B. sterilis_ _Linn._: panicle drooping, slightly branched; spikelets linear-lanceolate, at length oblong; flowers remote, lanceolate-subulate; paleæ shorter than the straight awn.

Waste grounds. Penn-Yan, Yates county, N. Y. _Dr._ _Sartwell._ June, July. (1)._—Culm about 2 feet high, slender, smooth. _Leaves_ pubescent above, smooth beneath. _Panicle_ nearly simple, slender. _Spikelets_ about 6-flowered. Introduced from Europe. _Barren Brome-grass._

2. _B. secalinus_ _Linn._: panicle spreading, the peduncles but little branched; spikelets ovate-oblong, compressed, 8—10-flowered; flowers rather remote; paleæ longer than the flexuous awns.

Cultivated grounds. Can. to Car. W. to Ohio. June. (1)._—Culm 2—3 feet high; the nodes swollen and pubescent. _Leaves_ broad-linear, hairy above. _Panicle_ 4—6 inches long; branches semiverticillate, scabrous and pubescent. Introduced from Europe. It is very common in wheat fields, especially when the grain has been injured by frost. This has given rise to the common, but mistaken, idea that wheat is changed into this plant. _Ches._ _Cheat._

3. _B. mollis_ _Linn._: panicle erect, contracted; spikelets oblong-ovate, somewhat compressed, pubescent; flowers imbricate, compressed, about as long as the straight awn.

Leaves very soft, pubescent. Panicle 3—4 inches long. Spikelets nearly erect, 5—10-flowered. The seeds are said to be deleterious. Introduced from Europe. Soft Brome-grass.

4. B. purgans Linn.: panicle oblong, somewhat contracted, at length nodding; spikelets oblong-lanceolate, ovate-oblong when old, 7—8-flowered; flowers hairy; awn straight, nearly as long as the palea.


Canadian Brome-grass.

5. B. ciliatus Linn.: panicle loose, nodding; spikelets oblong, terete, 8—12-flowered; flowers appressed-pubescent, longer than the straight awn.

B. Canadensis Mich.?

Woods. Can. to Penn. June. 5. — Culm 3—5 feet high, striate, the nodes black and hairy. Leaves broad-linear, hairy above, smoothish beneath. Panicle 6—8 inches long; the branches filiform, rough. Ciliate Brome-grass.

6. B. pubescens Muhl: panicle loose, nodding; spikelets lanceolate, sub-terete, 8—12-flowered; flowers pubescent, rather longer than the straight awn.


Pubescent Brome-grass.

7. B. arvensis Linn.: panicle erect, spreading; spikelets lanceolate, compressed, 7—8-flowered; flowers imbricate, compressed, smoothish, about as long as the straight awn.


Field Brome-grass.

49. UNIOLA. Linn.—Spike Grass.

(Probably so named because the lower flowers of the spikelet consist only of a single palea. Torr.)

Spikelets compressed, many-flowered, one or more of the lower flowers sterile, and consisting of a single palea. Glumes keeled. Paleæ of the perfect flowers 2; lower one boat-shaped; upper smaller, doubly keeled. Stamens 1—3.—Panicle compound, loose.

1. U. latifolia Mich.: leaves broad and flat; panicle loose, nodding; spikelets on long peduncles; flowers somewhat falcate, monandrous.


2. U. gracilis Mich.: panicle elongated, racemose, appressed; spikelets 3—4-flowered; flowers spreading, monandrous. Holcus laxus Linn.

Sandy swamps. N. Y. to Geor. Aug. 2. — Culm 3—4 feet high, cespitose, slender, somewhat compressed, leafy. Leaves a foot or more long, narrow, flat. Panicle 6—10 inches long, very slender, with short remote branches.

Slender Spike-grass.
GRIMINACEAE.

X. Hordeum. Spikelets 3-many-flowered, rarely 1-flowered, often awned; the terminal flower imperfect. Glumes and palea 2, herba-
ceous; the former rarely wanting. Stigmas sessile.

50. LOLIUM. Linn.—Darnel.
(A classical Latin name, applied to this genus.)

Spikelets sessile, many-flowered, distichous at right angles with, or the edge to the rachis. Flowers imbricate, naked at the base. Inner glume mostly wanting. Lower palea lanceo-
late, mucronate or with a short bristle at the tip; upper one 2-keeled.—Spike simple; rachis not jointed.

1. L. perenne Linn.: perennial; spikelets longer than the glumes, linear-
oblong, compressed, 7-9-flowered; flowers mostly awnless.

Meadows and fields. N. Eng. N. Y. and Penn. June. 2.—Culm 1-2
feet high, smooth. Leaves lance-linear, smooth, shining, somewhat rough near the end. Spikelets 12-20, alternate, forming a spike about 6 inches long. In-
troduced, probably from England, where it is esteemed as a valuable grass for the agriculturalist.

Perennial Darnel. Rye-grass.

2. L. temulentum Linn.: annual; spikelets as long as the glumes, much compressed, 5-7-flowered; flowers as long as the rigid awns.

Fields. N. Eng. and Penn. July. (1).—Culm about 2 feet high, terete, scabrous above. Leaves lance-linear, rough on the margins. Spikelets much compressed. The seeds are said to be poisonous. Introduced from Europe.

Boarded Darnel.

51. TRITICUM. Linn.—Wheat or Wheat Grass.
(From the Latin tritum, rubbed or ground; because the seed is thus prepared for food.)

Spikelets distichously imbricate, sessile on the teeth of the rachis, 3-many-flowered. Glumes 2, nearly equal, opposite. Palea lanceolate; the lower one concave, acuminate or awned at the summit. Scales 2, mostly entire and ciliate.—Flowers spiked.

1. T. repens Linn.: root creeping; spike distichous, compressed; spike-
lets about 5-flowered, distant, alternate, lance-oblong, acute; glumes lance-
olate, 5-nerved, acuminate. Agropyron repens Torr. Fl.

Fields and meadows. N. S. W. to Miss. June-Aug. 2.—Root or rhi-
zoma jointed, prolificous. Culm about 2 feet high. Leaves lance-linear, some-
what scabrous. Spike 3-5 inches long. A very troublesome weed. Intro-
duced from Europe.

Creeping Wheat-grass. Couch-grass.

2. T. caninum Linn.: root fibrous; spike distichous, compressed; spike-
lets about 5-flowered; glumes lanceolate, 3-5-nerved, acute; lower palea
awned. Agropyron caninum R. & S.

Fields. Penn-Yan, N. Y. Dr. Sartwell. Del. Muhl. July. 2.—Culm
52. ELYMUS. Linn.—Lyme Grass.

(From ἔλυμος, a name given by the Greeks to the panic-grasses, because they grew abundantly about Élyma, in Greece. Hook. Fl. Br.)

Spikelets 2 or more at each joint of the rachis, 2—7-flowered, the upper flowers imperfect. Glumes 2, nearly equal, subulate, rarely 1 or wanting. Paleæ 2, lanceolate, subcoriaceous; the lower one usually awned.—Spike simple.

1. E. Virginicus Linn. : spike erect, dense; spikelets in pairs, 2—3-flowered, the flowers nearly smooth; glumes lanceolate, nerved, as long as the spikelets.

A.—Culm 3—4 feet high, smooth. Leaves broad-linear, flat, scabrous, deep green. Spike 3—5 inches long, stiffly erect, thick.

Virginian Lyme-grass. Wild Rye.

2. E. Canadensis Linn. : spike rather spreading, nodding at the extremity; spikelets in pairs, 3—5-flowered; flowers hairy; glumes lanceolate-subulate, awned, conspicuously nerved. E. glaucifolius and Philadephicus Wild.


Canadian Lyme-grass.

3. E. villosus Muhl. : spike loose, somewhat nodding; rachis and flowers hispid-pilose; spikelets mostly in pairs, 1—3-flowered; glumes linear, hairy-ciliate, 2—3-nerved. E. ciliatus Muhl.

A.—Culm 2—3 feet high, rather slender, smooth. Leaves lanceolate, somewhat pubescent above; the lower sheaths hairy. Spike 2—3 inches long, at length spreading and somewhat nodding.

Hairy Lyme-grass.

4. E. Hystrix Linn. : spike erect; spikelets in pairs or ternate, distant, diverging, about 3-flowered; flowers awned; glumes minute or wanting.

A.—Culm 2—4 feet high, erect, smooth. Leaves broad-linear, flat, often glaucous. Spike 4—6 inches long, at length spreading so as to resemble an apothecary's bottle washer. 

Bottle-brush Grass.

5. E. striatus Willd. : spike erect; spikelets in pairs, 2-flowered, awned, hispid; glumes linear, nerved, awned, nearly as long as the spikelets.

A.—Culm 8 inches high, erect, striate. Leaves lanceolate, acuminate, rough above, sheaths smooth. Spike somewhat spreading, the rachis pubescent. 

Striated Lyme-grass.

53. HORDEUM. Linn.—Barley.

(An ancient Latin name, the origin of which is doubtful.)

Spikelets 3 at each joint of the rachis, the lateral ones often abortive, each 1-flowered, with a subulate rudiment of a second flower. Glumes 2, nearly equal, collateral, lance-linear, flat, awned. Paleæ 2, the lower with a long awn; the upper 2-keeled, obtuse—Spike simple.
H. jubatum Linn.: lateral flowers abortive, neutral; bristles of the glume and lower palea 6 times as long as the flowers.


XI. Rottbellea. Spikelets 1- or 2- rarely 3-flowered, seated in an excavation of the rachis, either solitary or in pairs, with one pedicelate and often blighted. One flower of each 2-flowered spikelet imperfect. Glumes 1—2, sometimes wanting, mostly coriaceous. Palea membranaceous, rarely awned.

54. TRIPSACUM. Linn.—Sesame Grass.
(From the Greek τρίπασος, to grind; but the application is obscure.)

Monoecious. Sterile Spikelets in pairs on each joint of the rachis, and longer than the joint, collateral, 2-flowered. Flowers each with 2 palea. Fertile Spikelets solitary, as long as the joint, 2-flowered. Flowers with 2 paleae; the outer or lower flower neutral, the inner or upper one fertile.—Spikes solitary, or digitate in twos or threes.

T. dactyloides Linn.: spikes 2—3, aggregated or digitate, sometimes solitary; sterile flowers above, fertile at the base.

Meadows. N. Y. to Car. W. to Miss. and Ark. July, Aug. 2. —Culm erect or oblique, 4—6 feet high, somewhat compressed. Leaves large, often 3 feet long, linear-lanceolate, smooth beneath, rough above. Spikes usually 2—3, rachis articulated. T. monostachyon Willd. is a mere variety with a single spike. The value of this grass for fodder, seems to have been greatly overrated. Sesame-grass. Gama-grass.

XII. ANDROPOGONEAE. Spikelets 2-flowered; the lower flower always imperfect, on a bearded pedicel. Paleae mostly hyaline.

55. ANDROPOGON. Linn.—Beard Grass.
(From the Greek ἀνδρός, a man, and πώγων, a beard; in allusion to the hairy flowers.)

Lower flower staminate or neutral, the glumes and paleae often very minute or wanting. Upper flower perfect. Glumes awnless. Paleae 2, shorter than the glumes; lower one mostly awned.—Flowers in panicles or spikes.

*Flowers in panicles.

1. A. nutans Linn.: panicle terminal, oblong, branched, at length nodding; lower flower a mere pedicel, without valves; outer glume of the perfect flower covered with brownish hairs; awn contorted. A. avenaceum Mich.

** Flowers in spikes.**


3. *A. furcatus* Muhl.: spikes digitate, generally in threes or fours; lower flower staminate, awnless; awn of the perfect flower somewhat contorted. Rocky grounds. N. Y. and Mass. to Car. W. to Ark. Aug., Sept. 24.—Culm 3–4 feet high, simple or somewhat branching. Leaves flat; the lower very long. Spikes about 3 inches long, 3–5 or more at the summit of the culm. Forked Beard-grass.

4. *A. macrourus* Mich.: spikes fasciculate, in dense lateral and terminal fastigiate panicles; lower flower a mere rudiment without valves; perfect flower monandrous, the awn straight.

Swamps, especially near salt water. N. Y. and Mass. to Flor. Sept., Oct. 24.—Culm 3 feet high, much branched towards the top. Leaves roughish; the lower long. Spikes very numerous, in large clustered panicles, partly concealed in the boat-like sheaths. Many-spiked Beard-grass.

5. *A. Virginicus* Linn.: culm somewhat compressed; sheaths smooth; spikes short, 2–3 from each sheath, in slender fascicles, lateral and terminal; lower flower a mere pedicel without glumes; perfect flower monandrous, the awn straight. *A. dissitiflorum* Mich.

Dry swamps. N. Y. and Mass. to Flor. Sept. 24.—Culms about 3 feet high, somewhat cespitose, with short branches above. Leaves a foot or more in length, the lower hairy on the upper surface. Spikes partly concealed in sheaths. Virginian Beard-grass.
DIVISION II.

FLOWERLESS or CRYPTOGRAMOUS PLANTS.

PLANTS DESTITUTE OF PROPER FLOWERS; AND PRODUCING SPORES, INSTEAD OF SEEDS.

CLASS I. FERN-LIKE PLANTS.

Flowerless plants, with a stem having a vascular system and for the most part with distinct leaves or fronds. Spore-cases (the coverings of the spores, sometimes called theca or capsules), axillary, radical or dorsal, one or many-celled.

Order CXLVIII. Equisetaceae.—Horse Tails.

Fructification in terminal cones or spikes composed of peltate scales attached to a central axis, and bearing on their inner surface several cases or thecae, which contain the spores. Spores oval grains, wrapped round with a pair of highly elastic elaters, which uncoil themselves when dry.—Leafless herbaceous perennial plants. Stems hollow and jointed, either simple or with whorled branches, and furnished at the joints with toothed sheaths. Stomates arranged longitudinally on the cuticle, which contains a large quantity of silica.

Equisetum Linn.—Horse Tail.

Character same as that of the order.

* Fertile stems simple, discolored, appearing before the sterile ones.

1. E. arvense Linn.: sterile stems erect or assurgent, roughish, with 12—14 furrows, the branches 3—4-angled and ascending; teeth of the sheaths ovate-acuminate, subsquarrose; fertile stems simple, erect; the sheaths large, loose, remote.
Moist grounds. Arct. Amer. to Virg. W. to the N. W. Coast. April, May. 24.—Sterile stems 10—15 inches high, with whorls of ascending branches, which are either simple or somewhat divided. Fertile stems 6—8 inches high, with brownish or purple sheaths. Spikes oblong, obtuse; the scales at first approximated, at length more open. Field Horse-tail.

** Fertile stems at length branched, bearing the fructification at the same time with the branches.

2. *E. sylvaticum* Linn.: sterile and fertile stems both branched, about 12—furrowed; branches compound, curved downwards; sheaths loose, deeply cleft into several broad-lanceolate membranaceous teeth.

Moist grounds. Arct. Amer. to Virg. and Ohio. June, July. 24.—Stems 12—18 inches high; the sterile ones usually taller and more slender. Sheaths divided into 8—17 teeth or leaves, whose points are connected in 2—4 or more lobes. Spike oblong. Wood Horse-tail.

3. *E. palustre* Linn.: stem deeply grooved, roughish, 7—8-angled; branches whorled, simple, gradually shorter upwards; sheaths distant, cut at the apex into 6—10 fuscous teeth.


4. *E. limosum* Linn.: stem smooth, with 16—21 striae, sometimes simple; branches nearly erect, simple, short; teeth of the sheaths short, rigid, distinct.


*** Stems simple or branched only at base.

5. *E. hyemale* Linn.: stems numerous, simple, naked, erect, very rough; sheaths short, blackish at the base and apex, with about 14—20 very small obtuse finically deciduous teeth.

Wet woods and marshes. Can. to Penn. W. to Miss. and Ken. June, July. 24.—Stems 1—2 feet high, naked, furrowed, pale and somewhat glaucous green. Sheaths 2—4 lines long, the teeth deciduous. Spike ovate, blackish. The cuticle abounds in silica, and the stems are well suited for the polishing of hard woods and the metals. Scouring Rush. Shave-grass.

6. *E. variegatum* Schleich.: stems several, usually decumbent or assurgent, simple or only branched at the base, rough, filiform, with 4—8 striae; sheaths with membranaceous lanceolate teeth, blackish at the base.

Wet sandy places. Arct. Amer. to N. Y. July. 24.—Stems 6—12 inches long, several from the same root. Sheaths blackish, consisting of about seven 4-keeled persistent teeth. Spike ovate, blackish, smaller than in the preceding. Variegated Rough Horse-tail.


Wet rocky places. Arct. Amer. to N. Y. and N. Eng. 24.—Stems in dense tufts, 4—8 inches long, very slender, 5—6-angled. Sheaths minute, blackish,

Order CXLIX. Filices.—Ferns.

Fructification only of one kind on the same individual. Spore-cases sometimes in distinct spikes or racemes, but usually collected into clusters of various shapes, (sori,) arising from veins on the under surface of the leaf or frond; either pedicellate, with the stalk passing round them in the form of an elastic ring, or sessile and destitute of such a ring; and either naked, or covered with an involucre, (indusium.) Spores very minute.—Leafy plants, producing a rhizoma which is mostly creeping, but sometimes arborescent. Fronds coiled up before expansion, simple or variously branched and divided.

I. Poly podde. Spore-cases stalked, furnished with an articulated elastic more or less complete ring, opening transversely and irregularly.

1. Polypodium. Linn.—Polyphody.

(From the Greek πολύς many, and πονσ πόδος, a foot; from the numerous foot-like branches of the root-stock.)

Sori roundish, scattered on various parts of the lower surface of the frond. Indusium none.

* Frond pinnatifid.

1. P. vulgare var. Americanum Hook.: frond smooth, deeply pinnatifid; segments linear-oblong, obtuse, crenate-serrulate, the upper ones becoming gradually smaller; sori large, distinct. P. Virginianum Wild.

Rocky woods. Arct. Amer. to Car. W. to Miss. July. 2.—Rhizoma creeping, clothed with brownish chaffy scales. Fronds 6—10 inches long, 1½—2 inches wide, growing in thick patches; segments mostly alternate. Sori large, in double rows on the back of each segment, at first distinct and yellowish, at length in contact and dark colored. According to Torrey, the American plant differs from the European only in the fronds being narrower and more oblong, the segments more distant, and the sori nearer the margin. Common Polyphody.

** Frond bipinnatifid.

2. P. hexagonopterum Mich.: stipe smooth; frond bipinnatifid, slightly pubescent, the lowest divisions deflexed; segments lanceolate, obtuse, ciliate, crenate or toothed; the lowest pairs adnate-decurrent, connected by an oblong somewhat hexagonal wing; sori minute.

Moist woods. Can. to Car. July. 2.—Stipe 12—15 inches long, slender, smooth. Frond triangular in its outline, the base 6—9 inches wide, and often exceeding the length. Sori very small, roundish, distinct, marginal, in 1—3 rows. Winged Polyphody.
3. *Phegopteris Linn.*: stipe pubescent, somewhat chaffy; frond bipinnatifid, the two lower divisions deflexed; segments linear-lanceolate, obtuse, entire, ciliate, the lowermost ones adnate-decurrent; veins hairy; sori solitary, marginal. *P. connectile* Mich.

Shady woods. Throughout the U. S. July, Aug. **Stipe** 6—10 inches long, minutely pubescent and a little chaffy. **Frond** triangular, 3—5 inches long. **Sori** minute, mostly 4 on each segment. Identical with the foreign plant, and differing from the preceding chiefly in its smaller size, pubescent stipe, and more closely approximated pinnae. **Beech Polypody.**

*** Frond ternate, bipinnate.


Wet woods. Arct. Amer. to Penn. July. **Rhizoma** black, creeping and slender. **Stipe** 6—12 inches long, erect, slender, smooth. **Frond** 4—6 inches wide, triangular, of a light green color. **Sori** small, light brown. **Three-branched Polypody.**

2. **ONOCLEA. Linn.**—Sensitive Fern.

(An ancient Greek name, applied to this genus.)

Sterile frond deeply pinnatifid; the segments sinuous or pinnatifid, with reticulated veins. Fertile frond bipinnate, small; the segments contracted, with their margins revolute, forming a general involucre and resembling berries. **Sori** 4—6, confluent. Indusium lateral, cucullate, thin and membranaceous.

*O. sensibilis* Linn.: sterile frond pinnate; pinnae lanceolate, acute, laciniate, upper ones united at base; fertile frond bipinnate, with the segments recurved and globosely contracted, resembling a compound spike.

var. *obtusiloba* Torr.: fertile frond deeply bipinnatifid; segments obovate, very obtuse; the margin slightly recurved. *O. obtusiloba* Schk.? Pursh.

Moist woods. Can. to Flor. July. **Stipe** 8—12 inches long, angular, a little chaffy at the base, elsewhere smooth. **Sterile frond** 8—12 inches long, triangular, deeply pinnate, smooth. **Fertile frond** 3—6 inches long, nearly erect; the contracted and somewhat triangular-globose segments smoothish, dark brown, resembling berries in two-rowed unilateral spikes. The var. *obtusiloba* is quite rare, and is said by Torrey to have been hitherto obtained in only three localities. In one of these it was found growing on the same root with the common variety. **Sensitive Fern.**

3. **ASPIDIUM. Swartz.**—Shield Fern.

(From the Greek *aeris*, a shield; in allusion to the form of the indusium.)

Sori roundish, scattered. Indusium orbicular, fixed by the centre, or reniform and fixed at the sinus.

* Frond pinnate.

1. *A. acrostichoides* Swartz: stipe and rachis chaffy; frond pinnate; pinnae linear-lanceolate, acute, somewhat falcate, mucronate-serrulate, au-
rilicate at base on the upper side, subsessile; the upper ones smaller and only fertile; sori at length confluent. *Nephrodium acrostichoides* Mich.

var. *incisum* Gray: segments unequally and incisely toothed; sori mostly distinct. *A. Schweinitzii* Beck Bot. 1st Ed.


Terminal *Shield-fern*.

**Frond pinnate-pinnatifid.**

2. *A. Thelypteris Swartz*: frond pinnate; pinnae mostly opposite, linear-lanceolate, sessile, deeply pinnatifid, the lower ones longer; segments ovate-oblong, rather acute, the margin slightly crenulate, revolute when in fruit; sori small, a short distance from the margin, contiguous, at length confluent. *Polypodium Thelypteris Linn.*

Wet woods and swamps. Can. to Del. July. 2.—*Stipe* about a foot long, smooth and naked. *Frond* 6–12 inches long, oblong-lanceolate in outline, deep green and delicate. *Sori* between the margin and midrib of the segments, at length confluent and usually covering their whole under surface. *Indusium* orbicular-reniform. Perhaps not distinct from *A. Thelypteris*.

Marsh *Shield-fern*.


Moist woods. Can. to Car. July. 2.—A fern about as large as the preceding, but of a more rigid habit. *Stipe* smooth or slightly pubescent. *Frond* pale green; the segments oblong-oblong and sometimes a little acute. *Sori* in two rows. *Indusium* orbicular-reniform. Perhaps not distinct from *A. Thelypteris*.

*New York Shield-fern*.

4. *A. cristatum* Swartz: stipe nearly naked; frond pinnate, (nearly bifanate,) lanceolate, somewhat rigid; pinnae somewhat cordate, oblong, deeply pinnatifid; segments oblong, obtuse, doubly serrate; sori near the midrib. *A. Lancastriense* Spreng.

Moist woods. Can. to Del.; nre. July. 2.—*Stipe* stout, somewhat chaffy, varying from tawny to brown. *Frond* 1½–2 feet long, linear-lanceolate in its outline, bright green; lower pinnae broad at the base. *Sori* middle-sized, distinct, dark brown, mostly in two rows, usually on the upper half of the frond.

*Crested Shield-fern*.

5. *A. Goldianum Hook.*: frond pinnate, broad-ovate; pinnae deeply pinnatifid, lanceolate, acuminate; segments oblong, subacute, somewhat falcate, mucronate-serrate; sori in two rows near the midrib on the lower segments. *A. Felix was Pursh* not of *Willd*.

Moist woods. Can. to Del. July. 2.—*Fern* 1½–3 feet high, with the stipe somewhat chaffy. *Frond* 6–12 inches wide, yellowish-green. Resembles *A. cristatum* more than any other species, but can at once be distinguished by the broader frond, by the form of the pinnae, which are never broader at base, and by the narrower and slightly falcate segments. *Goldie's Shield-fern*.

***Frond bipinnate.***

6. *A. marginale* Swartz: stipe chaffy; frond bipinnate; pinnae lance-
olate; segments oblong, obtuse, crenate-serrate, decurrent, the lower ones nearly distinct; sori nearly marginal, distinct. *Nephrodium marginale* Mick.

Rocky woods. Can. to Car. July. 34. — Fern 12—18 inches high. Stipe stout, chaffy, especially near the root, with large tawny scales. *Frond* ovate-oblong, smooth, bluish-green, the upper part only fertile. *Sori* middle-sized, one at each notch in the segments. *Indusium* peltate-reniform. *Marginal Shield-fern.*


Shady woods. Can. to Virg. July. 34. — Stipe 6—12 inches long, pale brown, chaffy with thin brown scales. *Frond* 12—18 inches long, ovate-lanceolate in its outline, varying in the divisions of the *pinnae*, sometimes almost tripinnate; serratures of the segments cuspidate or sharply acuminate. *Sori* rather small, numerous, somewhat in two rows, brownish. *Indusium* umbilicate in the centre. 

Dilatated Shield-fern.

8. *A. aculeatum* Swartz: stipe and rachis chaffy; frond bipinnate; pinnules ovate, somewhat falcate, slightly petioled, mucronate-serrate, obliquely truncate and auricled at the base on the upper side, obtusely cuneate on the lower, upper ones fruticose. *(Torr. N. Y. Fl.)*


Prickly Shield-fern.

4. WOODSIA. Brown.—Woodsia.

(Named in honor of Joseph Woods; an English botanist.)

Sori globose. *Indusium* more or less globose or cup-shaped, seated under the sorus, and at length cut at the margin into numerous often capillary segments. Spore-cases globose, pedicellate.

1. *W. ilvensis* Brown: frond lanceolate, pinnate; *pinnae* oblong, obtuse, deeply pinnatifid; segments oblong, obscurely crenate, the under surface as well as the rachis and stipe chaffy. *W. ilvensis* and *rufula* Beck Bot. 1st Ed. 

Rocky banks of streams. Subarct. Amer. to Car. June. 34. — Fern 4—6 inches high, growing in dense tufts. *Fronds* 2—4 inches long, the under-surface clothed with rusty scales; *pinnae* about 12, alternate. *Sori* small, near the margin of the segments, at length confluent. *Indusium* surrounding the slightly pedicellate spore-cases, the margin cut into numerous capillary segments. 

Oblong-leaved Woodsia.


In cliffs of rocks. Can. and on the high mountains of Penn. and Virg. *Pursh.* July. 34. — Resembles the preceding, but is sometimes quite small, and differs in having the *pinnae* as well as the segments more rounded and less deeply
pinnatifid, except at their base, where the bottom pair of segments are often so deeply separated as to form two little pinnules. *Rounded-leaved* Woodsia.

3. *W. obtusa* Torr.: stipe and rachis somewhat chaffy; frond lanceolate, somewhat bipinnate, minutely glandular-pilose; divisions pinnate or deeply pinnatifid; segments oblong, obtuse, crenate-toothed; sori mostly solitary on each lobule of the segments, and near the sinus. (*Torr. N. Y. Fl.*)


Rocky banks. Can. to Car.; rather rare. July. ¼.—Fern 8—12 inches high. *Stipe* 2—3 inches long, straw-colored, chaffy. *Frond* covered with a minute glandular pubescence; the divisions ovate-oblong. *Sori* small, at length almost confluent. *Indusium* hemispheric, at length opening at the top with an irregular lobed margin. Dr. Torrey states that the *Alsophila Perriniana* was described by Sprengel from specimens sent by him, which were placed by mistake in a collection of plants brought from the West Indies by M. Perrin. *Obtuse* Woodsia.

5. CISTOPTERIS. *Bernh.*—*Bladder Fern.*

(From the Greek κισσων, a box, and πτερος, a fern.)

Sori roundish. *Indusium* inserted by its broad cuculate base at the under side of the sorus, opening by its lengthened free extremity which points towards the apex of the segment.


Moist rocks. Arct. Amer. to Ver. Mass. and N. Y. June, July. ¼.—Fern 6—14 inches high, growing in tufts. *Stipe* slender, dark colored and a little chaffy at base. *Frond* delicate, deep green; *pinnules* somewhat variable in their shape and divisions. *Sori* large, pale, mostly solitary, near the margins of the segments. *Indusium* forming a sort of cup or hood. *Brittle* Bladder-fern.

2. *C. bulbifera* Bernh.: frond bipinnate, lanceolate, attenuate at the upper part; segments opposite, oblong, obtuse, serrate, the lower ones pinnatifid; rachis bearing bulbs; sori minute. *Aspidium bulbiferum* Swartz. *Nephrodium bulbiferum* Mich.

Shady rocks. Can. to Penn. and Ohio; common. July. ¼.—Fern sometimes 2 feet or more high, growing in tufts. *Stipe* smooth, pale. *Frond* narrow, smooth, green, much elongated and often bending over at the end. *Rachis* bearing greenish somewhat flattened bulbs, which are about the size of a pea. *Bulb-bearing* Bladder-fern.

6. ASPLENIUM. *Linn.*—*Spleenwort.*

(From the Greek α, privative, and πνευ, the spleen; from its supposed medicinal virtues.)

Sori oblong or linear, oblique, scattered. *Indusium* of the same shape, superficial, arising from the lateral veins, and opening longitudinally on the side towards the midrib.

* Frond pinnate.

1. *A. angustifolium* Mich.: frond pinnate; pinnae linear-lanceolate, cre-
frond segments, stipe
Narrow-leaved frond stipe
Ebony rare.
segments Mountain frond pinnae pi
ish-obovate, row line, oblong, lypodioides rachis erect.
rounded two cous serrate.
and the Stipe Indusium Sori nate-serrulate, growing —
Moist woods. Can. to Mass. and N. Y. July. 2l.—Fern 1—2 feet high, erect. Sterling fronds forming a circle with the fertile ones smaller and central. Sori oblong-linear, diverging like veins from the midrib, at length confluent. Indusium vaulted, thick. **Narrow-leafed Spleenwort.**


Rocky woods. Can. to Car. July. 2l.—Fern 8—12 inches high, erect. Stipe very smooth, dark purple or nearly black. Frond lance-linear in its outline, pale green, smooth. Sori in short diverging lines, arranged in a double row along the midrib of the pinnae, at length confluent. Indusium thin and membranaceous.

**Ebony Spleenwort.**

3. A. Trichomanes Linn.: frond pinnate; pinnae obliquely oval or roundish-ovate, sub sessile, crenate, cuneate or cuneate-truncate at base; stipe and rachis smooth, shining, very dark purple. A. melanocaulon Willd.


**F* Frond pinnate-pinnatifid.**


Shady banks of streams. Can. to Car. July. 2l.—Fern 1—2 feet high. Stipe smooth, straw-color, slightly chaffy. Frond oblong-lanceolate, pale glaucous green; pinnae long, numerous, distinct. Sori oblong and oblique, forming two rows, one on each side of the partial rib, at length almost confluent. **Thelypteris-like Spleenwort.**

**F* Frond bipinnate.**

5. A. Ruta muraria Linn.: frond bipinnate at base, simply pinnate at the top; segments rhomboid-cuneate, obtusely denticulate at the extremity.

Limestone rocks. N. Y. to Car.; rare. July. 2l.—Fern 2—4 inches long, growing in tufts. Frond ovate, spreading, smooth, rather rigid, glaucous green. Sori linear-oblong, slightly oblique, at length of a darker color and confluent. **Wall-rue Spleenwort.**


Mountain rocks. Bethlehem, Penn. to Car. Schweinitz. July. 2l.—Fern 4—8 inches high, growing in tufts. Frond having a narrow outline, mostly bipinnate, but more or less divided according to its size. Sori linear, at length confluent. Differs from the foreign A. Adiantum nigrum in being much smaller, and in having the segments more obtuse. **Mountain Spleenwort.**

7. A. Filix femina Bernh.: frond bipinnate; pinnules linear-oblong; segments oblong-lanceolate, incised-serrate, the serratures 2—3-toothed; sori oblong, at length lunate and recurved. **Aspidium Filix femina and**

Shady woods. Throughout the U. S. and Can. July. \(2\).—Fern 1—2 feet or more high, smooth. Stipe tawny. Frond with an outline varying from oblong to broad-lanceolate, variously divided and subdivided. Sori small, one on each segment of the pinnules, inserted laterally into its minute midrib, oblong and straight, at length by the pushing back of the indusium becoming kidney-shaped and appearing nearly round, but always remaining distinct.

Female Spleenwort.

7. ANTIGRAMMA. J. Smith.—Antigramma.

(From the Greek \(\alpha\nu\rho\nu\,\nu\iota\,\lambda\iota\) like, and \(\gamma\rho\pi\nu\mu\alpha\), writing; in allusion to the appearance of the sori.)

Sori linear, unilateral, mostly approximated in pairs and facing each other, scattered. Indusium linear; one margin free.

A. rhizophylla. J. Smith: frond lanceolate, somewhat crenate, (rarely sinuate,) auriculate-cordate at base; the point very long, attenuate and often rooting. Asplenium rhizophyllum Willd.

Wet rocks. Can. to Car.; rather rare. July. \(2\).—Froends several from the same root, 6 or 8 inches long and half an inch to an inch wide at the base, gradually tapering, with a long and linear point which is bent to the ground and often takes root, the base often hastate or conspicuously auricled; veins forked, reticulated. Sori often approximating in pairs and sometimes confluent.

Walking Fern.

8. SCOLOPENDRIUM. Smith.—Hart's Tongue.

(Thus named from the resemblance which the lines of fructification bear to the insect called Scolopendra.)

Sori linear, transverse, on lateral nerves. Indusium double, occupying both sides of the sorus, superficial, opening inwards, as it were, by a longitudinal suture.

S. officinarum Smith: frond simple, oblong-ligulate, entire, cordate at base. Asplenium Scolepodrium Linn.


9. WOODWARDIA. Smith.—Woodwardia.

(In honor of Thomas J. Woodward, an English botanist.)

Sori oblong or linear, distinct, parallel with the ribs of the frond on either side. Indusium superficial, vaulted, separating towards the rib.


Swamps. N. Y. and Mass. to Geor. July. 24.—Fern about 2 feet high, growing in tufts, smooth except at the lower part of the stipe. *Frond* lanceolate, tapering at the top; the veins of the sterile one much reticulated. *Sori* 3—4 lines long, at length nearly covering the back of the pinnae. *Indusium* involute. *Narrow-leaved Woodwardia*.

10. PTERIS. *Linn.*—Brake.

(From the Greek πτερός, a plume or feather; in allusion to the form of the frond.)

Sori marginal, linear, continuous or interrupted, forming a transverse receptacle which connects the apices of the veinlets. *Indusium* linear, narrow, occupying the margin of the frond; the inner side free.

1. *P. aquilina* Linn.: frond 3-parted; branches bipinnate; pinnules linear-lanceolate, lower pinnatifid, upper undivided; segments oblong, obtuse. *P. cordata* Pursh.

Dry woods. Can. to Flor. July, Aug. 24.—*Stipe* 1—2 feet long, angular, smooth, light brown, divided into large opposite branches. *Frond* 1—2 or 3 feet in diameter, bi-triternately divided, spreading, dull green; some of the *pinnules* wh only a single lobe, and appearing auricled. *Sori* uninterrupted, resembling a thickened russet edging. One of our largest ferns. *Common Brake*.

2. *P. atropurpurea* Linn.: frond pinnate or subpinnate; lower divisions ternate or pinnate; segments lance-oblong, obtuse, entire, obliquely truncate or subcordate at base. *Platydoma atropurpurea* J. Smith.


3. *P. gracilis* Mich.: frond lanceolate; the sterile pinnate, with pinnatifid divisions and a few broad-ovate obtuse segments; the fertile bipinnate, with linear-oblong acute slightly crenate segments. *Cheilanthes gracilis* Spreng. *Allosurus gracilis* J. Smith.


11. ADIANTUM. *Linn.*—Maiden Hair.

(From the Greek ἀδιάντος, dry; its surface repelling moisture.)

Sori oblong or roundish, marginal. *Indusium* membranaceous, arising from the reflected margin of distinct segments of the frond, opening along the lower or inner side.

FILICES.
FILICES.

A. pedatum Linn.: frond pedate; divisions pinnate; segments dimidiate, triangular-oblong, or somewhat rhomboid; the upper margin incisely lobed and serrate; sori somewhat lunate.


12. CHEILANTHES. Swartz.—Cheilanthes.

(From the Greek χείλα, a lip, and αὐθός, a flower; in allusion to the labiate form of the indusium.)

Sori roundish, distinct, situated at the margin of the frond. Indusium of distinct membranaceous inflexed scales, opening inwards.

C. vestita Willd.: frond bipinnate, hairy on both sides; pinnules pinnatifid; segments rounded, oblong, very entire; stipe and rachis hairy.


13. HYMENOPHYLLUM. Smith.—Filmy Fern.

(From the Greek ψηνε, a membrane, and ψυλλων, a leaf; in allusion to the texture of the frond.)

Sori in separate spots on the the margin of the frond. Spore-cases inserted upon a narrow receptacle, within a 2-valved indusium which is of the same texture as the frond, opening above.

II. ciliatum Smith: frond pinnate; lower divisions larger; upper ones gradually smaller, pinnatifid; segments linear-obtuse, bifid, ciliate, hairy on the veins; stipe and rachis winged and ciliate. Trichomanes ciliatum Swartz.


14. STRUTHIOPTERIS. Willd.—Ostrich Fern.

(From the Greek στρυθοπτερος, an ostrich, and πτερος, a fern; on account of the fancied resemblance to the plumes of that bird.)

Fertile frond contracted; the margins revolute, forming a general involucre. Sori round, confluent, naked; the pedicels of the spore-cases cohering at the base, forming an elevated thickened receptacle.

S. Germanica Willd.: sterile frond pinnate; pinnae pinnatifid, sessile; segments entire, rather acute, lower ones elongated. S Pennsylvanica Willd. Onoclea Struthiopteris and nodulosa Schlz.

smaller than the sterile, but having a thicker stipe; segments incurved and filled with the confluent sori. *Common Ostrich-fern.*

15. DICKSONIA. *L'Herit.*—Dicksonia.

(In honor of James Dickson, an English botanist.)

Sori small, roundish or dot-like, distinct, marginal. Indusium coriaceous or membranaceous, formed in part of the lobule of the frond and of the proper indusium more or less united, 2-valved or entire, sometimes cup-shaped.

*D. pilosiuscula Wild.*: frond bipinnate; pinnae lanceolate, sessile; pinnae decurrent, ovate-oblong, pinnatifid; segments incised-toothed; sori solitary, minute; indusium cup-shaped. *D. punctiloba Hook.* *Nephrodium punctilobum Mich.* *Aspidium punctilobum Wild.*


II. OSMUNDEÆ. Capsules destitute of a ring, reticulated, striated with rays at the apex, opening lengthwise and usually externally.

16. OSMUNDA. *Linn.*—Flowering Fern.

(Etymology uncertain.)

Spore-cases subglobose, pedicellate, radiate-striate or wrinkled, half 2-valved, in terminal paniculate racemes, or clustered on the contracted frond. Indusium none.

1. *O. Claytoniana Linn.*: frond pinnate; pinnae pinnatifid; segments oblong, entire; some of the intermediate pinnae fertile. *O. interrupta Mich.*

Low wet grounds. Can. to Virg.; common. June. *Stipe* nearly smooth, 6—8 inches long. *Frond* 18—24 inches long, linear-oblong in its outline; pinnae mostly opposite, 2 or 3 of the central pairs contracted into pinnate clusters of dark brown spore-cases. *Interrupted Flowering-fern.*

2. *O. spectabilis Linn.*: frond bipinnate, fruit bearing at the summit; pinnules lance-oblong, nearly equal at the base, subpetiolate, serrulate; raceme large, decomposed, smooth. *O. regalis Mich.*

Moist meadows and thickets. Can. to Flor. July. *Fern* 3—4 feet high, smooth, grayish-green, with numerous spreading branches. *Raceme* terminal, 4—8 inches long. Smaller and of a more rigid texture than the foreign O *regalis*, and also differing from it in having the pinnules distinct and without the auricle on the lower side. *Flowering-fern.*

3. *O. cinnamomea Linn.*: sterile frond pinnate; pinnae elongated, pinnatifid; segments ovate-oblong, entire; fertile frond bipinnate; pinnae contracted, and with the stipe woolly.

var. *frondosa Torr.*: frond leafy below, fruit-bearing at the summit; stipe less woolly. *O. Claytoniana Conrad* not of *Linn.* (according to Torr.)
Low grounds. Can. to Flor. Aug. 2l.—Fern sometimes 4—5 feet high, in large bundles or circles. Fertile fronds usually central, less numerous than the sterile, with the pinnae much smaller and covered with dense clusters of ferruginous or cinnamon-colored spore-cases. Var. frondosa has been found in a few localities in the state of N. Y. I am doubtful whether it may not still turn out to be a distinct species. Woolly Flowering-fern.

17. LYGODIUM. Swartz.—Climbing Fern.

(From the Greek lyev's, a twig; in allusion to its twining habit.)

Spore-cases sessile, ovate, in 2-ranked little spikes, which issue from the margin of the frond, radiate-strapiate, or wrinkled, opening on the inner side from the base to the summit. Indusium scale-like, covering each spore-case.

*L. palmatum* Swartz: stem flexuous and climbing; fronds conjugate, cordate, palmate, 5—7-lobed, the lobes entire and obtuse; terminal ones contracted and fruit-bearing, forming a compound panicle. *Hydroglossum palmatum* Willd. Citistium paniculatum Mich.

Low woods. Mass. and N. Y.? to Car.; rare. July. 2l.—Stem climbing, 3—4 feet long, smooth and slender. Petioles alternate, forked at a short distance from the stem, and supporting two leaves or fronds, which are deeply lobed, light green above and paler beneath. Fertile fronds variously divided into small linear segments with the sori in two imbricated rows. Climbing-fern.

18. SCHIZEA. Smith.—One-sided Fern.

(From the Greek χιης, to split; in allusion to the cloven appearance of the spikes.)

Spikes unilateral, flabellate, aggregate. Spore-cases with radiating furrows at the top, somewhat turbinate, bursting laterally, sessile. Indusium continuous, formed of the inflexed margin of the spikes.


Sandy moist grounds. Near the Academy in the town of Yates, Orleans county, N. Y. T. E. Wermore. Near Quakers' Bridge. N. J. Aug. 2l.—A very small fern, with numerous cespitose fronds, which are about 2 inches long. Stipe 3—5 inches long, filiform, with a few brownish second spikes. It has been found in Newfoundland and in the Falkland Islands, but the only intermediate localities known are those above noticed. One-sided Fern.

III. OPHIOGLOSSÆ. Spore-cases roundish, 1-celled, adnate at the base, coriaceous, opaque, destitute of a ring, sometimes connate, half 2-valved. Vernation straight.

19. OPHIOGLOSSUM. Linn.—Adder's Tongue.

(From the Greek φίς, a serpent, and γλῶσσα, a tongue; in allusion to the appearance of the spike.)

Spore-cases roundish, smooth, 1-celled, 2-valved, opening transversely, forming a compact 2-ranked linear spike. Indusium none.
LYCOPODIACEÆ. 467

1. O. vulgatum Linn.: root fibrous; spike cauline; frond simple, oblong-ovate, obtuse, closely reticulate.

Low moist woods. N. S.; rare. June. 2. — Stipe smooth and succulent, 6—9 inches high, bearing about the middle a single entire sub sessile frond. Spike about an inch long, on a slender peduncle. Common Adder’s-tongue.

2. O. bulbosum Mich.: root bulbous; spike cauline; frond subcordate, ovate, somewhat obtuse. O. croatalophoroides Wall.

Low sandy grounds. N. J. to Car.; rare. May. 2. — Stipe 6 inches high. Frond 1—1 ½ inches long and an inch broad, reticulate. Bulbous Adder’s-tongue.

20. BOTRYCHIUM. Swartz.—Moonwort.

(From the Greek βότρυς, a bunch of grapes; in allusion to the fructification.)

Spore-cases subglobose, 1-celled, 2-valved, distinct, smooth, sessile along the margin of a compound pinnate rachis, opening transversely. Indusium none.

1. B. simplex Hitchcock: scape with one frond above; frond ternate, pinnatifid; segments roundish, cuneate, obovate, entire or somewhat incised.

Dry woods. Can. N. Y. and Mass. June. 2. — Scape seldom more than 4 or 5 inches high. Frond solitary, from a torn membranaceous sheath, divided into 3 or 4 unequal segments or pinnatifid; the segments often much cut. Spike pinnate. Small Moonwort.

2. B. lunarioides Swartz: scape bearing the petioled frond near the base; frond smooth, 3-parted, the divisions bipinnatifid; segments obliquely lance-ovate, crenulate; spike bipinnate. B. fumarioides and obliquum Willd. Botrypus lunarioides Mich.

Moist low grounds. Can. to Car. W. to Ark. June. 2. — Scape 6—15 inches long, smooth or slightly hairy. Frond triangular in its outline, petiolated, but often more compound; segments lunate, crenulate. Spore-cases in double rows on the pinnules, which are very narrow and without teeth. B. dissectum Muhl. is nothing more than a variety, with the frond more dissected and the segments narrower. Tall Moonwort.

3. B. Virginicum Swartz: somewhat hairy; scape bearing the frond near the middle; frond 3-parted, the divisions bipinnatifid; segments obtuse, incisely toothed; spike bipinnate. B. gracile Pursh. Botrypus Virginicum Mich.

Shady woods. Can. to Car. May—July. 2. — Scape 10—18 or 20 inches high. Frond 3-parted or ternate; the divisions 4—6 inches long, broad-ovate or somewhat deltoid in their outline and again variously subdivided; segments acutely 2—6-toothed. Spike oblong, loose, brownish. Virginian Moonwort. Rattlesnake Fern. Order CL. LYCOPODIACEÆ.—CLUBMOSES.

Fructification axillary or spiked, composed of 1—3-celled sessile spore-cases containing either minute powdery matter, or grains of larger size.—Moss-like plants, with creeping or prostrate stems and imbricate leaves, the axis abounding in annular
vessels; or stemless plants, with erect subulate leaves and a solid corm.

1. Lycopodium. Linn.—Club Moss.

(From the Greek λυκός, a wolf, and πούς, πόδας, a foot; on account of a supposed resemblance in the appearance of some species.)

Spore-cases all of one kind, 1-celled, reniform, somewhat didymous, opening transversely at the apex or rarely at the base.

* Spore-cases in spikes.

† Spikes pedunculate.

1. L. clavatum Linn.: stem creeping, with ascending branches; leaves scattered, numerous, subulate-linear, incurved and hair-pointed; spikes mostly in pairs, cylindric, pedunculate; scales ovate, acuminate, erosely denticulate. L. tristachyum Pursh.? L. integrifolium Goldie.

Dry woods. Can. to Del. W. to Mich. July. 24.—Stem closely trailing on the ground, several feet long, rooting and throwing up fertile branches 2—6 inches long. Leaves 3—4 lines long, light green, entire or minutely denticulate. Spikes usually in pairs, sometimes 1, rarely 3 or 4, yellowish, erect. Peduncles Common Club-moss.

2. L. complanatum Linn.: stem trailing; branches erect or ascending, dichotomously and pedately subdivided, with the branchlets flattened and spreading; leaves 4-rowed, the marginal ones connate and diverging at the apex, the middle rows distinct and appressed; spikes 2—4, cylindric, on a long common peduncle.

Woods and thickets. Arct. Amer. to Car.; common. July. 24.—Stem 2—8 feet long, procumbent or sometimes shorter and nearly erect, variously branched. Leaves short, 4-rowed, those on each margin broad at the base and somewhat spreading, those of the middle row smaller and closely pressed to the flattened sides of the stem. Spikes about an inch long. Flattened Club-moss.

†† Spikes sessile.

3. L. inundatum Linn.: stem prostrate, creeping; fertile branches solitary, erect, with a single oblong sessile and leafy spike at the extremity; leaves linear, scattered, acute, entire or sparingly denticulate, curved upwards. L. Carolinianum Big.

var. alopecuroides Tuckerman: fertile branches elongated; leaves linear-subulate, sparingly ciliate-denticulate at the base. L. alopecuroides Linn.

Swamps and wet sandy margins of ponds. Hudson’s Bay to Flor. July, Aug. 24.—Stem long, creeping close to the ground, yellowish-green. Fertile branches subradical, 2—10 inches high. Sterile branches short, flaccid. Leaves varying from entire to conspicuously denticulate. Spikes 6 lines to an inch or more long, leafy. Marsh Club-moss.

4. L. annotinum Linn.: stem creeping, very branching; branches ascending, 2—3-forked, the branchlets simple; leaves in about 5 rows, linear-lanceolate, mucronate, serrulate at the apex, spreading; spike solitary, oblong-cylindric, sessile.
LYCOPODIACEÆ.

var. montanum Tuckerman: low; leaves in 4 rows. *L. sabinaefolium*
Beck Bot. 1st. Ed.

Stem often several feet in length, sending up ascending branches which are 6—9 inches high. Leaves rigid, light green, those of the stem shorter. Spike about an inch long. I concur in the opinion expressed by Mr. Tuckerman, that *L. sabinaefolium* of the previous edition is an alpine variety of this species.

**Interrupted Club-moss.**


Shady woods. Can. to Car. July ¾.—Stem 6—9 inches high, bushy near the summit, the branches dichotomously subdivided. Leaves entire, those of the lateral rows longest. Spikes sometimes solitary, but occasionally 4 or 5, about 2 inches long, somewhat tapering at the summit. **Ground Pine.**

6. *L. selaginoides* Linn.: stem filiform, creeping; branches few, ascending, simple; leaves scattered, lanceolate, somewhat spreading, ciliate-denticulate; spike solitary, sessile, leafy.

Wet hill sides. Can. and N. S.? July. ¼.—Fertile branches 2—4 inches high, nearly erect, yellowish-green, with the leaves larger than those of the sterile ones. Spike about an inch long. Lesser Alpine Club-moss.

-- **Spore-cases axillary, scattered.**

7. *L. lucidulum* Mich.: stem 2—3-forked, the branches ascending; leaves in about 8 rows, linear-lanceolate, denticulate, acute, spreading or reflexed.

Moist shady woods. Can. to Car. July, Aug. ¼.—Stem mostly prostrate, the branches 8—12 inches high. Leaves longer than in any of the preceding, dark green and shining. Spore-cases subreniform or semi-circular, pale yellow, sessile in the axils of the leaves about an inch from top of the branches. **Shining Club-moss.**

8. *L. Selago* Linn.: stem erect, fastigiate, dichotomously branched; leaves in about 8 rows, linear-lanceolate, acuminate, entire, imbricate, rigid.

Alpine summits. White Mountains N. H. Green Mountains, Vt. Whiteface Mountain and Mount Marcy, N. Y. Arct. Amer. July. ¼.—Stem 3—5 inches high, rigid, with the branches of the same thickness from the top to the base. Leaves 3—5 lines long, dark green, shining, rigid. Spore-cases in the axils of the leaves, reniform, yellowish. **Fir Club-moss.**

2. SELAGINELLA. Spring. Torr.—Selaginella.

(The diminutive of Selago.)

Spore-cases of two kinds, 1-celled; some filled with minute powdery matter, and opening at the apex; others containing 1—4 rarely 6 globose-angular grains.

1. *S. rupestris* Spring: cespitose, with ascending stems; leaves crowded, imbricate, linear-lanceolate, ciliate, with a hair-like point at the tip; spikes terminal, sessile, acutely quadrangular. *Lycopodium rupestris* Linn.

the summits of the branches a whitish appearance. Spikes 3—6 lines long, square and scarcely distinguishable from stem below. Spore-cases mostly with larger grains.

2. *S. apus* Spring: cespitose; stems flaccid, creeping, flat; leaves in 4 rows, not auricled; those of the lateral rows roundish-ovate, oblique and spreading; the intermediate ones on the upper side of the branches smaller, appressed; spikes dense, leafy. (*Torr. N. Y. Fl.*) *Lycopodium apodwn* Linn. *L. albiduium* Pursh.


**Order CLI. MARSILEACEÆ.—Pepperworts.**

Fructification enclosed in indusia or involucres of two kinds; the one clustered and stalked, or crowded confusedly without stalks, and distinct from the second, or mixed with it, or in contact with it; the other, simple oval bodies, sometimes having a terminal nipple, from which germination uniformly proceeds.—Stemless plants, creeping or floating. Leaves usually petioled, sometimes sessile and scaly, occasionally destitute of lamina and rolled up in vernation

1. *AZOLLA* Lam.—Azolla.

(Said to be derived from the Greek ἄξω, to dry, and ἀλλήμι, to destroy; it being quickly killed by dryness.)

Reproductive organs in pairs, attached to the stem and branches, one above the other, concealed in a membranaceous indusium. Capsules? of each pair either difform—in which case the lowest one is oblong-ovoid, the upper globose—or both of either kind; the upper half generally tinged with red. The oblong-ovoid capsule opens by circumcision; the globose one has a rugose surface from the pressure of the secondary capsules. (*Griffith, in Lind. Veg. King.*)

*A. Caroliniana* Willd: leaves 2-ranked, imbricate, ovate-oblong, obtuse, spreading, reddish beneath.

Lakes and slow flowing streams. N. Y. to Flor. W. to Miss.; rare in the N. S. (1)—A small plant floating on water, and somewhat resembling a *Jungermannia*, dark green, pinnately branched. Leaves less than half a line long. Sterile indusia solitary or in pairs at the base of the much larger sterile ones.

*Carolinian Azolla.*
MARSILEACEÆ.

2. SALVINIA. Micheli.—Salvinia.

(In honor of Salvini, an Italian professor.)

Reproductive organs near the root solitary, or in racemes of 3—5, covered with brown rigid hairs. Upper ones of each raceme filled with innumerable spherical bodies, brownish and reticulated; lower ones more oblong, containing 6—18 larger oblong-ovoid, brown and reticulated bodies, on short stout compound pedicels. (Griffith, in Lind. Veg. King.)

*S. natans* Willd.: leaves elliptic, subcordate, obtuse, with fascicles of hairs above. *Marsilea natans* Linn.


3. ISOETES. Linn.—Quill-Wort.

(From the Greek ἑξός, equal, and ἔτος, the year, or evergreen.)

Spore-cases membranaceous, oblong, 1-celled, not opening, imbedded in the dilated base of the frond. Spores globose or slightly angular, attached to numerous filiform receptacles which traverse the capsule.

*I. riparia* Engelman: emersed rhizoma small (orbicular?); leaves slender, soft, yellowish-green; sheaths short (longer than broad); spores neatly and minutely farinaceous and reticulated. (Sill. Jour. Jan. 1847.)


*Mud Quill-wort.*
INDEX
OF THE
ORDERS AND GENERA,
WITH ACCENTS.

The Orders are printed in small capitals; the Genera in Roman; and the Synonyms in Italic. The figures which occur after the letter s, also refer to the Synonyms of the Genera and Species.

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