

Manual of British botany : in which the orders and genera are arranged and described according to the natural system of De Candolle ; with a series of analytical tables for the assistance of the student in the examination of the plants indigenous to, or commonly cultivated in, Great Britain / by D. C. Macreight.

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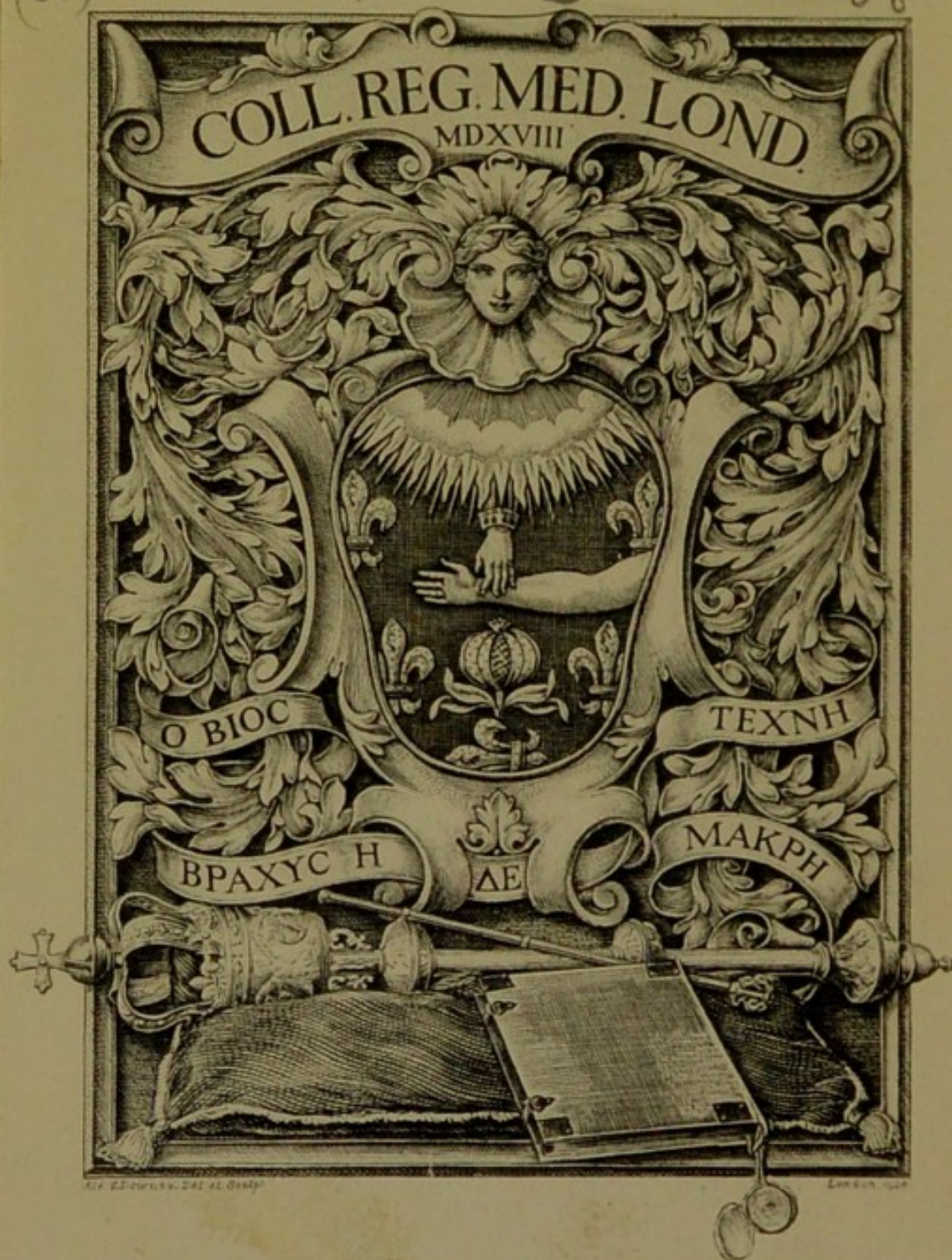
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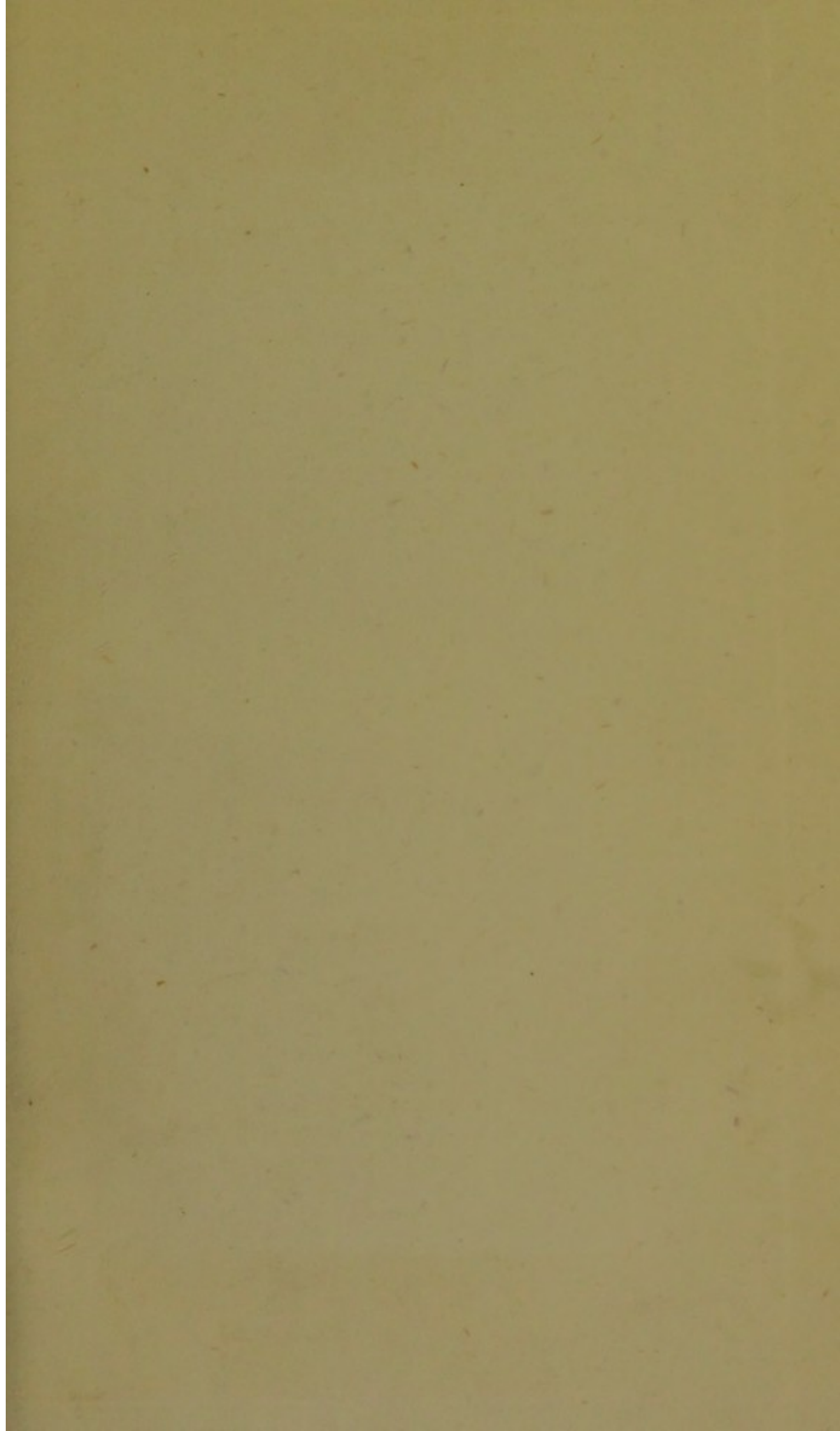


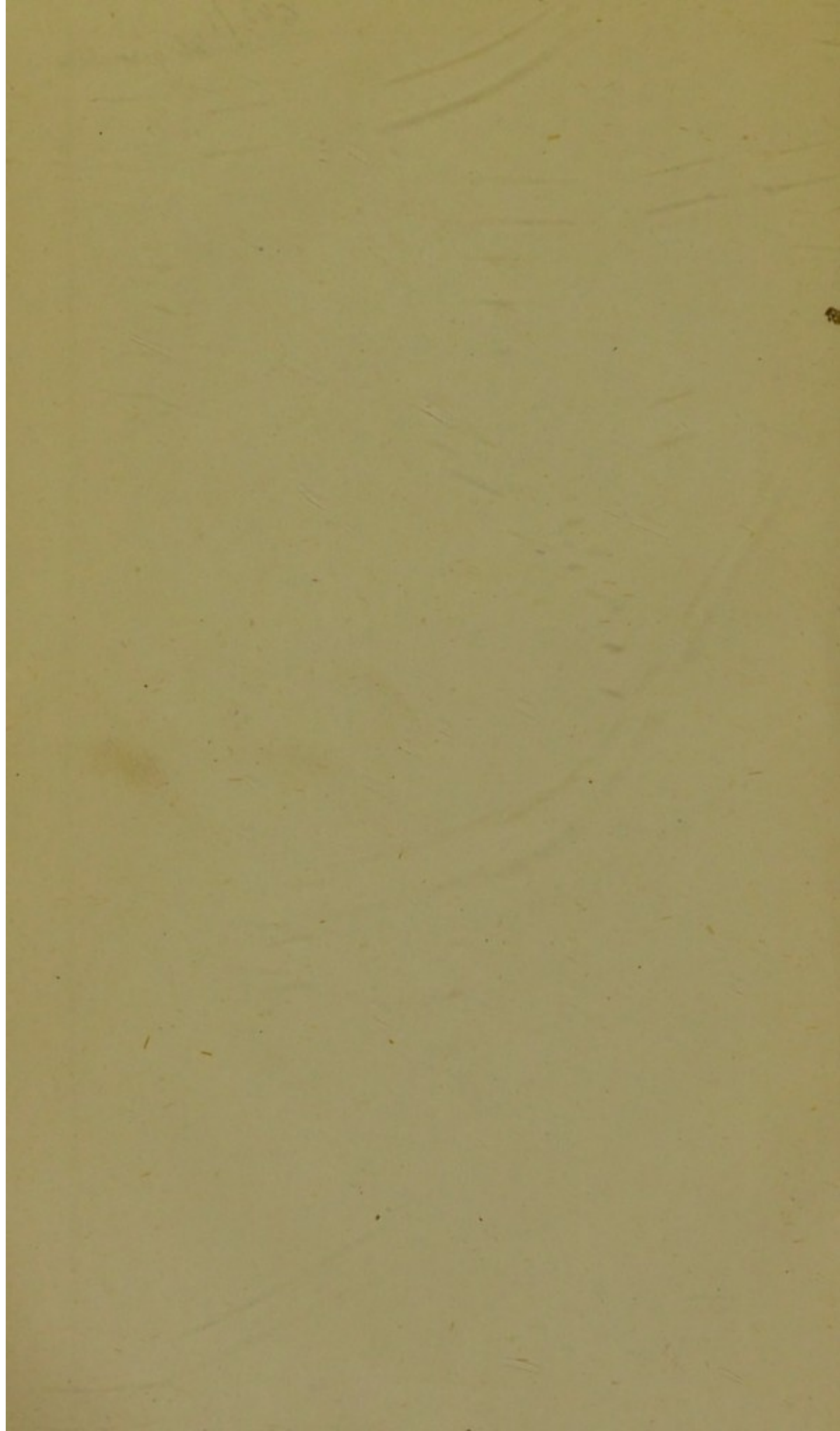
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MANUAL

OF

BRITISH BOTANY.

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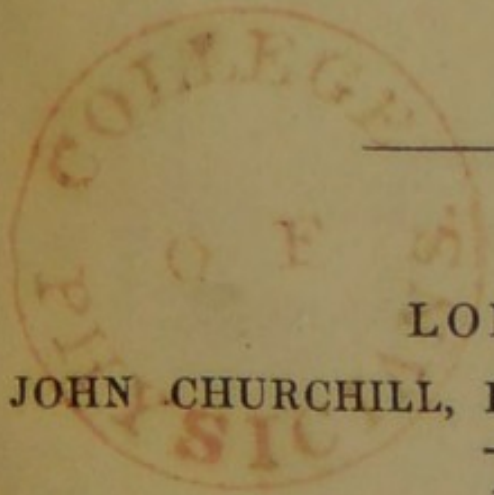
MANUAL
OF
BRITISH BOTANY;
IN WHICH
THE ORDERS AND GENERA
ARE ARRANGED AND DESCRIBED ACCORDING TO THE
NATURAL SYSTEM OF
DE CANDOLLE;

WITH A SERIES OF ANALYTICAL TABLES
FOR THE ASSISTANCE OF THE STUDENT
IN THE EXAMINATION OF THE PLANTS INDIGENOUS TO, OR
COMMONLY CULTIVATED IN, GREAT BRITAIN.

BY

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MIDDLESEX HOSPITAL SCHOOL OF MEDICINE.



LONDON:
JOHN CHURCHILL, PRINCES STREET, SOHO.

1837.

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TO
EARL STANHOPE,

PRESIDENT OF THE MEDICO-BOTANICAL SOCIETY,

AS
AN HUMBLE TRIBUTE TO HIS ZEAL
IN PROMOTING AND ENCOURAGING EVERY BRANCH
OF SCIENCE CONDUCTIVE TO THE BENEFIT
OF MANKIND,

THIS WORK,
IS
RESPECTFULLY DEDICATED
BY
THE AUTHOR.

PREFACE.

THE principal object of the Author in preparing the present work for the press, has been to supply the student in botany with a compendious means of distinguishing plants not only indigenous to Great Britain, but also those which are so generally cultivated as to be of much more common occurrence than the greater number of our native vegetable productions. The only works published in England with such intention are, the "British Garden," by Lady Charlotte Murray, and the "Natural Arrangement of British Plants," by Mr. S. F. Gray: the former including every hardy plant that has at any time been introduced into England, without an especial reference to those more commonly cultivated; the other containing the British plants, and a few only of those in use for agricultural purposes, but none of that numerous class which are solely cultivated for ornament.

In France, M. Duby, under the immediate direction of M. de Candolle, has published the "*Botanicon Gallicum*," containing, in conjunction with the native plants, the foreign ones which have become naturalised or introduced into general cultivation. Taking this work as his model, the Author has been induced to publish a Manual of British Botany, modified to suit the state of botanical literature in this country: for, while French naturalists have principally restricted themselves to the natural systems of Jussieu or De Candolle, the English, on the contrary, have mostly adopted the artificial arrangement of Linnæus, and almost every discovery and advance in the science of botany were made by its partisans, until the genius of Brown attracted more general attention to the arrangement of plants according to their natural affinities. There are still, however, many enlightened botanists who consider the method of Linnæus the most simple and useful for the communication of the knowledge required to distinguish the various

productions of the vegetable kingdom. In the foremost rank of these is Sir William J. Hooker, whose "British Flora" is a book so preeminent for distinctness and accuracy, and which contains such full accounts of all the indigenous species, that, in compiling this Volume, the Author has deemed it unnecessary to enter into detailed descriptions of the native plants, and has therefore contented himself with reducing the diagnostic differences of the species into a tabular form, for the convenience of the student; and this, in most cases, will, he hopes, be found quite sufficient to determine the majority of plants enumerated in this Work. Where, however, any doubt or difficulty arises, and such, of course, must often be the case when an attempt is made to curb the variations of nature within the limits of a single line, he must entreat the student to follow his own example, and refer to the third edition of the "British Flora." The necessity of a reference will be especially apparent in such genera as *Rubus*, *Rosa*, and *Salix*, where the shadows of distinctions on which species are formed are too slight to allow of their being reduced into a tabular form. In such cases, those with well-marked distinctive characters have been selected, and the others introduced under the heads of those species to which they appear most nearly allied, not as varieties, but as subspecies; without an opinion being hazarded on a subject on which there is so little unanimity among the ablest botanists. All the exotic plants are described in full, to enable the student to distinguish them from other species of the same genus, which, though they may occasionally be cultivated, are not sufficiently common to warrant their introduction into a work purporting to contain only those of most frequent occurrence. The choice has necessarily been most arbitrary; the only rule which could possibly be laid down for the selection being, to take those alone which are to be met with in every garden, and have long been general favourites. This rule has been deviated from in a slight degree in the families of *Polemonideæ* and *Scrophularineæ*, in which are contained many plants lately introduced, but to which our soil and climate are so congenial, that they have been already found growing spontaneously in many parts of England. In the arrangement and description of the orders and genera, the natural system of

De Candolle has been adopted, and the "Prodromus" of that talented and discriminating philosopher followed. Five volumes of this work are already published, and the rest is in a great state of forwardness, owing, in some measure, to the assistance he has received from many of our ablest botanists, who have written monographs of several of the remaining families, avowedly for the purpose of facilitating its completion: of these a single one may be cited (the Labiatae of M. Bentham), as an example of the high degree of talent which has been devoted to that laudable purpose. In many instances, the clear and concise descriptions of Dr. Lindley have offered a strong temptation to substitute them for the more diffuse ones of De Candolle; but, as this would have required various other alterations, to meet the different views of these writers, and as the botanical works of Dr. Lindley are deservedly in the hands of every botanist, it has been considered more expedient to retain those of the "Prodromus;" and thus afford the reader an opportunity of judging for himself of their comparative merits.

The artificial tables, being constructed from those parts of the plant most easily examined, with a view of rendering them simple and distinct, are necessarily more detailed than they would have been had the distinctions been founded on the more minute and difficultly discernible parts of the flower; and hence unavoidable repetitions of the names of the orders, &c., often occur.

The Author fears that many inaccuracies and omissions will be perceived in this work: that they are not more numerous, he is indebted to the kindness of Professor Don, to whom, for the liberality he has always evinced in the communication of his extensive knowledge, he feels under great obligation; and also to Mr. G. Don, the author of the "System of Gardening and Botany." He sincerely regrets that he could not induce some of his more talented colleagues to undertake a work similar to the present, many of whom devote their whole time and energies to the study of a subject to which it has been his ill-fortune to be able only to attend during the evening hours of relaxation from his professional avocations.

The terminology of the "Prodromus" has been generally adopted, most of the terms there employed being defined in ele-

mentary works on botany: a few of them, however, may require explanation, such as

Perigone. The envelope of the flowers of monocotyledonous plants, or of dicotyledons, if only of one row; and which is often indiscriminately called either calyx or corolla.

Tepals. The divisions of the perigone, analogous to petals and sepals.

Gamopetalous, gamosepalous, &c., instead of monopetalous, or monosepalous.

The corolla, or calyx, being composed of many pieces united together. — See Lind. Intr. p. 138. 140.

ABBREVIATIONS.

Bot. Gal. Botanicon Gallicum, by MM. De Candolle and Duby.

D. C. De Candolle. "Prodromus Systematis Naturalis Regni Vegetabilis."

E. B. English Botany.

H. Hooker. "British Flora," 3d edit.

Lind. Lindley. "Synopsis of the British Flora," 2d edit.

L. Gen. Linnæus. "Genera Plantarum," 6th edit. Stockholm, 1764.

L. sp. Linnæus. "Species Plantarum," 3d edition. Vienna, 1764.

!, before a species, indicates its having been found within thirty miles of London. According to Mr. Watson's "New Botanist's Guide," or Mr. Cooper's "Flora Metropolitana."

London, Aug. 1837.

* * A very interesting addition to the English Flora has been made by Dr. Graham of Edinburgh, who discovered, on the west coast of Galloway, another species of *Ononis*.

O. reclinata. (L. sp. 1011.) Stem herbaceous, diffuse. Leaves trifoliate; the leaflets obovate, serrated, viscous, pubescent. Stipules broadly ovate, acute, serrated. Peduncles 1-flowered, as long as the leaf, with small bracteoles. Calyx longer than the corolla. Fl. purplish. July, August. Biennial. Bot. gal. p. 120.

A *Lamium* has also been found in several localities in the neighbourhood of Edinburgh by Mr. Tyacke.

L. intermedium. (Fries.) Leaves with short petioles, rhomboid, incisocrenate, pubescent. Verticillasters scattered. Tube of the calyx angular, shorter than the subulate teeth. Tube of the corolla with a pubescent ring internally; the lateral lobes of the limb furnished with a short tooth.

ARTIFICIAL ANALYSIS OF THE ORDERS.

Flowers present; the stamens and pistils being visible to the naked eye - -	} PHANEROGAMOUS, or PHÆNOGAMOUS, PLANTS.
perigone double, consisting of a calyx and corolla; the parts of the flower generally in fives, and the leaves with netted veins - -	} DICHLAMYDEOUS PLANTS.
corolla composed of 2 or many petals	POLYPETALOUS PLANTS. p. ix.
corolla having the petals more or less united - - - -	} GAMOPETALOUS, or MONOPETALOUS, PLANTS. p. xii.
perigone simple, of 1—2 rows, united at the base, or rarely apparently double; the parts of the flower being then in threes, and the leaves with parallel veins - -	} MONOCHLAMYDEOUS PLANTS. p. xiv.
perigone none; the florets sometimes surrounded by a common involucre	} ACHLAMYDEOUS PLANTS. p. xvi.
Flowers none; or the stamens and pistils, if any, indistinct, and not visible to the naked eye - - - -	} CRYPTOGRAMOUS PLANTS. p. xvii.

PHANEROGAMOUS, or PHÆNOGAMOUS, PLANTS.

I. DICHLAMYDEOUS PLANTS.

§ 1. POLYPETALOUS PLANTS.

* *Ovary or ovaries free.*† *Ovaries numerous*

Calyx composed of separate sepals

leaves furnished with stipules; parts of the flower generally in threes - } MAGNOLIACEÆ, clt. p. 7.

leaves without stipules; parts of the flower generally in fives - } RANUNCULACEÆ. p. 1.

Calyx composed of sepals more or less united at their base

stamens united by their filaments into a tube - - - } MALVACEÆ. p. 35.

stamens distinct

leaves more or less fleshy - - - } CRASSULACEÆ. p. 87.

leaves not fleshy - - - } ROSACEÆ. p. 61.

†† *Ovary 1*

‡ Corolla regular

§ stamens 1—6

|| calyx composed of sepals, more or less united at their base

¶ climbing shrubs

stamens opposite the petals - AMPELIDEE, clt. p. 41.

stamens alternate with the petals PASSIFLOREE, clt. p. 84.

¶¶ trees or shrubs not climbing

flowers unisexual - - - EMPETREE, p. 205.

flowers hermaphrodite

leaves small, squamiform; stamens hypogynous - - } TAMARISCINEÆ. p. 82.

- leaves not squamiform; stamens
 perigynous
 ovules pendulous - - - TEREBINTHACEÆ, clt. p. 48.
 ovules erect - - - CELASTRINEÆ. p. 46.
- ¶¶¶ herbs
 capsule 2-celled - - - LYTHRARIÆ. p. 81.
 capsule 1-celled
 corolla consisting of 5 petals, }
 slightly united at their base } PORTULACEÆ. p. 85.
 corolla none, or consisting of 5 }
 small squamiform petals - } PARONYCHIEÆ. p. 85.
 corolla consisting of 5 unguicu-
 late petals
 capsule many-seeded
 placenta central - - - CARYOPHYLLÆ. p. 27.
 placenta parietal - - - FRANKENIACEÆ. p. 27.
 capsule 1-seeded - - - PLUMBAGINEÆ. p. 191.
- ||| calyx composed of 2—6 separate sepals
 stamens slightly united at the base }
 into a monadelphous ring - } LINEÆ. p. 35.
 stamens distinct at the base
 stamens tetradynamous; viz., 4 }
 long and 2 short - } CRUCIFERÆ. p. 12.
 stamens not tetradynamous
 anthers dehiscing by valves, }
 curling upwards - } BERBERIDEÆ. p. 8.
 anthers dehiscing by a longitu-
 dinal chink
 leaves alternate - - - DROSERACEÆ. p. 25.
 leaves opposite - - - CARYOPHYLLÆ. p. 27.
- §§ stamens 7—10
 petals none - - - § SCLERANTHEÆ. p. 87.
 petals 3—9
 trees - - - ACERINEÆ. p. 40.
 shrubs or herbs
 leafless parasitical plants - - - MONOTROPEÆ. p. 153.
 leafy, not parasitical, plants
 calyx consisting of 1—5 sepals, or
 3—5-lobed, or 3—5-toothed
 style 1
 calyx consisting of 5 se- }
 pals; carpels disengaging }
 themselves from the axis } GERANIACEÆ. p. 41.
 when ripe - - - }
 calyx 3—5-partite; carpels }
 remaining connate at }
 the base - - - } RUTACEÆ, clt. p. 46.
 styles 2—5
 leaves trifoliate - - - OXALIDEÆ. p. 45.
 leaves simple or divided, but
 not trifoliate
 petals inserted on the calyx SAXIFRAGACEÆ. p. 90.
 petals inserted on the torus CARYOPHYLLÆ. p. 27.
 calyx 2-valved, or 8—10-toothed LYTHRARIÆ. p. 81.
- §§§ stamens 11, or more
 petals indefinite; generally in many }
 rows - - - } NYMPHÆACEÆ. p. 8.
 petals definite, generally 4 or 5
 ¶ calyx with the sepals united
 trees or shrubs
 calyx deciduous, 5-fid - - - { ROSACEÆ. p. 61.
 - - - { § AMYGDALÆ. p. 62.
 calyx marcescent, 3—5-dentate AURANTIACEÆ, clt. p. 38.
 herbs, or small undershrubs
 petals inserted on the thalamus HYPERICINEÆ. p. 38.

- petals inserted on the calyx - LYTHRARIÆ. p. 81.
 ¶¶ calyx with the sepals separate
 calyx of 2 sepals - - - PAPAVERACEÆ. p. 9.
 calyx of 3—8 sepals
 stamens monadelphous, or polyadelphous
 calyx valvate in æstivation; }
 anthers 1-celled - - - } MALVACEÆ. p. 35.
 calyx imbricated in æstivation; }
 anthers 2-celled - - - } CAMELLIÆ, clt. p. 37.
 stamens distinct
 trees - - - - - TILIACEÆ. p. 37.
 shrubs or herbs
 petals all entire - - - CISTINEÆ. p. 23.
 upper petals palmati-partite RESEDACEÆ. p. 26.
- †† Corolla irregular
 calyx, or corolla, spurred at the base
 calyx spurred; stamens 8 - - - TROPÆOLEÆ, clt. p. 44.
 corolla spurred; stamens 5 or 6
 calyx of 5 sepals - - - VIOLARIÆ. p. 24.
 calyx of 2 sepals
 stamens 6; style filiform - - - FUMARIACEÆ. p. 11.
 stamens 5; style none - - - BALSAMINEÆ. p. 45.
 neither calyx nor corolla spurred
 stamens 6 - - - - - CRUCIFERÆ. p. 12.
 stamens 7 - - - - - HIPPOCASTANEÆ, clt. p. 40.
 stamens 8; anthers 1-celled - - - POLYGALEÆ. p. 26.
 stamens 10 or more
 petals laciniated - - - RESEDACEÆ. p. 26.
 petals entire
 stigmas 5 - - - - - GERANIACEÆ. p. 41.
 stigma 1 - - - - - LEGUMINOSÆ. p. 48.
- ** *Ovary adnate to, or enclosed within, the tube of the calyx.*
 Carpels concreted into a 1-celled fruit - - - GROSSULARIÆ. p. 89.
 Carpels 2, united while young, but separating,
 when ripe, from base to apex; and remaining suspended from a carpophorus; }
 flowers umbellate - - - - - } UMBELLIFERÆ. p. 93.
 Carpels concreted into a many-celled fruit; or,
 if 2-celled, the cells not separating, nor the
 flowers umbellate
- † stamens definite in number, 2—10
 shrubs or small trees
 stamens opposite the petals; calyx 4— }
 5-lobed - - - - - } RHAMNEÆ. p. 47.
 stamens alternate with the petals;
 calyx 4—5-dentate
 petals and stamens 4; style 1 - - - CORNEÆ. p. 108.
 petals and stamens 5 or more; styles }
 3 or more - - - - - } ARALIACEÆ. p. 107.
 herbs
 herbs climbing, or with tendrils - - - CUCURBITACEÆ. p. 83.
 herbs destitute of tendrils, not climbing
 flowers monœcious - - - - - § CIRCODIANEÆ. p. 80.
 flowers hermaphrodite
 ovary 2-celled - - - - - SAXIFRAGACEÆ. p. 90.
 ovary many- (often 4-) celled - - - ONAGRARIÆ. p. 76.
- †† stamens indefinite in number (generally
 more than 20)
 fruit divided by a horizontal membrane,
 into an upper and lower, 3- or many- }
 celled chamber - - - - - } GRANATEÆ, clt. p. 76.

- fruit not divided into chambers by a horizontal membrane
 leaves alternate, with 2 stipules at their base } ROSACEÆ. p. 61.
 leaves opposite, destitute of stipules
 fruit fleshy
 calyx coloured; petals none - CALYCANTHEÆ, clt. p. 75.
 calyx green; petals as many as the calyx lobes } MYRTACEÆ, clt. p. 83.
 fruit dry, capsular - PHILADELPHÆÆ, clt. p. 82.

§ 2. GAMOPETALOUS, OR MONOPETALOUS, PLANTS.

* *Stamens inserted either directly on the calyx, or on the corolla, which arises from the calyx; the calyx being adherent to the ovary.*

Fruit 1-seeded

- Parasitical plants, with baccate fruit - LORANTHACEÆ. p. 109.
 Plants not parasitical; nor the fruit baccate
 flowers corymbose, paniculate, or subcapitate } VALERIANEÆ. p. 113.
 flowers aggregated in a common receptacle, and surrounded by a many-leaved involucre
 anthers united into a tube; syngene-sious } COMPOSITEÆ. p. 116.
 anthers distinct - DIPSACEÆ. p. 114.

Fruit 2- or many-seeded

- Calyx free, not united to the ovary
 small herbs; stamens 3—4 - PORTULACEÆ. p. 85.
 shrubs or under shrubs; stamens 5—10 - ERICACEÆ. p. 149.
 Calyx adnate to the ovary
 fruit an akene, or a dry or fleshy berry
 flowers monœcious or diœcious; placenta parietal } CUCURBITACEÆ. p. 83.
 flowers hermaphrodite; the placenta not parietal
 herbs with whorled leaves and square stems } RUBIACEÆ. p. 111.
 shrubs with rounded stems
 anthers opening by pores at the apex } VACCINEÆ. p. 148.
 anthers opening by longitudinal chinks } CAPRIFOLIACEÆ. p. 109.
 fruit capsular
 stamens 1—3 - VALERIANEÆ. p. 113.
 stamens 5
 corolla with a deep longitudinal fissure above } LOBELIACEÆ. p. 145.
 corolla regularly divided - CAMPANULACEÆ. p. 146.
 stamens 8—10
 green, and not parasitical, plants - ERICACEÆ. p. 149.
 yellowish, leafless, parasitical herbs - MONOTROPEÆ. p. 153.

** *Stamens inserted on the corolla, which arises from the torus; the calyx not being adherent to the ovary.*

† Fertile stamens 2—4

- Fruit consisting of a 4-lobed ovary; apparently of 4 naked seeds } LABIATÆ. p. 175.
 Fruit not 4-lobed
 † fertile stamens 2
 corolla spurred - LENTIBULARIÆ. p. 188.

- corolla not spurred, sometimes inflated
 herbs - - - SCROPHULARINEÆ. p. 166.
 shrubs or trees
 corolla regular - - - JASMINEÆ. p. 153.
 corolla irregular - - - BIGNONIACEÆ, clt. p. 155.
- †† fertile stamens 4
 corolla regular, scariose - - PLANTAGINEÆ. p. 192.
 corolla irregular, coloured
 fruit drupaceous or baccate - - VERBENACEÆ. p. 187.
 fruit capsular
 leafless parasitical plants - - OROBANCHEÆ. p. 174.
 leafy green, not parasitical, plants
 seeds without albumen; em- } BIGNONIACEÆ, clt. p. 155.
 bryo foliaceous - - - }
 seeds with albumen; embryo } SCROPHULARINEÆ. p. 166.
 not foliaceous - - - }
- †† *Stamens generally 5 (sometimes more)*
 Fruit follicular; the 2 cells distinct, or } APOCYNÆÆ. p. 155.
 cohering by their stigmas - - - }
- Fruit not follicular
 fruit consisting of a 2—4-lobed ovary; }
 apparently of 2—4 naked seeds } BORAGINEÆ. p. 160.
 or nuts - - - - - }
- fruit a capsule
 stamens opposite the lobes of the } PRIMULACEÆ. p. 189.
 corolla - - - - - }
- stamens alternate with the lobes
 of the corolla
 carpels numerous, distinct - - CRASSULACEÆ. p. 87.
 carpels concreted into a 1- or
 many-celled capsule or berry
- ‡ capsule few-seeded
 style 1
 shrubs or trees - - - CELASTRINEÆ. p. 46.
 herbs
 involucre caliciform, 1- } NYCTAGINEÆ, clt. p. 193.
 or many-flowered - - - }
- calyx simple
 corolla plaited - - - CONVULVULACEÆ. p. 159.
 corolla not plaited - - POLEMONIDEÆ. p. 158.
 styles numerous - - - PLUMBAGINEÆ. p. 191.
- †† capsule many-seeded
 anthers appendiculated, hard } ERICACEÆ. p. 149.
 and dry - - - - - }
- anthers not appendiculated,
 soft
 parasitical leafless plants MONOTROPEÆ. p. 153.
 leafy, not parasitical, plants
 ovary 3-celled - - - POLEMONIDEÆ. p. 158.
 ovary 2—4-celled, or, by
 abortion, 1-celled
 corolla plicate in æsti- } SOLANEÆ. p. 163.
 vation - - - - - }
- corolla imbricate in
 æstivation
 leaves generally op- }
 posite, and gla- } GENTIANEÆ. p. 156.
 brous; corolla }
 regular - - - - - }
- leaves alternate, de- }
 current, tomen- }
 tose; corolla }
 somewhat irre- }
 gular - - - - - } VERBASCEÆ. p. 167.

II. MONOCHLAMYDEOUS PLANTS.

* Stamens 1—6.

- † *Perigone petaloid*
 † Stamens 1—2 - - - - ORCHIDACEÆ. p. 224.
 †† Stamens 3 - - - - IRIDACEÆ. p. 230.
 ††† Stamens 4—5
 perigone scarious, or coloured; with an external involucre, resembling a calyx and corolla
 stamens 4 - - - - PLANTAGINACEÆ. p. 192.
 stamens 5
 styles numerous - - - - PLUMBAGINACEÆ. p. 191.
 style 1 - - - - NYCTAGINACEÆ, clt. p. 193.
 perigone simple, not involucred
 leaves with an ochrea, or interfoliaceous stipule; stamens free; fruit
 1-seeded - - - - } POLYGONACEÆ. p. 197.
 leaves stipulate; stamens monadelphous; fruit many-seeded - } PASSIFLOREACEÆ, clt. p. 84.
 leaves without sheaths or stipules
 herbs
 perigone adnate to the ovary; stamens opposite the segments of the perigone
 fruit 1-seeded - - - - SANTALACEÆ. p. 201.
 fruit many-seeded - - - - ONAGRARIACEÆ. p. 76.
 perigone free; stamens alternate with the segments of the perigone - } PRIMULACEÆ. p. 189.
 shrubs or trees - - - - ELEAGNACEÆ. p. 201.
 †††† Stamens 6
 carpels combined into a solid ovary
 perigone elongated into a strap - - - - ARISTOLOCHIACEÆ. p. 202.
 perigone not elongated into a strap
 flowers diœcious - - - - ASPARAGEACEÆ. p. 233.
 flowers hermaphrodite
 perigone adherent to the ovary - - - - AMARYLLIDACEÆ. p. 232.
 perigone not adherent
 fruit baccate - - - - ASPARAGEACEÆ. p. 233.
 fruit capsular
 outer row of perigone calicoid, the inner petaloid - } COMMELINACEÆ, clt. p. 239.
 outer and inner row petaloid
 filaments of stamens woolly } JUNCACEÆ. p. 240.
 ABAMA. †
 filaments not woolly - - - - LILIACEÆ. p. 234.
 carpels more or less separate, at least at the apex
 anthers dehiscing outwards - - - - COLCHICACEÆ. p. 239.
 anthers dehiscing internally - - - - ALISMACEÆ. p. 221.
 †† *Perigone calycine or glumaceous* :
 Shrubs
 fruit 3-horned, 3-celled - - - - EUPHORBIACEÆ. p. 202.
 fruit neither 3-horned, nor 3-celled - - - - AMENTACEÆ. p. 207.
 Herbs or undershrubs
 limb of the perigone 8—12-lobed
 leaves many-lobed - - - - CERATOPHYLLACEÆ. p. 81.
 leaves simple - - - - LYTHRARIACEÆ. p. 81.
 limb of the perigone 1—6-lobed
 leaves compound or digitate
 flowers diœcious - - - - URTICEÆ. p. 205.
 flowers monœcious or hermaphrodite
 aquatic plants - - - - HALORAGACEÆ. p. 79.
 not aquatic plants - - - - ROSACEÆ. p. 61.

leaves simple, or sometimes pinnatifid

‡ stamens 1—3

leaves verticillate - - HALORAGACEÆ. p. 79.

leaves not verticillate

§ perigonecalycine, not glumaceous

perigone 1—2-partite, or none

bracteas 2, at base of flower } CALLITRICHINEÆ. p. 80.

bracteas none - - POTAMEÆ. p. 223.

perigone 3—6-partite

capsule 5-valved - - § ILLECEBREÆ. p. 86.

capsule less than 5-valved

stamens 1—2

capsule 3-celled, 3- } EUPHORBIACEÆ. p. 202.

seeded - - }

capsule not 3-celled - - CHENOPODEÆ. p. 194.

stamens 3

leaves ensiform and sub- } TYPHACEÆ. p. 243.

vaginate - - }

leaves neither ensiform } AMARANTHACEÆ, p. 193.

nor vaginate - - }

☞ §§ perigone glumaceous; leaves sheathing at the base

perigone 6-partite - - JUNCEÆ. p. 240.

perigone consisting of 1 or 2 valves, or wanting

glumes 1-valved, proper

perigone none; vagina of leaves entire; } CYPERACEÆ. p. 244.

stems generally without knots, and solid - - }

glumes generally 2-valved,

paleæ (perigone) 1—2 } GRAMINEÆ. p. 255.

valved; vagina of leaves divided; stem } hollow - - }

‡‡ stamens 4—5

style 1 or none

ovaries many - - POTAMEÆ. p. 223.

ovary 1

perigone adherent to the ovary

leaves opposite; ovary 4-celled, many-seeded - } ONAGRARIÆ. p. 76.

leaves generally alternate; } SANTALACEÆ. p. 201.

ovary 1-celled, 1-seeded - - }

perigone not adherent

perigone double - - PLANTAGINEÆ. p. 192.

☞* perigone single

fruit dehiscing transversely AMARANTHACEÆ. p. 193.

fruit indehiscent

flowers hermaphrodite - CHENOPODEÆ. p. 194.

flowers monœcious or } URTICEÆ. p. 205.

dicœcious - - }

styles 2—3

fruit 3-celled - - EUPHORBIACEÆ. p. 202.

fruit 1-celled

fruit dehiscing at the apex by } § ILLECEBREÆ. p. 86.

5 valves - - }

fruit dehiscing transversely in } AMARANTHACEÆ. p. 193.

the middle - - }

fruit indehiscent


leaves sheathing, or with } POLYGONEÆ. p. 197.

an interfoliaceous mem- } brane at the base - - }

leaves without sheath or } See ☞*

membrane - - }

styles 4 - - CHENOPODEÆ. p. 194.

- ††† stamens 6
 stigma 1 - - - AROÏDEÆ. p. 243.
 stigmas 2—6
 ovary 1
 fruit a cariopsis, or 1-seeded } POLYGONEÆ. p. 197.
 indehiscent capsule - }
 fruit 3- or many-celled and }
 seeded - } JUNCEÆ. p. 240.
 ovaries many - - - ALISMACEÆ. p. 221.
- ** Stamens 7, or more.
- † Ovary 1
 † Perigone 2—6-lobed
 trees, shrubs, or undershrubs
 leaves pinnate - - - JUGLANDEÆ, clt. p. 206.
 leaves not pinnate
 stigma 1
 trees with the anthers dehiscing by } LAURINEÆ, clt. p. 201.
 recurved valves - - - }
 shrubs, or undershrubs, with the } THYMELEÆ. p. 200.
 anthers dehiscing by a chink - }
 stigmas 2—6, or wanting - - - See **
- herbs
 flowers enclosed in a spathe - - - HYDROCHARIDEÆ. p. 220.
 flowers not in a spathe
 fruit a berry - - - ARALIACEÆ. p. 107.
 fruit a capsule
 capsule 1-celled when ripe
 style 1 - - - THYMELEÆ. p. 200.
 styles 2—3
 capsule 1-seeded
 leaves opposite - - - PARONYCHIEÆ. p. 85.
 leaves alternate - - - POLYGONEÆ. p. 197.
 capsule many-seeded - - - SAXIFRAGACEÆ. p. 90.
 capsule 2—6-celled
 flowers hermaphrodite - - - ARISTOLOCHIEÆ. p. 202.
 flowers unisexual - - - EUPHORBIACEÆ. p. 202.
- †† Perigone 8-partite - - - ASPARAGEÆ. p. 233.
 ††† Perigone 10—12-lobed - - - CERATOPHYLLEÆ. p. 81.
- †† Ovaries 2 - - - ROSACEÆ. p. 61.
- ††† Ovaries 5, or more
 Leaves with netted veins, generally divided, } RANUNCULACEÆ. p. 1.
 not sagittate; stamens numerous - }
 Leaves quite simple or sagittate, with pa- } ALISMACEÆ. p. 221.
 rallel veins; stamens 9 - - - }


III. ACHLAMYDEOUS PLANTS.

Floating or submersed plants.

- Whole plant consisting of a lenticular floating }
 frond, not attached to the ground - - } LEMNACEÆ. p. 277.
 Plants with stems submersed, and attached to }
 the soil - - - POTAMEÆ. p. 223.

Plants not floating; rising erect above the surface of the water if aquatic.

Herbs not climbing

- Plants with milky juice - - - EUPHORBIACEÆ. p. 202.
 Plants with their juice not milky
 flowers with glumaceous scariose scales 
 flowers with fleshy or calicoid scales, or
 naked
 flowers in a loose spike - - - JUNCAGINEÆ. p. 222.

- flowers collected round a spadix, or in a catkin
- stamens short and rigid
- inflorescence having a spathe or bract at the base } AROIDEÆ. p. 243.
- inflorescence in heads, surrounded by an involucre } RESTIACEÆ. p. 244.
- stamens long and weak } TYPHACEÆ. p. 243.
- Shrubs, trees, or climbing herbs*
- Leaves pinnate - JASMINEÆ. p. 153.
- Leaves entire, dentate, or lobed
- leaves lobed; the nervures palmate
- fruit fleshy - § ARTOCARPEÆ, clt. p. 206.
- fruit dry, subcoriaceous - § PLATANÆ, clt. p. 217.
- leaves pinnatifid, dentate, or entire; the nervures pinnate
- ovary pedicellated, 3-celled, 3-seeded - EUPHORBIACEÆ. p. 202.
- ovary sessile or subsessile
- fruit succulent
- leaves covered with a scaly scurf on the under surface; shrub erect; fruit 1-celled } ELEAGNEÆ. p. 201.
- leaves not scaly beneath; under-shrub procumbent, not spinous; fruit many-celled } EMPETREÆ. p. 205.
- ✎** fruit not succulent
- stigmas developed; filaments of the stamens free; leaves often dentate, not needle-shaped } AMENTACEÆ. p. 207.
- stigmas wanting; filaments of the stamens wanting or united; leaves needle-shaped, never dentate } CONIFERÆ. p. 218.

CRYPTOGAMOUS PLANTS.

Plants with vessels, and monocotyledonous.

- Plants with leaves or fronds
- young leaves circinate
- fructifications on the back of the frond, or in terminal spikes } FILICES. p. 279.
- fructifications radical - MARSILEACEÆ. p. 285.
- young leaves not circinate - LYCOPODIACEÆ. p. 285.

- Plants without leaves
- stem hollow, jointed; branches verticillate
- joints surrounded by a sheath - EQUISETACEÆ. p. 278.
- joints without sheaths - CHARACEÆ. p. 278.
- stem solid, not jointed - LYCOPODIACEÆ. p. 285.

Plants without vessels, and acotyledonous.

MUSCI, HEPATICÆ, LICHENES, FUNGI, ALGÆ, &c.

COLLEGE OF PHYSICIANS

MANUAL

OF

BRITISH BOTANY.

I. VASCULAR, OR COTYLEDONOUS, PLANTS. (D. C. prod. i. p. 1.)

Substance of the plant composed of cellular tissue, woody fibre, ducts, and spiral vessels. Leaves with stomata. Flowers generally with perceptible stamens and pistils. Embryo enclosed within a spermoderm, and furnished with cotyledons.

Class I. DICOTYLEDONOUS, OR EXOGENOUS, PLANTS. (D. C. l. c.)

Stem composed of two parts, wood and bark; each increasing in width by layers deposited in inverse directions. The wood consists of a central medulla (pith), and medullary productions radiating through the new ligneous strata: of these strata the older (perfect wood) are hard and internal; the newer (alburnum) are soft, white, and external. The bark is covered by an epidermis, and consists of layers of cellular tissue; the older (true bark) being external, the younger (liber) internal. Leaves with branching and anastomosing nerves. Flowers distinct, symmetrical, generally arranged in quinary numbers. Embryo usually with two opposite cotyledons, rarely more, and then verticillate.

Subclass I. THALAMIFLORÆ. (D. C. l. c.)

Calyx polysepalous. *Petals* numerous, distinct, inserted, as are also the stamens, on the thalamus, not adnate to the calyx.

Order I. RANUNCULACEÆ. (Juss., D. C. prod. i. p. 2.)

Perigone double (calyx and corolla), free, hypogynous. *Sepals* 3—6. *Petals* equal in number to the sepals, or double or triple the number, imbricated in æstivation (sometimes abortive), often irregular. *Stamens* hypogynous, free, indefinite in number. *Anthems* adnate; extrorse in the true Ranunculaceæ. *Pistils* numerous, attached to the torus; sometimes, by abortion or coherence, solitary. *Carpels* various in form, being either pseudospermous, baccate, capsular, or follicular. *Seeds* either solitary, or numerous and in 2 rows along the margins of the carpels. *Albumen* horny. *Embryo* small, lying in a hollow of the albumen. — Herbs or undershrubs, the leaves dilated at the base into a semiamplexicaule sheath.

Petals regular or none

petals none, calyx coloured

carpels capsular, many-seeded, dehiscent - - 9. CALTHA.

carpels 1-seeded, indehiscent

leaves opposite - - - - 1. CLEMATIS.

leaves radical or alternate

involucre 3-leaved, at some distance from the flower } 3. ANEMONE.

involucre 3-leaved, close to the flower, and caliciform } 4. HEPATICA, clt.

involucre none - - - - 2. THALICTRUM.

petals numerous; calyx generally green

berry or capsule many-seeded

calyx of 4 sepals; fruit baccate - - - 17. ACTÆA.

calyx of 5 sepals; fruit capsular - - - 18. PEONIA.

carpel indehiscent 1-seeded

calyx of 5 sepals; carpels apiculated by a short style

petals 6-15, with naked claws - - - 5. ADONIS.

petals 5, with tubular filiform claws - - - 6. MYOSURUS.

petals 5, with a small scale at the base of each - - - 7. RANUNCULUS.

calyx of 3 sepals; carpels obtuse - - - 8. FICARIA.

Petals irregular, tubular, bilabiate, spurred or saccate

calyx petaloid, regular

calyx of 15 sepals - - - - 10. TROLLIUS.

calyx of 5-8 sepals

petals spurred, the spur cornucopia-shaped - - 14. AQUILEGIA.

petals not spurred

capsules distinct

sepals 6-8, deciduous - - - - 11. ERANTHIS, clt.

sepals 5, persistent - - - - 12. HELLEBORUS.

capsules more or less united - - - - 13. NIGELLA, clt.

calyx petaloid, irregular

upper sepal elongated into a spur - - - 15. DELPHINIUM.

upper sepal concave and helmet-shaped - - 16. ACONITUM.

Tribe I. CLEMATIDÆ. (D. C. prod. i. p. 2.)

Calyx valvate or induplicate in æstivation. *Anthers* linear, extrorse. *Carpels* 1-seeded, indehiscent, caudate by the increase of the style. — *Leaves* opposite. *Roots* fibrous.

I. CLEMATIS. (L. gen. n. 696., D. C. prod. i. p. 2.)

Involucre none, or caliciform immediately beneath the flower. *Sepals* 4—8, coloured. *Petals* none, or, if any, shorter than the sepals. *Cariopsides* numerous, generally terminating in a bearded tail.

Peduncles branched, many-flowered; fl. white.

Sepals pubescent on the margin, and not on the back 1. C. FLAMMULA, clt.

Sepals pubescent on the back, and not on the margin 2. C. VITALBA.

Peduncles simple, 1-flowered; fl. purple

carpels terminated by a plumose tail - - - 3. C. INTEGRIFOLIA, clt.

carpels without a plumose tail - - - 4. C. VITICELLA, clt.

1. *C. Flammula*. (L. sp. 766.) *Sweet-scented Virgin's Bower*. Stem climbing. *Leaves* pinnatisect, the segments glabrous, entire or 3-lobed, orbicular, oval, oblong, or sublinear acute. Native of the south of Europe. Cult. Common. Fl. white. July, Sep. Climbing shrub. D. C. i. p. 2.

2. ! *C. Vitalba*. (L. sp. 766.) *Traveller's Joy*. Hedges in calcareous soils. Charlton, Croydon. Fl. greenish white. May, June. Climbing shrub. E. B. 612., H. 266., D. C. i. p. 3.

3. *C. integrifolia*. (L. sp. 767.) *Entire-leaved Virgin's Bower*. Peduncles 1-flowered, the flower drooping. *Leaves* entire, ovate lanceolate. Native of Hungary and Austria. Cult. in gardens. Fl. purple. June, Aug. Perennial. Bot. mag. 65., D. C. i. p. 8.

4. *C. viticella*. (L. sp. 762.) *Vine Bower*. Peduncles 1-flowered, longer than the leaves. *Leaves* entire or ternately decomposed, the lobes or segments very entire. *Sepals* patent, obovate. Native of the south of Europe. Fl. purple. June, Sep. Perennial. Bot. mag. 565., D. C. i. p. 9.

Tribe II. ANEMONEÆ. (D. C. prod. i. p. 10.)

Calyx and *corolla* imbricated in æstivation. *Carpels* 1-seeded, indehiscent, generally terminating in a tail or mucro. — Leaves radical or alternate.

II. THALICTRUM. (L. gen. n. 697., D. C. prod. i. p. 11.)

Involucre under the flower none. *Petals* none. *Carpels* dry, not terminating in a tail, sometimes stipitate, and longitudinally furrowed. — Perennial Herbs.

Stem simple, nearly leafless, whole plant not more than three inches high	-	-	-	-	1. T. ALPINUM.
Stem branched, leafy flowers drooping	-	-	-	-	
branches of the panicle alternate	-	-	-	-	2. T. MINUS.
branches of the panicle whorled	-	-	-	-	3. T. MAJUS.
flowers erect	-	-	-	-	4. T. FLAVUM.

1. *T. alpinum*. (L. sp. 767.) *Alpine Meadow Rue*. Mountains of England, Wales, and Scotland. Frequent. Fl. light yellow. July. Perennial. E. B. 262., H. 265., D. C. i. p. 12.

2. *T. minus*. (L. sp. 769.) *Lesser Meadow Rue*. Stony pastures in calcareous soils. Fl. yellow. June, July. Perennial. E. B. 11., H. 265., D. C. i. p. 13.

3. *T. majus*. (Murr. syst. 513.) *Greater Meadow Rue*. Stony pastures in the north of England and Scotland. Fl. yellow. Perennial. E. B. 611., H. 265., D. C. i. p. 13.

4. ! *T. flavum*. (L. sp. 770.) *Common Meadow Rue*. Moist meadows, banks of rivers, &c. Battersea Fields and banks of Thames. Fl. yellow. July. Perennial. E. B. 367., H. 266., D. C. i. p. 14.

III. ANEMONE. (L. gen. n. 694., D. C. prod. i. p. 16.)

Involucre trifoliate, at a distance from the flower, the folioles incised. *Calyx* petaloid. *Sepals* 5—15. *Petals* none. *Carpels* numerous. — Herbs, with the radical leaves petiolated, multipartite, or lobed.

<i>Carpels</i> with long plumose tails	-	-	-	1. A. PULSATILLA.
<i>Carpels</i> not caudate	-	-	-	
peduncles 1-flowered	-	-	-	
flowers blue, purple, or red	-	-	-	
involucre sessile	-	-	-	2. A. CORONARIA, clt.
involucre petiolated	-	-	-	3. A. APENNINA.
flowers white or externally tinged with purple	-	-	-	4. A. NEMOROSA.
peduncles 2 or many flowered, fl. yellow	-	-	-	5. A. RANUNCULOIDES.

1. *A. Pulsatilla*. (L. sp. 759.) *Pasque-Flower*; *Anemone*. Chalky pastures. Fl. purple. May. Perennial. E. B. 51., H. 266., D. C. i. p. 17.

2. *A. coronaria*. (L. sp. 760.) *Garden Anemone*. Leaves ternatisect, the segments multifid, with linear mucronate lobes. Involucres sessile, multifid, *Sepals* 6, oval, approximated. Native of the south of Europe. Cult. in numerous varieties in gardens. Fl. purple, red, &c., varying much by cultivation. May. Perennial. Bot. mag. 841., D. C. i. p. 19.

Note. *A. pannonica* is also frequently cultivated, and may be distinguished from *A. coronaria* by its more numerous (10—12) sepals, which are lanceolate and very acute.

3. ! *A. apennina*. (L. sp. 762.) *Anemone of the Apennines*. Wimbledon woods; near Harrow; Guildford. Fl. light and bright blue. April. Perennial. E. B. 1062., H. 266., D. C. i. p. 19.

4. ! *A. nemorosa*. (L. sp. 762.) *Wood Anemone*. Moist woods. Common. Fl. white, or with a shade of purple. April, May. Perennial. E. B. 355., H. 266., D. C. i. p. 20.

5. ! *A. ranunculoides*. (L. sp. 762.) *Yellow Wood Anemone*. Woods. Rare. At King's Langley, Herts; Wrotham, Kent. Fl. Yellow. April. Perennial. E. B. 1484., H. 266., D. C. i. p. 20.

IV. HEPATICA. (Lin. hort. cliff., D. C. prod. i. p. 22.)

Involucre calyciform, trifoliate, close to the flower. *Sepals* 6—9, petaloid, arranged in a double or triple row. *Stamens* and *ovaries* numerous. *Carpels* without tails. *Scapes* numerous, 1-flowered.

1. *H. triloba*. (Vil. Dauph. i. 336.) *Hepatica*. Leaves cordate, trilobed. Lobes entire, ovate, acute. Petioles and scape subpilose. Native of subalpine districts in southern Europe. Cult. in gardens. Common. Fl. purple or pink. March. Perennial. D. C. i. p. 23. *Anemone Hepatica*. (L. sp. 758., Bot. mag. 10.)

V. ADONIS. (L. gen. n. 698., D. C. prod. i. p. 23.)

Calyx 5-sepaled, adpressed. *Petals* 5—18, with naked claws. *Stamens* numerous, inserted at the base of the gonophorus. *Ovaries* numerous. *Cariopsides* numerous, monospermous, awnless, arranged in an oval spike on the gonophorus. — Herbs with foliaceous stems, and many-partite leaves with linear lobes.

1. ! *A. autumnalis*. (L. sp. 771.) *Corn Pheasant's Eye*. Corn fields. Fl. bright scarlet. May to Oct. Annual. E. B. 308., H. 367., D. C. i. p. 23.

Tribe III. RANUNCULÆ. (D. C. prod. i. p. 25.)

Æstivation of calyx and corolla imbricated. *Petals* bilabiate, or furnished at the base with a scale. *Carpels* 1-seeded, dry, indehiscent. *Seed* erect — Leaves radical, or alternate.

VI. MYOSURUS. (L. gen. n. 394., D. C. prod. i. p. 25.)

Calyx of 5 sepals. *Sepals* loose at the base, or prolonged downwards beyond the insertion. *Petals* 5, with tubular filiform claws. *Stamens* 5—20. *Cariopsides* numerous, triquetrous, closely arranged in an elongated spike. *Styles* straight, subacuminate.

1. ! *M. minimus*. (L. sp. 407.) *Mousetail*. Corn fields, &c. near Wimbledon Park. Fl. yellow, inconspicuous. June. Annual. E. B. 435., H. 152., D. C. i. p. 25.

VII. RANUNCULUS. (L. gen. n. 699., D. C. prod. i. p. 26.)

Calyx of 5 sepals. *Sepals* not elongated at the base, deciduous. *Petals* with nectariferous scales at the base. *Stamens* numerous. *Cariopsides* ovate, sub-compressed, terminating in a short mucro or hook, and arranged in a globose or cylindrical head.

Flowers white

Stem repent or natant

leaves 3—5 lobed, lobes obtuse not capillary - 1. R. HEDERACEUS.

leaves generally divided into capillary segments - 2. R. AQUATILIS.

Stem erect

stem 1-or rarely 2-flowered - 4. R. ALPESTRIS.

stem many-flowered - 5. R. ACONITIFOLIUS, clt.

Flowers yellow

Leaves entire or dentate

stem erect, all the leaves sessile

leaves linear lanceolate, striated, entire - 6. R. GRAMINEUS.

leaves lanceolate, subserrated - 7. R. LINGUA.

stem procumbent, lower leaves petiolated - 8. R. FLAMMULA.

Leaves deeply divided

calyx reflexed on the peduncle

calyx villous, capsules tuberculated - 14. R. PHILONOTIS.

calyx glabrous, capsules not tuberculated - 13. R. BULBOSUS.

calyx not reflexed

carpels tuberculated or prickly

stem subprostrate - 16. R. PARVIFLORUS.

stem erect - 15. R. ARVENSIS.

carpels smooth

stem procumbent, stoloniferous - 12. R. REPENS.

stem erect, not stoloniferous

leaves glabrous

flowers very small, ovaries projecting beyond the corolla - 10. R. SCLELERATUS.

flowers large, ovaries not projecting - 9. R. AURICOMUS.

leaves villous, or pubescent, not glabrous - 11. R. ACRIS.

Flowers (by cultivation) of various colours - 3. R. ASIATICUS, clt.

1. ! *R. hederaceus*. (L. sp. 781.) *Ivy Crowfoot*. Shallow pools of water. Fl. white. May, Aug. Perennial. E. B. 2003., H. 267., D. C. i. p. 26.
2. ! *R. aquatilis*. (L. sp. 781.) *Water Crowfoot*. Dikes, ditches, and rivers. Common. Fl. white. May, June. Perennial. E. B. 101., H. 267., D. C. i. p. 26.
- α. *heterophyllus*. (D. C.) Emerged leaves tripartite.
- β. *capillaceus*. (D. C.) Leaves petiolate. All the leaves immersed, and divided into fine filiform segments. *R. pantothrix*, D. C.
- γ. *cæspitosus*. (D. C.) All the leaves orbicular in their circumscription; deeply cut into fine segments.
3. *R. asiaticus*. (L. sp. 777.) *Garden Ranunculus*. Leaves ternate or biter-nate, segments toothed or deeply trifid. Stem erect, simple, or branched at the base. Calyx spreading, becoming reflexed. Carpels in a cylindrical spike. Native of Asia Minor. Cult. in gardens. Common. There are upwards of 800 varieties of this species. May, June. Perennial. D. C. i. p. 29.
4. *R. alpestris*. (L. sp. 778.) *Alpine White Crowfoot*. Mountains of Clova, Scotland. Fl. white. May. Perennial. E. B. 2390., H. 268., D. C. i. p. 31.
5. *R. aconitifolius*. (L. mant. 79.) *Bachelor's Buttons*. Leaves palmate, 3—7-partite, the segments deeply toothed. Upper leaves sessile, cleft into linear lanceolate lobes. Stem branched, many-flowered. Calyx adpressed, glabrous.
- α. *platanifolius*. (D. C.) Bracteæ linear, entire. Native of the Alps. Cult. in gardens. Fl. white, generally double. May, June. Perennial. Bot. mag. 204., D. C. i. p. 31.
6. *R. gramineus*. (L. sp. 773.) *Grassy Crowfoot*. North Wales. Very rare. Fl. yellow. June. Perennial. E. B. 2306., H. 268., D. C. i. p. 32.
7. ! *R. Lingua*. (L. sp. 773.) *Great Spearwort*. Marshes and ditches. Fl. large, yellow. July. Perennial. E. B. 100., H. 267., D. C. i. p. 32.
8. ! *R. Flammula*. (L. sp. 772.) *Lesser Spearwort*. Moist places. Common. Fl. yellow. June, August. Perennial. E. B. 387., H. 267., D. C. i. p. 32.
- β. *reptans*. (Sm.) Stem repent, throwing out roots from each knot. *R. reptans*. (L. sp. 773.)
9. ! *R. auricomus*. (L. sp. 775.) *Wood Crowfoot*. Woods and coppices. Hampstead, &c. Fl. yellow. April, May. Perennial. E. B. 624., H. 268., D. C. i. p. 33.
10. ! *R. sceleratus*. (L. sp. 776.) *Celery-leaved Crowfoot*. Ditches and sides of pools. Common. Fl. yellow. June. Perennial. E. B. 681., H. 268., D. C. i. p. 34.
11. ! *R. acris*. (L. sp. 779.) *Upright Crowfoot*. Meadows, &c. Common. Fl. yellow. June, July. Perennial. E. B. 652., H. 268., D. C. i. p. 36.
12. ! *R. repens*. (L. sp. 779.) *Creeping Crowfoot*. Pastures. Common. Fl. yellow. June, Oct. Perennial. E. B. 516., H. 263., D. C. i. p. 38.
13. ! *R. bulbosus*. (L. sp. 778.) *Bulbous Crowfoot*. Meadows, &c. Common. Fl. yellow. May. Perennial. E. B. 515., H. 269., D. C. i. p. 41.
14. ! *R. Philonotis*. (Retz. obs. vi. p. 31.) *Pale-haired Crowfoot*. Meadows and waste ground. Fl. yellow. June. Annual. D. C. i. 41. *R. hirsutus*. (E. B. 1504., H. 269.)
- β. *intermedius*. (D. C.) Leaves subglabrous. Marshes near the sea.
- γ. *parvulus*. Stem very short, subuniflore. In dry stony situations. *R. parvulus*. (L. mant. 79.)
15. ! *R. arvensis*. (L. sp. 780.) *Corn Crowfoot*. Corn fields. Common. Fl. yellow. Annual. E. B. 135., H. 269., D. C. i. p. 41.
16. ! *R. parviflorus*. (L. sp. 780.) *Small flowered Crowfoot*. On chalky soils. Croydon, Gravesend. Fl. yellow. May, June. Annual. E. B. 120., H. 269., D. C. i. p. 42.

VIII. FICARIA. (Dill. nov. gen. p. 108., D. C. prod. i. p. 44.)

Calyx of 3 caducous sepals. *Petals* 9, foveolate at the base. *Stamens* and *ovaries* numerous. *Carpels* smooth, compressed, obtuse.

1. ! *F. ranunculoides*. (Mœnch meth., 215.) *Pilewort*. Woods and hedges. Common. Fl. yellow. April, May. Perennial. D. C., l. c. *Ran. Ficaria*. (L. sp. 774., E. B. 584., H. 268.)

Tribe IV. HELLEBOREÆ. (D. C. prod. i. p. 44.)

Estivation of calyx and corolla imbricate. *Calyx* petaloid. *Petals* none, or irregular, bilabiate, and nectariferous. *Carpels* capsular, dehiscing inwards, many-seeded.

IX. CALTHA. (L. gen. 761., D. C. prod. i. p. 44.)

Calyx of 5 suborbicular petaloid sepals. *Petals* none. *Stamens* numerous. *Capsules* 5—10, compressed, patent, 1-celled, many-seeded.

1. ! *C. palustris*. (L. sp. 784.) *Marsh Marigold*. Marshy places. Common. Fl. yellow. Mar., June. Perennial. E. B. 506., H. 269., D. C. i. p. 44.

β. *radicans*. (Forst.) Stem creeping. Leaves cordate, triangular, sharply crenate. Mountains of Scotland. E. B. 2175.

X. TROLLIUS. (L. gen. n. 700., D. C. prod. i. p. 45.)

Calyx of 5—15 deciduous petaloid sepals. *Petals* 5—20, small, 1-lipped, tubular at the base. *Stamens* and *ovaries* numerous. *Capsules* numerous, sessile, subcylindrical, many-seeded.

1. *T. europæus*. (L. sp. 782.) *Mountain Globe-flower*. Moist mountains and pastures. Fl. yellow. June, July. Perennial. E. B. 28., H. 269., D. C. i. p. 45.

XI. ERANTHIS. (Salisb., D. C. prod. i. p. 46.)

Involucre immediately beneath the flower, multipartite. *Flowers* sessile, of 5—8 oblong, deciduous, petaloid sepals. *Petals* 5—8, tubular, very short. *Capsules* pedicellated. *Seeds* globose, in a single row.

1. *E. hyemalis*. (Sal.) *Winter Aconite*. Sepals 6—8, oblong. Native of the south of Europe. Subspontaneous in Wimbledon Wood. Cult. in gardens. Fl. yellow. Feb., Mar. Perennial. D. C. i. p. 46. *Helleborus hyem.* (L. sp. 783., Bot. mag. 3.)

XII. HELLEBORUS. (L. gen. n. 702., D. C. prod. i. p. 46.)

Calyx persistent, of 5 subrotund, obtuse, large sepals. *Petals* 8—10, tubular, very short, narrow, and nectariferous beneath. *Stamens* 30—60. *Ovaries* 3—10. *Stigmas* orbicular. *Capsules* coriaceous. *Seeds* elliptical, in a double row.

Stem foliaceous	-	-	-	-	-	3. H. FÆTIDUS.
Stem almost naked						
flowers pendent, yellowish green	-	-	-	-	-	2. H. VIRIDIS.
flowers white, tinged with pink	-	-	-	-	-	1. H. NIGER, clt.

1. *H. niger*. (L. sp. 783.) *Christmas Rose*. Scape without leaves, 1—2-flowered. Native of the south of Europe. Cult. in gardens. Common. Fl. white. Jan. Perennial. Bot. mag. 8., D. C. i. p. 46.

2. ! *H. viridis*. (L. sp. 784.) *Green Hellebore*. Woods, &c., in chalky soil. Fl. light green. April. Perennial. E. B. 200., H. 263., D. C. i. 47.

3. ! *H. fætidus*. (L. sp. 784.) *Stinking Hellebore*. Thickets, &c., in chalky soil. Fl. green, tipped with purple. April. Perennial. E. B. 613., H. 264., D. C. i. p. 47.

XIII. NIGELLA. (L. gen. n. 685., D. C. prod. i. p. 48.)

Calyx of 5 patent, deciduous, petaloid sepals. *Petals* small, 5—10, bilabiate. *Stamens* numerous. *Ovaries* 5—10, more or less united at the base, terminating in long simple styles. *Capsules* 5—10, more or less united, many-seeded, apiculated by the elongated styles.

1. *N. Damascena*. (L. sp. 753.) *Love in a Mist*. Anthers obtuse. Carpels 5, smooth, bilocular, coherent from the base to the apex. Fl. surrounded by a foliose involucre. Sepals patent. Native of the south of Europe. Cult. in gardens. Common. Fl. pale blue. Aug. Annual. Bot. mag. 22., D. C. i. p. 49.

XIV. AQUILEGIA. (L. gen. n. 684., D. C. prod. i. p. 50.)

Calyx of 5 deciduous petaloid sepals. *Petals* 5, elongated downwards into a hollow cornucopia-shaped spur, callous at the apex. *Ovaries* 5. *Capsules* 5, erect, acuminate by the permanent style.

1. *A. vulgaris*. (L. sp. 752.) *Columbine*. Woods and coppices, also cult. in gardens. Very common. Fl. purple, varies by cult. June. Perennial. E. B. 297., H. 264., D. C. i. c.

XV. DELPHINIUM. (L. gen. n. 681., D. C. prod. i. p. 51.)

Calyx deciduous, petaloid, irregular, the sepals elongated at the base into a spur. *Petals* 4, the 2 upper appendiculated within the spur.

Ovaries 3—5, petals free	-	-	-	3. D. GRANDIFLORUM, clt.
Ovary 1, petals united				
flowers in loose racemes	-	-	-	2. D. CONSOLIDA.
flowers in compact racemes	-	-	-	1. D. AJACIS, clt.

1. *D. Ajacis*. (L. sp. 748.) *Rocket Larkspur*. Stem erect, subglabrous, nearly simple; the branches scarcely diverging. Fl. few, loosely racemose. Pedicels as long as the bractæ. Capsules pubescent. Native of Asia Minor. Cult. in gardens. Common. Fl. blue, varies by cult. Annual. D. C. i. p. 51.

2. ! *D. Consolida*. (L. sp. 748.) *Field Larkspur*. Sandy or chalky corn fields. Fl. blue. June, July. Annual. E. B. 1839., H. 264., D. C. i. p. 51.

3. *D. grandiflorum*. (L. sp. 749.) *Siberian Larkspur*. Leaves palmato-multipartite, with linear distant lobes. Pedicels longer than the bractæ. Petals shorter than the calyx; the two lower somewhat orbicular, with obliquely inflexed entire borders. Native of Siberia. Cult. in gardens. Fl. deep blue. Perennial. Bot. mag. 1686., D. C. i. 53.

XVI. ACONITUM. (L. gen. 682., D. C. prod. i. p. 56.)

Calyx petaloid, irregular, deciduous or marcescent, upper sepal helmet-shaped. 2 upper *petals* on long stalks, expanded, with a sacculus at the apex, and concealed within the helmet.

1. *A. Napellus*. (L. sp. 751.) *Monkshood*. Herefordshire and Devon. Most probably escaped from gardens. Native of the Alps; growing in great abundance near the chalets. Fl. purple. June, July. Perennial. E. B. 2730., H. 264., D. C. i. p. 62.

Tribe V. PÆONIACEÆ. RANUNCULACEÆ SPURIÆ.

(D. C. prod. i. p. 64.)

Anthers introrse.

XVII. ACTÆA. (L. gen. n. 700., D. C. prod. i. c.)

Calyx deciduous, of 4 sepals. *Petals* 4. *Carpels* many-seeded.

1. *A. spicata*. (L. sp. 722.) *Herb Christopher*. Bushy places in a limestone soil, in the north of England. Fl. white. May. Perennial. E. B. 918., H. 269., D. C. i. p. 65.

XVIII. PÆONIA. (L. gen. n. 678., D. C. prod. i. p. 65.)

Calyx of 5 foliaceous unequal sepals. *Petals* 5—10. *Stamens* numerous. *Ovaries* surrounded by a fleshy disk. *Carpels* 2—5 with a thick bilamellate stigma, when ripe becoming capsular follicles. *Seeds* subglobose, shining. — Cauline leaves biternatisect. Fl. large.

Segments of leaves entire - - - - 1. *P. CORALLINA*.

Segments unequally laciniated - - - - 2. *P. OFFICINALIS*, clt.

1. *P. corallina*. (Retz. obs. iii. p. 34.) *Entire-leaved Pæony*. Island of Steep Holme in the Severn. Fl. crimson. June. Perennial. E. B. 1513., H. 264., D. C. i. p. 65.

2. *P. officinalis*. (Retz. obs. p. 35.) *Common Pæony*. Herbaceous. *Carpels* tomentose, erect. Segments of the leaves unequally laciniated, smooth. *Laciniae* ovate lanceolate. Native of the south of Europe. Cult. in gardens. Common. Fl. crimson, generally double. June. Perennial. D. C. prod. i. p. 65.

Order II. MAGNOLIACEÆ. (D. C. prod. i. p. 77.)

All the parts of the flower disposed in ternary number. *Sepals* 3—6, deciduous. *Petals* 3—27, in many rows, hypogynous. *Stamens* numerous, free, inserted on the torus, beneath the ovaries. *Anthers* adnate, elongated. *Ovaries* numerous, inserted on the torus, above the stamens, generally arranged in a spike. *Style* short. *Stigma* simple. *Carpels* as many as the ovaries, 1-celled, 1- or many-seeded; either capsular and dehiscing by a superior chink, or capsular and bivalved, dehiscing by an inferior chink; in some follicular or subcarnose, indehiscent; in others samariform, aggregate, or partially united into a loose or dense strobilus. *Seeds* attached to the internal angle of the carpels. *Albumen* fleshy. *Embryo* straight, small, inferior. — Trees or shrubs. Leaves alternate, pinnatinerved. Fl. conspicuous, generally odoriferous.

Carpels dehiscent, persistent - - - - 1. *MAGNOLIA*.

Carpels indehiscent, deciduous - - - - 2. *LIRIODENDRON*.

I. MAGNOLIA. (L. gen. n. 690., D. C. prod. i. p. 79.)

Carpels arranged in a close spike, dehiscing at the external angle, 1—2.

seeded, persistent. *Seed* baccate, subcordate, suspended when ripe, from the capsule, by means of a very long umbilical cord.

Leaves ferrugineous beneath, flowers expanded - 1. *M. GRANDIFLORA*, clt.
 Leaves glaucous beneath, flowers with the petals } 2. *M. GLAUCA*, clt.
 contracted - - - - - }

1. *M. grandiflora*. (L. sp. 755.) *Large-flowered Magnolia*. Leaves persistent, oval oblong, coriaceous, shining above, rust colour beneath. Flowers 9—12-petaled; the petals expanded. Native of North America. Cult. in pleasure grounds. Fl. white. Jan., Oct. Large tree. D. C. i. p. 80.

2. *M. glauca*. (L. sp. ed. 2. p. 755.) *Glaucous Magnolia*. Leaves elliptical, obtuse, glaucous beneath. Flowers 9—12. Petals contracted, ovate concave. Native of New Jersey and Carolina. Cult. in pleasure-grounds. Fl. white, purplish externally. Bot. mag. 2164., D. C. i. p. 80.

II. LIRIODENDRON. (L. gen. n. 689., D. C. prod. i. p. 82.)

Carpels arranged in a spike, 1—2-seeded, indehiscent, deciduous, expanded into a wing at the apex.

1. *L. Tulipifera*. (L. sp. 755.) *Saddle-leaved Tulip Tree*. Native of North America. Cult. in pleasure grounds. Fl. yellow. June. Large tree. Bot. mag. 275., D. C. i. p. 82.

Order III. BERBERIDEÆ. (D. C. prod. i. p. 105.)

Sepals 3—4—6, oblong or oval, often somewhat coloured, arranged alternately in a double row, furnished externally with petaloid scales. *Petals* as many as the sepals, and opposite to them, or in a few instances double the number, hypogynous, generally with a glandular scale at the base. *Stamens* as many as the petals, and opposite to them. *Filaments* short. *Anthers* oblong, adnate, bilocular, the cells dehiscing from base to apex by a sub-elastic valve. *Ovary* (by abortion) solitary, ovate, suboblique, 1-celled. *Style* sublateral, very short, crowned with a suborbicular stigma. *Fruit* baccate or capsular. *Seeds* 1—3, ovate or globose, attached to the base of the lateral placenta. *Albumen* fleshy or subcorneous. *Embryo* straight. *Radicle* swollen at the point. *Cotyledons* flat. — Perennial shrubs or herbs. Leaves or leaflets aristato-serrate.

Shrubs - - - - - 1. BERBERIS.
 Herbs - - - - - 2. EPIMEDIUM.

I. BERBERIS. (L. gen. n. 442., D. C. i. p. 105.)

Sepals 6, with 3 scales externally. *Petals* 6, biglandular internally. *Berry* 2—3-seeded. — Shrubs with the primary leaves abortive, and generally changed into spines; secondary leaves fascicled and axillary. Flowers yellow.

1. ! *B. vulgaris*. (L. sp. 472.) *Common Barberry*. Woods and hedges. Cult. Common. Fl. yellow. June. Perennial. E. B. 49., H. 157., D. C. i. c.

II. EPIMEDIUM. (L. gen. n. 148., D. C. i. p. 110.)

Sepals 4, externally bibracteolate at the base. *Petals* 4, with a coloured appendix internally. *Capsule* a many-seeded pod.

1. *E. alpinum*. (L. sp. 171.) *Alpine Barrenwort*. Subalpine woods in Cumberland and Yorkshire. Cult. in gardens. Fl. purplish. May. Perennial. E. B. 438., H. 71., D. C. i. p. 110.

Order IV. NYMPHÆACEÆ. (D. C. prod. i. p. 113.)

Torus of the flower expanded into a cup, which encloses the ovaries, and is crowned by the stigmas. *Sepals* 4—6, coloured, persistent, inserted on the torus. *Petals* oblong, flat, in many rows, each row consisting of as many petals as there are sepals. *Stamens* numerous, in many rows, inserted a little above the petals, on the torus. *Filaments* flat. *Anthers* adnate, introrse, linear, bilocular, longitudinally birimose. *Carpels* 8—24, enclosed within the torus, membranous, without valves, many-seeded. *Stigmas* connate at the base, free at the apex, radiating over the urceolate torus. *Seeds* numerous, inversely ovate, globose, surrounded by a follicular arillus, and attached to the parietes of the carpels. *Embryo* at the base of a farinaceous albumen, small, turbinate,

globose, enclosed in a separate membranaceous bag, and hence it appears to be monocotyledonous, but upon opening the bag 2 foliaceous cotyledons are exposed. — Aquatic herbs, with round, repent, horizontal stems. Leaves with elongated petioles, the limb floating. Flowers solitary and radical, with long peduncles.

Flowers white	-	-	-	-	-	1. NYMPHÆA.
Flowers yellow	-	-	-	-	-	2. NUPHAR.

I. NYMPHÆA. (L. gen. n. 653., D. C. prod. i. p. 114.)

Sepals at the base on the torus. *Petals* and *stamens* inserted upon the torus which covers the carpels. The berry, therefore, appears semi-inferior and covered with scars. Flowers white.

1. ! *N. alba*. (L. sp. 729.) *Great White Water Lily*. Lakes and still waters. Frequent. July. Perennial. E. B. 160., H. 263., D. C. i. p. 115.

II. NUPHAR. (Sm. prod. fl. græc. i. p. 361., D. C. prod. i. p. 116.)

Sepals, *petals*, and *stamens* inserted at the base of the torus; the *berry*, therefore, appears superior, smooth. Flowers yellow.

Stigma entire, with 14—20 rays	-	-	-	-	1. N. LUTEA.
Stigma lobed or dentate, 8—10 rays	-	-	-	-	2. N. PUMILA.

1. ! *N. lutea*. (Sm. prod. fl. gr. i. p. 361.) *Common Yellow Water Lily*. Lakes and still waters. Frequent. July. Perennial. H. 263., D. C. i. c.

Nymphæa lutea. (L. sp. 729., E. B. 159.)

2. *N. pumila*. (Sm. E. B.) *Small Yellow Water Lily*. Highland lakes. July, Aug. Perennial. E. B. 2292., H. 263., D. C. i. p. 116.

Order V. PAPAVERACEÆ. (D. C. prod. i. p. 117.)

Calyx of 2 deciduous foliaceous sepals. *Sepals* concave, generally enclosing the young flower. *Petals* regular, without glands, irregularly plicate before expansion, generally 4, arranged in a single row, and in a cruciate manner. *Stamens* indefinite, seldom definite, in one or many rows, each consisting of 4; the outer row adherent to the base of the petals. *Filaments* filiform, sometimes united into 4 bundles. *Anthers* bilocular, innate, opening by a double furrow. *Ovary* free, consisting either of a few carpels (2—3), or of many (10—12), often surrounded by a membranaceous production of the thalamus. *Style* none or short. *Stigmas* radiating. *Capsule* ovate, or elongated and podshaped, the carpels being connected by their seminiferous margins; and thus the placentas have seeds on both sides, and form 2 or many incomplete dissepiments. *Seeds* numerous, horizontal, subglobose, without an arillus. *Albumen* carnosio-oleose. *Embryo* straight, minute, and at the base of the albumen. *Cotyledons* plano-convex. — Herbs or small shrubs, with fetid, milky, coloured juices. Leaves alternate, penninerved, dentate, or pinnatilobed. Peduncles elongated, single-flowered. Flowers never blue.

Capsule rounded or obovate

style none, stigmas 4—20, sessile, crowning the disk	}	1. PAPAVER.
of the ovary		

style short, stigmas 4—6, free	-	-	-	-	2. MECONOPSIS.
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Capsule elongated

capsule 3—4-valved	-	-	-	-	4. RŒMERIA.
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capsule 2-valved

calyx calyptrate, not separating into 2 sepals;	}	3. ESCHSCHOLTZIA, clt.
styles of different lengths		

calyx of 2 sepals, separating on the expansion of the flower; styles of the same length

capsule 2-celled	-	-	-	-	5. GLAUCIUM.
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capsule 1-celled	-	-	-	-	6. CHELIDONIUM.
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I. PAPAVER. (L. gen. n. 648., D. C. prod. i. p. 117.)

Sepals 2, deciduous. *Petals* 4. *Stamens* numerous. *Style* none. *Stigmas* 4—20, radiating, sessile, crowning the ovary. *Capsule* obovate, 1-celled, with incomplete septa formed of 4—20 carpels enclosed in a membranous production of the thalamus, and opening by short valves under the permanent stigmas. *Peduncles* inflexed at the apex, nodding before flowering.

Capsule rough

- capsule obovato-globose - - - 1. *P. HYBRIDUM*.
 capsule elongato-clavate - - - 2. *P. ARGEMONE*.

Capsule smooth, or with a few hairs only at the apex

- leaves glabrous, incised or dentate - - 7. *P. SOMNIFERUM*.
 leaves rough, pilose, pinnatifid

stem 1-flowered

- calyx and peduncle with adpressed hairs, } 6. *P. BRACTEATUM*, clt.
 flowers bracteate - - - }

- calyx and peduncle with spreading hairs, } 5. *P. ORIENTALE*, clt.
 flowers not bracteate - - - }

stem many-flowered

- stigma 10-rayed, capsule globose - - 4. *P. RHÆAS*.
 stigma 6—7-rayed, capsule oblong - - 3. *P. DUBIUM*.

1. ! *P. hybridum*. (L. sp. 725.) *Round rough-headed Poppy*. Sandy and chalky fields near Gravesend, Sandown, Isle of Wight. Fl. crimson. July. Annual. E. B. 43., H. 259., D. C. i. p. 118.

2. ! *P. Argemone*. (L. sp. 725.) *Long prickly-headed Poppy*. Corn fields. Fl. scarlet. June. Annual. E. B. 643., H. 259., D. C. i. p. 118.

3. ! *P. dubium*. (L. sp. 726.) *Long smooth-headed Poppy*. Corn fields. Fl. scarlet. July. Annual. E. B. 644., H. 259., D. C. i. p. 118.

4. ! *P. Rhæas*. (L. sp. 726.) *Common Red Poppy*. Corn fields. Common. Fl. scarlet. June, July. Annual. E. B. 645., H. 259., D. C. i. p. 118.

5. *P. orientale*. (L. sp. 727.) *Large Garden Poppy*. Capsules glabrous, subglobose. Sepals pilose. Stem 1-flowered, rough, leafy. Leaves pinnatifid, hispid. Lobes oblong, serrated. Native of Asia Minor. Cult. in gardens. Fl. intense scarlet, with a purple spot at the claw. June. Perennial. Bot. mag. 57., D. C. i. p. 119.

6. *P. bracteatum*. (Lind. coll. 23.) *Bracteate Garden Poppy*. Flower bracteate, 4—5 petals. Capsules smooth, globoso-obovate. Sepals pilose. Stem 1-flowered, scabrous, leafy. Leaves and bractea pinnatifid, hispid. Lobes oblong, serrated. Native of Caucasus. Cult. in gardens. Flowers like *P. orientale*, but with bracts. June. Perennial. Lind. l. c. D. C. i. p. 119.

7. ! *P. somniferum*. (L. sp. 726.) *White Poppy*. Native of Asia, but now often cultivated in, and spontaneously growing by the sides of, fields. July. Annual. E. B. 2145., H. 259., D. C. i. p. 119.

α. *A. nigrum*. (D. C.) Capsule with apertures under the stigma, seed black. Cult. for the extraction of oil.

β. *album*. (D. C.) Capsule without apertures, seeds white. Cult. for the extraction of opium.

II. MECONOPSIS. (Vig. diss. 48. f. 3., D. C. prod. i. p. 120.)

Sepals 2, deciduous. Petals 4. Stamens numerous. Style short. Stigmas 4—6, radiating, convex, free. Capsule obovate, 1-celled. Valves 4—6, dehiscing at the apex. Placentas narrow, slightly projecting as a narrow membrane into the interior.

1. *M. cambrica*. (Vig. l. c.) *Welsh Poppy*. Shady places in Wales and Cumberland, &c. Rare. Fl. yellow. June. Perennial. H. 260., D. C. l. c. Pap. cambricum. (L. sp. 727., E. B. 66.)

III. ESCHSCHOLTZIA. (Hook. fl. bor. am. p. 34., D. C. prod. iii. p. 344.)

Calyx mitre-shaped, deciduous, never separating into 2 sepals. Petals 4, their claws inserted into the throat of the receptacle, which is dilated into an expanded, fringed or entire border. Stamens indefinite. Styles 4, 2 long and 2 short. Capsule siliquiform, 2-valved. Seeds fixed to the margins of the valves. — Roots tuberous.

1. *E. californica*. (Cham. hor. phys. ber. f. 15.) *Californian Poppy*. Native of California. Now commonly cultivated in gardens. Fl. yellow. May, Nov. Hook. bot. mag. 2887., D. C. l. c.

A variety with orange-coloured flowers has been lately introduced, and by some is considered a distinct species.

IV. ROEMERIA. (D. C. prod. i. p. 122.)

Petals 4. Stamens numerous. Capsule elongated, 3—4 valved, valves dehiscing from apex to base. Seeds reniform, scrobiculate, not having a glandular crest.

1. *R. hybrida*. (D. C. l. c.) *Violet Horned Poppy*. Corn fields. Norfolk and Cambridgeshire. Rare. Fl. violet. May, June. Annual. D. C. l. c. *Chelidonium hybridum*. (L. sp. 724., E. B. 201.) *Glaucium hybridum*. (H. 260.) Juice yellow, fetid.

V. GLAUCIUM. (Tourn inst. t. 130., D. C. prod. i. p. 122.)

Petals 4. *Stamens* numerous. *Capsule* elongated, bivalved, bilocular, with a spongy dissepiment. *Seeds* ovato-reniform.

Flowers yellow	-	-	-	-	1. <i>G. FLAVUM</i> .
Flowers scarlet	-	-	-	-	2. <i>G. CORNICULATUM</i> .

1. *G. flavum*. (Crantz aust. 2. p. 141.) *Yellow Horned Poppy*. Sandy sea shores. Common. Fl. yellow. July, Aug. Biennial. D. C. l. c. *G. luteum*. (L. sp. 724., E. B. 8., H. 260.)

2. *G. corniculatum*. (Curt. lond. 6. t. 32.) *Scarlet Horned Poppy*. Portland Island, and Norfolk. Very rare. Fl. scarlet. July. Annual. D. C. l. c. *G. phœniceum*. (E. B. 1433., H. 260.) *Chel. corn.* (L. 724.)

VI. CHELIDONIUM. (D. C. prod. i. p. 122.)

Sepals 2, glabrous. *Petals* 4. *Stamens* numerous. *Capsule* elongated, bivalved, 1-celled, valves dehiscing from base to apex. *Seeds* with a glandular crest.

1. ! *C. majus*. (L. sp. 723.) *Common Celandine*. Waste places near towns. Fl. yellow. May, June. E. B. 1581., H. 260.

Order VI. FUMARIACEÆ. (D. C. prod. i. p. 125.)

Calyx of 2 small membranaceous and deciduous sepals. *Petals* 4, cruciate, free or united at the base, sometimes 1 free and 3 united; the 2 exterior ones alternate with the sepals, and either 1 or both having a spur or gibbosity; the 2 interior ones oblong linear, with a callosity at the apex. *Stamens* with 6 filaments, arranged in 2 phalanxes opposite to the external petals. *Anthers* 6, small; the lateral ones of each phalanx are 1-celled, the central 2-celled. There are, therefore, 8 cells of the anthers, and, strictly speaking, there are but 2 anthers in each phalanx. *Ovary* 1, free. *Style* filiform. *Stigma* bilamellate, parallel to the interior petals. *Fruit* dry, in some a bivalved polyspermous dehiscing silique, with opposite valves, having 2 persistent nerviform placentas at the sutures; in some the fruit is 2-seeded and indehiscent, the valves being firmly united; in others the fruit is without valves, indehiscent, by abortion 1-seeded. *Seeds* ovato-globose, shining, with an arillus or caruncle, horizontally attached to the lateral placenta. *Albumen* fleshy. *Embryo* basilar. *Cotyledons* oblong. — Herbs with watery juices. Flowers racemose.

Fruit polyspermous, silique dehiscent	-	-	-	1. <i>CORYDALIS</i> .
Fruit monospermous, cariosis indehiscent	-	-	-	2. <i>FUMARIA</i> .

I. CORYDALIS. (D. C. prod. i. p. 126.)

Petals 4, one having a spur at the base. *Silique* bivalved, compressed, polyspermous. — Herbs.

Root tuberous, flowers white or reddish	-	-	1. <i>C. BULBOSA</i> .
Root fibrous, flowers yellow	-	-	-
stem climbing, bractea longer than the pedicels	-	-	3. <i>C. CLAVICULATA</i> .
stem not climbing, bractea much shorter than the pedicels	-	-	2. <i>C. CAPNOIDES</i> .

1. *C. bulbosa*. (D. C. fl. fr. iv. p. 637.) *Solid-rooted Corydalis*. Groves and thickets. Wickham, Hants; near Birmingham. Fl. purplish. April, May. Perennial. D. C. i. p. 127. *Fumaria solida*. (E. B. 1471.) *C. solida*. (H. 319.)

2. ! *C. capnoides*. (Pers. ench. ii. p. 270.) *Yellow Corydalis*. Old walls. Castleton, Derbyshire, &c. Cult. in gardens. Common. Fl. yellow. May. Perennial. D. C. i. p. 129. *Fumaria lutea*. (E. B. 588.) *C. lutea*. (H. 319.)

3. ! *C. claviculata*. (D. C. fl. fr. iv. p. 638.) *White climbing Corydalis*. Bushy and shady places; near Woolwich, Epping, Chertsey, &c. Fl. pale yellow. June. Annual. D. C. i. p. 129., H. 319. *Fumaria claviculata*. (L. sp. 985., E. B. 103.)

II. FUMARIA. (Tourn. inst. p. 422., D. C. prod i. p. 129.)

Petals 4, one being gibbous, or having a spur at the base. *Cariopsis* indehiscent, 1-seeded, blunt; the *style* after flowering being deciduous.

Stem very weak, climbing; sepals twice the length of the fruit } 1. *F. CAPREOLATA*.

Stem erect, spreading, not climbing; sepals not longer than the fruit

lobes of leaves capillary, capsules somewhat rough 3. *F. PARVIFLORA*.

lobes of the leaves obtuse, capsules smooth - 2. *F. OFFICINALIS*.

1. ! *F. capreolata*. (L. sp. 985.) *Ramping Fumitory*. Corn fields and gardens. Fl. white tipped with purple. May, Aug. Annual. E. B. 943., H. 319., D. C. i. p. 130.

2. ! *F. officinalis*. (L. sp. 984.) *Common Fumitory*. Dry fields, road sides, &c. Very common. Fl. pink, blood-red at the tips. June, Sept. Annual. E. B. 589., H. 320., D. C. i. p. 130.

F. media (D. C.) is, according to Hooker and Arnott, a var. of *F. officinalis*, with broader leaves, often terminating in a tendril.

3. ! *F. parviflora*. (Lam. dict. ii. p. 567.) *Small-flowered Fumitory*. Woldham, near Rochester; Epsom, &c., in fields. Fl. white, tipped with purple. Aug. Sept. Annual. E. B. 590., H. 320., D. C. i. p. 130.

Order VII. CRUCIFERÆ. (D. C. prod. i. p. 131.)

Calyx of 4 sepals. *Sepals* cruciate; 2 placentary (namely, the superior and inferior), opposite, flat, narrower; 2 lateral or valvular, broader, concave at the base, gibbous, or rarely calcarate. *Glands* arising from the torus, and pressing out the base of the sepals. *Petals* 4, hypogynous, alternate with the sepals, generally equal, deciduous. *Stamens* 6, arising from the torus, tetradynamous; the 2 before the lateral sepals shorter; the 4 longer in pairs, and sometimes united in front of the placentary sepals. *Anthers* bilocular, introrse. *Torus* having callous glands between the petals and ovary. *Ovary* 1, bilocular, elongated with a short style; or abbreviated, and then with a long style. *Stigmas* 2. *Fruit* elongated (silique) or abbreviated (silicle), rarely 1-celled without valves, generally bilocular, bivalved. *Cells* divided by a longitudinal septum. *Valves* flat, concave or carinate. *Seeds* in each cell attached to both sutures; very rarely single (by abortion), exalbuminous, oily. *Embryo* various in form, but always more or less curvato-plicate.*—Herbs or shrubs, with leaves, in most instances, alternate. Racemes opposite the leaves, or terminal, generally without bractææ.

** Fruit a silique

† Silique not articulated

§ Seeds compressed, sometimes marginate

calyx bisaccate at the base

stigma thickened at the back or cornigerous - 1. *MATHIOLA*.

stigma not thickened nor cornigerous - 2. *CHEIRANTHUS*.

calyx equal

seeds in a double row in each cell

silique terete or elliptical; valves concave - 3. *NASTURTIIUM*.

silique elongated, sharp-edged; valves flat - 5. *TURRITIS*.

seeds in a single row in each cell

flowers yellow - 4. *BARBAREA*.

flowers white, purple, or rose-coloured

valves of the silique nerved or veined - 6. *ARABIS*.

valves of the silique not nerved nor veined

siliques linear, style short or none - 7. *CARDAMINE*.

silique lanceolate, style, sharp edged or } 8. *DENTARIA*.

filiform -

§ § Seeds ovate or globose immarginate

calyx patent

seeds ovate or oblong, the cotyledons flat

silique subterete, seeds ovate or oblong - 21. *SISYMBRIUM*.

silique subtetragonal, seeds subcylindrical - 22. *ALLIARIA*.

seeds subglobose, cotyledons conduplicate - 31. *SINAPIS*.

* The structure of the embryo is best seen in seeds before they are perfectly ripe.

- calyx closed or erect
 silique compressed
 style scarcely perceptible - - - 21. SISYMBRIUM.
 style conical, containing ? 2 seeds or empty - 32. DIPLLOTAXIS.
 silique terete or subtetragonal
 seeds ovate or oblong; cotyledons flat
 petals subentire; stigmas 2, erect, connivent 20. HESPERIS.
 petals entire; stigmas 2, distinct or connate } 21. SISYMBRIUM.
 into a capitulum - - - - - }
 petals entire; stigmas 2, spreading - - 23. ERYSIMUM.
 seeds subglobose, cotyledons conduplicate, - 30. BRASSICA.
 ++ Silique separating by transverse articulations - 35. RAPHANUS. }
- * * Fruit a silicle
 + Silicle articulated, one or all the joints deciduous
 cotyledons flat, accumbent - - - - 19. CAKILE.
 cotyledons conduplicate - - - - - 34. CRAMBE.
 ++ Silicle not articulated
 silicle indehiscent, septum more or less abortive
 silicle 2—4-celled - - - - - 25. CORONOPUS.
 silicle 1-celled - - - - - 29. ISATIS.
 silicle dehiscent, 2-valved, the septum permanent
 § Septum very narrow, linear
 petals unequal, the 2 outer much longer than } 18. IBERIS.
 the inner ones - - - - - }
 petals equal or subequal
 larger stamens connate or with a scaly ap- } 17. TEESDALIA.
 pendage - - - - - }
 stamens not connate nor appendiculated
 valves of the silicle winged
 valves navicular, cells many-seeded - 15. THLASPI.
 valves carinate, cells 1-seeded - 28. LEPIDIUM.
 valves not winged
 silicle obcordate - - - - 26. CAPSELLA.
 silicle oblong or oval
 valves navicular, cells 2—6-seeded - 16. HUTCHINSIA.
 valves carinate, cells 1-seeded - 28. LEPIDIUM.
 § § Septum ovate, elliptical
 leaves radical, subulate - - - - 27. SUBULARIA.
 leaves not subulate
 calyx bisaccate at the base
 valves flat; stamens edentulous - 9. LUNARIA.
 valves convex; shorter stamens dentate - 10. AUBRIETIA.
 calyx not bisaccate
 valves of the silicle ventricose
 flowers white - - - - 14. COCHLEARIA.
 flowers yellow - - - - 24. CAMELINA.
 valves of the silicle flat or plano-convex
 stamens appendiculated at the base - 11. ALYSSUM.
 stamens not appendiculated
 petals bipartite - - - - 13. EROPHILA.
 petals entire
 cotyledons conduplicate - - 33. CARRICHTERA.
 cotyledons flat, accumbent
 cells of silicle 1—2-seeded - 11. ALYSSUM.
 cells of silicle many-seeded - 12. DRABA.

Suborder I. *Pleurorrhizæ*. (O =) (D. C. prod. i. p. 132.)

Cotyledons flat, accumbent. *Radicle*, lateral; that is, lying in the depression between the two cotyledons. *Seeds* compressed, sometimes marginate.

Tribe I. ARABIDÆ, or SILIQUOSE PLEURORRHIZÆ. (D. C. l. c.)

Silique elongated, bivalved, dehiscent; the *septum* linear; the *style* short. *Valves* flat, concave or subcarinate. *Seeds* numerous in each cell. *Cotyledons* flat, accumbent, parallel with the septum. (O =.)

I. MATHIOLA. (Br. hort. kew. ii. p. 119., D. C. prod. i. p. 132.)

Calyx erect, bisaccate at the base. *Petals* with claws. *Stamens* free, without appendages. *Silique* terete or compressed, elongated. *Stigma* connivent, bilobed, the lobes being thickened, or cornigerous at the back. *Seeds* in a single row.

Leaves entire, silique not tuberculated

petals entire, silique obtuse, root perennial - - 1. *M. INCANA*.

petals notched, silique pointed, root annual - - 2. *M. ANNUA*, clt.

Leaves sinuated, silique subtuberculated - - 3. *M. SINUATA*.

1. *M. incana*. (R. Br. hort. kew.) *Hoary shrubby Stock*. Cliffs at Hastings. A doubtful native. Much cult. in gardens; the stock gillyflowers being all varieties of this species. Fl. purple, red, white, or variegated. May, June. Small shrub. Biennial. H. 308., D. C. i. p. 132. *Cheiranthus incanus*. (L. sp. 924., E. B. 1935.)

2. *M. annua*. (D. C.) *Ten-Week Stock*. Stem herbaceous, erect, branched. Leaves lanceolate, obtuse, hoary. Siliques subcylindrical, without glands. Native of the south of Europe. Much cult. in gardens. Fl. purple. June, Aug. Annual. Bot. mag., D. C. i. p. 133. *Cheir. annuus*. (L. sp. 925.)

3. *M. sinuata*. (Br. hort. kew. iv. p. 120.) *Great Sea Stock*. Sandy shores of Wales and Cornwall. Fl. purple. May, August. Biennial. H. 308., D. C. i. p. 133. *Cheiranthus sinuatus*. (L. sp. 926., E. B. 462.)

II. CHEIRANTHUS. (L. gen. n. 815., D. C. prod. i. p. 135.)

Calyx erect, not patent, bisaccate at the base. *Silique* terete or compressed, elongated. *Stigma* bilobed or capitate, lobes not gibbous at the back. *Seeds* ovate, compressed, in a single row.

1. ! *C. Cheiri*. (L. sp. 924.) *Common Wallflower*. On walls, and cult. in gardens. Common. Fl. yellow, or dark brown. April, May. Small shrub. Perennial or biennial. E. B. 1934., H. 308., D. C. i. p. 135.

III. NASTURTIIUM. (D. C. prod. i. p. 137.)

Calyx patent, equal. *Petals* entire, or sometimes wanting. *Stigma* bilobed. *Silique* terete or short. *Valves* concave, without nerves. *Seeds* small, irregular, in a double row, immarginate.

Flowers white - - - - 1. *N. OFFICINALE*.

Flowers yellow

petals longer than the calyx

leaves pinnatisect, the segments incised - - 2. *N. SYLVESTRE*.

leaves oblong, pinnatifid or serrate - - 4. *N. AMPHIBIUM*.

petals not longer than the calyx - - 3. *N. PALUSTRE*.

1. ! *N. officinale*. (Br. hort. kew. iv. p. 110.) *Water Cress*. Brooks, &c. Common. Fl. white. July. Perennial. H. 306., D. C. l. c. *Sisymbrium Nasturtium*. (L. sp. 916., E. B. 855.)

2. ! *N. sylvestre*. (Br. l. c.) *Creeping Cress*. Water sides and waste places. Fl. yellow. July. Perennial. H. 306., D. C. l. c. *Sisymbrium sylvestre*. (L. sp. 916., E. B. 2324.)

3. ! *N. palustre*. (D. C. syst. 2. p. 191.) *Marsh Cress*. Watery places. Fl. yellow. June, Sep. Annual. D. C. l. c. *N. terrestre*. (H. 306.) *Sisymb. terrestre*. (E. B. 1747.)

4. ! *N. amphibium*. (Br. l. c.) *Amphibious Cress*. Watery places. Frequent. Fl. yellow. June, Aug. Perennial. H. 307., D. C. i. p. 138. *Sisymb. amph.* (L. sp. 917., E. B. 1840.)

IV. BARBAREA. (R. Br. hort. kew., D. C. prod. i. p. 140.)

Calyx erect, subequal at the base. *Petals* unguiculate, limb entire. *Silique* subtetragonal, 2 of the angles acute. *Valves* concavo-carinate. *Seeds* in a single row. — Herb. Perennial. Very smooth. Fl. yellow.

Upper leaves pinnatifid - - - - 2. *B. PRÆCOX*.

Upper leaves entire or dentate - - - - 1. *B. VULGARIS*.

1. ! *B. vulgaris*. (Br. l. c.) *Bitter Winter Cress*; *Yellow Rocket*. Pastures and hedges. Common. Fl. yellow. May, August. Perennial. H. 306., D. C. i. p. 140. *Erysimum Barbarea*. (L. sp. 922., E. B. 443.)

2. ! *B. præcox*. (B. l. c.) *Early Winter Cress*. Waste places in Devonshire, &c. Cult. in gardens as spring salad. Fl. yellow. April, Oct. H. 306., D. C. i. p. 140. *Erys. præcox*. (E. B. 1129.)

V. TURRITIS. (L. gen. n. 819., D. C. prod. i. p. 141.)

Calyx lax. *Petals* unguiculated, with an oblong entire limb. *Siliqua* oblong, stiff, 2-edged. *Valves* flat, nerved. *Seeds* in a double row in each cell, very numerous.

1. ! *T. glabra*. (L. sp. 930.) *Long-podded Tower Mustard*. Banks and road sides. Most common in Norfolk and Suffolk. Fl. white. May, June. Annual. E. B. 777., H. 3. 5., D. C. i. p. 142.

VI. ARABIS. (L. gen. n. 818., D. C. prod. i. p. 142.)

Calyx erect. *Petals* unguiculate. *Limbs* entire, patent. *Siliqua* linear, crowned with the subsessile stigma. *Valves* flattish, nerved, or veined, with a linear septum. *Seeds* in one row. — Fl. white.

Petals obovate, spreading	-	-	-	-	1. A. ALBIDA, clt.
Petals oblong, erect					
stem leaves amplexicaule					
siliques straight	-	-	-	-	2. A. HIRSUTA.
siliques recurved	-	-	-	-	7. A. TURRITA.
stem leaves sessile, slightly, if at all, amplexicaule,					
sometimes wanting					
radical leaves lyrate or lyrate-pinnatifid					
siliques erect	-	-	-	-	3. A. STRICTA.
siliques spreading	-	-	-	-	6. A. PETRÆA.
radical leaves dentate, not lyrate					
leaves ciliated, the surface smooth	-	-	-	-	4. A. CILIATA.
leaves hairy	-	-	-	-	5. A. THALIANA.

1. *A. albida*. (Stev.) *White Arabis*. Leaves subdentate, hoary or downy with branched hairs. Radical leaves obovato-oblong, cauline ones cordato-sagittate amplexicaule. Pedicels longer than the calyx. Native of Caucasus. Cult. in gardens. Fl. large, white. Jan., May. Perennial. D. C. i. p. 142.

Note. *A. alpina*. (Bot. mag. 226.), which is often cultivated in gardens, much resembles *A. albida*; but the flowers are smaller, and the leaves more deeply dentate.

2. ! *A. hirsuta*. (D. C. l. c.) *Hairy Rock Cress*. Walls, rocks, and banks. Fl. white. June. Biennial. H. 305., D. C. i. p. 144. *Turritis hirsuta*. (L. sp. 930., E. B. 587.)

3. *A. stricta*. (Huds. angl. 292.) *Bristol Rock Cress*. St. Vincent's Rocks, Clifton. Fl. white. March. Perennial. E. B. 614., H. 305., D. C. i. p. 144.

4. *A. ciliata*. (Br. hort. kew. iv. p. 107.) *Fringed Rock Cress*. Mountains in Scotland and West of Ireland. Fl. white. July. Biennial. H. 305., D. C. i. p. 144. *Turritis alpina*. (E. B. 1746.)

5. ! *A. ? Thaliana*. (L. sp. 929.) *Thale Cress*. Gravelly soils, dry banks. Common. Fl. white. April, May. Annual. E. B. 901., D. C. i. p. 144. *Sisymbrium Thalianum*. (H. 307.)

6. *A. petræa*. (Lamarck.) *Mountain Rock Cress*. Alpine rocks in North Wales and Scotland. Fl. white. June, July. Perennial. H. 305., D. C. i. p. 145. *Cardamine hastulata*. (E. B. 409.)

7. *A. Turrita*. (L. sp. 930.) *Tower Wall Cress*. Walls at Oxford and Cambridge. Fl. white. May. Biennial. E. B. 178., H. 305., D. C. i. p. 146.

VII. CARDAMINE. (L. gen. n. 812., D. C. prod. i. p. 149.)

Calyx equal at the base. *Petals* unguiculate, with an entire limb. *Siliqua* sessile, compressed, linear. *Valves* flat, without nerves, elastically dehiscing, and rather narrower than the thickened dissepiment. *Style* short, or none. *Seeds* ovate, immarginate, in one row. *Funiculus* slender. — Flowers white or pale lilac.

Flowers violet or purple	-	-	-	-	3. C. PRATENSIS.
Flowers white					
sterile foliaceous stolons arising from the collet	-	-	-	-	2. C. ANARA.
no stolons					
plant hairy	-	-	-	-	4. C. HIRSUTA.
plant glabrous					
leaves pinnatisect	-	-	-	-	5. C. IMPATIENS.
leaves entire or bilobed	-	-	-	-	1. C. BELLIDIFOLIA.

1. *C. bellidifolia*. (L. sp. 913.) *Daisy-leaved Bitter Cress*. Moist clefts of rocks in Scotland and Ireland. Fl. white. Aug. Perennial. E. B. 2355., H. 304., D. C. i. p. 150.

2. ! *C. amara*. (L. sp. 915.) *Bitter Lady's Smock*. Wet meadows. Common. Fl. white. April, June. Perennial. E. B. 1000., H. 304., D. C. i. p. 151.

3. ! *C. pratensis*. (L. sp. 915.) *Common Lady's Smock*. Moist meadows. Common. Fl. purple or violet. May. Perennial. E. B. 776., H. 304., D. C. i. p. 151.

4. ! *C. hirsuta*. (L. sp. 915.) *Hairy Bitter Cress*. Moist hedges and shady places. Common. Fl. white. March, June. Biennial. E. B. 492., H. 304., D. C. 152.

5. *C. impatiens*. (L. sp. 914.) *Narrow-leaved Bitter Cress*. Moist rocks in Derbyshire, Westmoreland, Cumberland, &c. Fl. white. May, June. Annual. E. B. 80., H. 304., D. C. i. p. 152.

VIII. DENTARIA. (L. gen. n. 811., D. C. prod. i. p. 154.)

Calyx equal at the base, erect. *Petals* unguiculate, with obovate or orbiculate limbs. *Silique* sessile, lanceolate, compressed and attenuated at the apex. *Valves* flat, without nerves, elastically revolute, narrower than the dissepiment. *Style* filiform. *Stigma* simple. *Funiculus* winged. *Seeds* ovate, immarginate, in one row. *Radical* stems fleshy, horizontal, toothed. *Leaves* petiolate, divided.

1. *D. bulbifera*. (L. sp. 912.) *Bulbiferous Coralwort*. Woods. Rare near Tunbridge, &c. Fl. purple. April, May. Perennial. E. B. 309., H. 303., D. C. i. p. 155.

Tribe II. ALYSSINEÆ, or LATISEPT PLEURORHIZEÆ.

(D. C. prod. i. p. 156.)

Silicle 2- (rarely 1-) celled, bivalved, ovate or oblong, compressed or turgid. *Valves* flat or concave, not keeled. *Septum* ovate or oblong in the greater diameter of the fruit. *Seeds* ovate or compressed. *Cotyledons* flat, accumbent. (O =)

IX. LUNARIA. (L. gen. n. 809., D. C. prod. i. p. 156.)

Calyx closed, bisaccate at the base. *Petals* unguiculate, with obovate limbs. *Stamens* free, edentulous. *Silique* pedicellated, elliptic or oblong, flat, bilocular; the septum membranaceous, persistent. *Valves* flat, without nerves. *Funiculus* long, adnate to the septum. *Style* filiform. *Seeds* distant, marginate.

Upper leaves sessile, siliques elliptical - - - 1. *L. BIENNIS*, clt.
Upper leaves petiolated, siliques lanceolate - - - 2. *L. REDIVIVA*, clt.

1. *L. biennis*. (Mœnch.) *Biennial Honesty*. Silique elliptical, obtuse at both ends. Native of the mountains of the south of Europe. Cult. in gardens. Common. Fl. violet, inodorous. May, June. Biennial. D. C. i. p. 156.

2. *L. rediviva*. (L. sp. 911.) *Perennial Honesty*. Siliques lanceolate, attenuated at both extremities. Native of the mountains of the south of Europe. Cult. in gardens. Common. Fl. purple, fragrant. May, June. Perennial. D. C. i. p. 156.

X. AUBRIETIA. (Adans., D. C. prod. i. p. 158.)

Silicle oblong, the valves convex. *Seeds* immarginate. *Calyx* bisaccate at the base. *Petals* entire. Shorter *stamens* dentate.

Pedicels longer than the calyx - - - 1. *A. DELTOIDEA*, clt.
Pedicels shorter than the calyx - - - 2. *A. PURPUREA*, clt.

1. *A. deltoidea* (D. C.) *Deltoid Aubrietia*. Native of the south of Europe. Cult. in gardens. Fl. purple. March, May. Perennial. D. C. i. p. 158. Alyss. delt. (L. sp. 908., Bot. mag. 126.)

2. *A. purpurea*. (D. C.) *Purple Aubrietia*. Native of the summit of Olympus. Cult. in gardens. Fl. purple. March, June. Perennial. D. C. i. p. 158.

XI. ALYSSUM. (L. gen. n. 805., D. C. prod. i. p. 160.)

Calyx equal. *Petals* unguiculate; limb entire. *Filament* of the stamens dentate (in some not dentate). *Silicle* orbicular or oval, apiculated by the

slender style, compressed. *Valves* flat or convex in the centre. *Cells* 1—2-seeded. *Septum* very narrow, slender. *Seeds* oval, compressed.

Flowers yellow, stamens dentate - - - 1. *A. SAXATILE*, clt.
Flowers white, stamens edentulous - - - 2. *A. MARITIMUM*.

1. *A. saxatile*. (L. sp. 908.) *Rock Alyssum*. Stem subcorymbose, subfruticose at the base. Leaves lanceolate, entire, tomentose, hoary. Silicles obovato-orbicular, 2-seeded; the seeds marginate. Native of Russia. Cult. in gardens. Fl. yellow. April, May. Perennial. Bot. mag. 159., D. C. i. p. 160.

2. *A. maritimum*. (Lamarck.) *Sea-side Alyssum*. Cliffs in Devon. Fl. white, fragrant. Aug. Perennial. E. B. 1729., D. C. i. p. 164., Koniga. marit. (H. 303.) *A. halimifol.* (L. sp. 907.)

XII. DRABA. (L. gen. n. 800., D. C. prod. i. p. 166.)

Calyx equal, suberect. *Petals* entire. *Stamens* not dentate. *Silicles* oval or oblong, entire, with flat valves. *Septum* slender, as wide as the valves. *Seeds* numerous, in 2 rows, not marginate.

Stem nearly leafless

flowers yellow - - - - - 1. *D. AIZOÏDES*.
flowers white - - - - - 2. *D. RUPESTRIS*.

Stem leafy

style distinct, apiculated; silicle twisted, erect - - - 3. *D. CONTORTA*.
style none; silicle spreading, not twisted - - - 4. *D. MURALIS*.

1. *D. aizoïdes*. (L. mant. 91.) *Yellow Alpine Whitlow Grass*. Walls and rocks, near Swansea. Fl. yellow. March, April. Perennial. E. B. 1271., H. 302., D. C. i. p. 166.

2. *D. rupestris*. (Br. hort. kew. iv. p. 91.) *Rock Whitlow Grass*. Mountain summits. Scotland. Fl. white. July. Perennial. H. 302., D. hirta. (? Lin.) E. B. 1338., D. C. i. p. 169. *D. stellata*. (? D. C.)

3. *D. contorta*. (Ehr. beitr. vii. p. 155.) *Twisted-podded Whitlow Grass*. Mountain rocks. Fl. white. June, July. Annual. Biennial. D. C. i. p. 170. *D. incana*. (L. sp. 897., E. B. 338., H. 302.)

4. *D. muralis*. (L. sp. ed. 1. 643.) *Wall Whitlow Grass*. Limestone mountains and walls. Fl. white. May. Annual. E. B. 912., H. 303., D. C. i. p. 171.

XIII. EROPHILA. (D. C. prod. i. p. 172.)

Calyx equal, somewhat patent. *Petals* bipartite. *Stamens* edentulous. *Silicle* oval, or oblong. *Septum* membranaceous. *Valves* rather flat. *Stigma* sessile. *Seeds* small, immarginate, and in a double row in each cell.

1. ! *E. vulgaris*. (D. C. l. c.) *Whitlow Grass*. Frequent on walls and dry banks. Fl. white. March, May. Annual. D. C. l. c. *D. verna*. (L. sp. 896., E. B. 586., H. 302.)

XIV. COCHLEARIA. (L. gen. n. 803., D. C. prod. i. p. 172.)

Calyx patent, equal at the base. *Sepals* concave. Limb of *petals* obtuse, obovate. *Stamens* edentulous. *Silicle* globose, ovate, [or oblong. *Septum* slender. *Valves* ventricose, rather thick. *Cells* many-seeded (rarely 2-seeded). *Styles* very short. *Seeds* immarginate. — Flowers white.

Perennial; leaves lanceolate, wrinkled, crenate - 1. *C. ARMORACIA*.

Annual or biennial; leaves fleshy, short, and broad
all the leaves petiolated, deltoid - - - 5. *C. DANICA*.

radical leaves petiolated, the cauline ones sessile
silicles elliptical; radical leaves elliptical - - - 2. *C. ANGLICA*.

silicles globose; radical leaves reniform
leaves all entire - - - 4. *C. GRÆNLANDICA*.
cauline leaves sinuated - - - 3. *C. OFFICINALIS*.

1. ! *C. Armoracia*. (L. sp. 904.) *Horse Radish*. On the banks of the Thames. Doubtful native. Cult. very common. Fl. white. May. Perennial. E. B. 2323., H. 301., D. C. i. p. 173.

2. ! *C. anglica*. (L. sp. 903.) *English Scurvy Grass*. Sea shores. Fl. white. May, June. Annual. E. B. 552., H. 301., D. C. i. p. 173.

3. ! *C. officinalis*. (L. sp. 903.) *Common Scurvy Grass*. Muddy places near the sea. Fl. white. May, June. Annual. E. B. 551., H. 300., D. C. i. p. 173.

4. *C. grænlantica*. (L. sp. 904.) *Greenland Scurvy Grass*. Sea shores and Highland mountains. Fl. white. June, July. Annual. E. B. 2403., H. 301. D. C. i. p. 173.

5. ! *C. danica*. (L. sp. 903.) *Danish Scurvy Grass*. Sea coast. Common. Fl. white. May. Annual. E. B. 696., H. 301., D. C. i. p. 173.

Tribe III. THLASPIDÆ, or ANGUSTISEPT PLEURORHIZÆ.

(D. C. prod. i. p. 175.)

Silicle bilocular, bivalved. *Septum* very narrow, linear. *Valves* carinate or navicular. *Seeds* oval, compressed, often marginate.

XV. THLASPI. (L. gen. n. 802., D. C. prod. p. 175.)

Calyx equal at the base. *Petals* equal, entire. *Stamens* edentulous. *Silicle* depressed, emarginate. *Septum* oval oblong. *Style* filiform, or very short. *Valves* navicular, winged with a foliaceous membrane on the back. *Seeds* in each cell numerous (rarely 2), ovate, immarginate. — Flowers white.

Seeds concentrically striated - - - 1. *T. ARVENSE*.

Seeds not striated

stem branched; *silicle* obcordate - - - 2. *T. PERFOLIATUM*.

stem simple; *silicle* obovate - - - 3. *T. ALPESTRE*.

1. ! *T. arvense*. (L. sp. 901.) *Mithridate Mustard, or Penny Cress*. Fields and road sides. Rare. Fl. white. June, July. Annual. E. B. 1659., H. 298., D. C. i. p. 175.

2. *T. perfoliatum*. (L. sp. 902.) *Perfoliate Penny Cress*. Limestone pastures near Burford, Oxfordshire. Rare. Fl. white. April, May. Annual. E. B. 2354., H. 298., D. C. i. p. 176.

3. *T. alpestre*. (L. sp. 903.) *Alpine Penny Cress*. Limestone pastures in the north of England. Fl. white. June, July. Perennial. E. B. 81., H. 298., D. C. i. p. 176.

XVI. HUTCHINSIA. (Br. hort. kew. iv. p. 82., D. C. prod. i. p. 177.)

Calyx erect, equal. *Petals* equal, entire. *Stamens* edentulous. *Silicle* oblong or elliptic, sharp or truncated at the apex, depressed, entire. *Valves* navicular, not winged. *Septum* oblong. *Cells* 2—4—6-seeded. *Seeds* alternate, pendulous from each placenta.

1. ! *H. petræa*. (Br. l. c.) *Rock Hutchinsia*. Limestone rocks, west of England. Walls at Eltham, Kent. Fl. white. March, April. Annual. H. 299., D. C. i. p. 178. *Lepidium petræum*. (L. sp. 899., E. B. 111.)

XVII. TEESDALIA. (Br. hort. kew. iv. p. 33., D. C. prod. i. p. 178.)

Calyx deciduous, the sepals, however, being slightly united at the base. *Petals* entire, equal or unequal. *Stamens* with a scale at the base. *Silicle* depressed, oval, emarginate at the apex. *Valves* navicular, slightly winged at the keel. *Septum* oblong, narrow. *Style* none. 2 orbicular *seeds* in each cell. Flowers white, very small. — Herbs with pinnatifid lobed rosulate, radical leaves.

1. ! *T. Iberis*. (D. C. syst. ii. p. 392.) *Naked-stalked Teesdalia*. Sandy and gravelly banks. Battersea Common. May, June. Annual. D. C. prod. i. p. 178. *T. nudicaulis*, H. 299. *Iberis nudicaulis*. (L. sp. 907., E. B. 327.)

XVIII. IBERIS. (L. gen. n. 802., D. C. prod. i. p. 178.)

Calyx equal at the base. *Petals* 4, unequal, 2 exterior being larger. *Stamens* edentulous. *Silicle* ovate at the base, much depressed, with carinate navicular valves, notched at the apex. *Style* persistent, filiform. *Septum* very narrow, sometimes divisible into 2. *Cells* 1-seeded. *Seeds* ovate, pendulous. — Flowers white or purplish.

Stem shrubby - - - 1. *I. SEMPERFLORENS*, clt.

Stem herbaceous

flowers umbellate; petals purple, bilobed - 2. *I. UMBELLATA*, clt.

flowers racemose; petals white, emarginate - 3. *I. AMARA*.

1. *I. semperflorens*. (L. sp. 904.) *Ever-flowering Candytuft*. Frutescent. Leaves wedge-shaped, or spatulate, obtuse, entire, glabrous. Flowers corymbose. *Silicles* truncate at the apex, notched, the lobes obsolete. Native of Sicily. Cult. in gardens. Fl. white. June. Small shrub. D. C. i. p. 181.

2. *I. umbellata*. (L. sp. 906.) *Umbellate Candytuft*. Herbaceous, glabrous. Leaves lanceolate acuminate, the lower ones serrated, the upper ones entire. *Silicles* umbellate, sharply bilobed. Native of Italy. Cult. in gardens. Fl. purple. June, July. Bot. mag. 106., D. C. i. p. 180.

3. ! *I. amara*. (L. sp. 906.) *Bitter Candytuft*. Chalky soil. Rare. Fl. white. July. Annual. E. B. 52., H. 299., D. C. i. p. 180.

Tribe IV. CAKILINEÆ, or LOMENTACEOUS PLEURORHIZEÆ.

(D. C. prod. i. p. 185.)

Siliques or *silicles* falling off in 1—2-celled joints, each containing 1—2 immarginate seeds. *Cotyledons* flat, accumbent, parallel to the septum when present.

XIX. CAKILE. (Tournef. inst. t. 486., D. C. prod. i. p. 185.)

Calyx bigibbous at the base. *Petals* with obovate limbs. *Stamens* edentulous. *Silicle* compressed, in two joints, the upper one ensiform or ovate. *Seeds* one in each cell, the upper erect, the lower pendulous. — Fleshy herbs, with white or purplish flowers.

1. *C. maritima*. (Scop. carn. n. 844.) *Purple Sea Rocket*. Sandy sea shores. Common. June, August. Annual. H. 297., D. C. l. c. *Bunias Cakile*. (L. sp. 936., E. B. 231.)

Suborder II. Notorhizeæ. (O||)

Cotyledons flat, incumbent. *Radicle* dorsal, i. e. lying on the back of the cotyledons. *Seeds* ovate, not marginate.

Tribe V. SISYMBREÆ, or SILIQUOSE NOTORHIZEÆ.

(D. C. prod. i. p. 186.)

Siliques bilocular, bivalved, dehiscent; valves concave or carinate. *Cotyledons* flat, incumbent, at right angles with the septum.

XX. HESPERIS. (L. gen. n. 817., D. C. prod. i. p. 188.)

Calyx closed, bisaccate. *Petals* almost entire. *Stamens* edentulous. *Siliques* terete or tetragonal. *Stigmas* 2, erect, connivent. *Seeds* oblong, subtriquetrous.

1. ! *H. matronalis*. (Lam. dict. iii. p. 321.) *Dame's Violet*.
α. hortensis. Cult. in gardens. Fl. purple, white, &c. June. Perennial.
β. sylvestris. Hilly pastures. Cult. in gardens. Fl. always purple. June. Perennial. D. C. i. p. 189., H. 309. *H. inodora*. (L. sp. 917., E. B. 731.)

XXI. SISYMBRIUM. (L. gen. 813., D. C. prod. i. p. 190.)

Calyx equal at the base. *Petals* entire. *Stamens* edentulous. *Siliques* terete. *Valves* concave. *Style* very short. *Septum* membranaceous. *Stigmas* 2, distinct, or united into a capitulum. *Seeds* ovate or oblong, in a single row.

Peduncles as long as the silique - - - S. S. SOPHIA.

Peduncles much shorter than the silique

calyx yellowish, closed or slightly open; stem glabrous 2. S. IRIO.

calyx not coloured, generally loose; stem hispid - 1. S. OFFICINALE.

1. ! *S. officinale*. (Scop. carn. n. 824.) *Hedge Mustard*. Way sides and waste places. Very common. Fl. yellow. June, July. Annual. H. 307., D. C. i. p. 191. *Erysimum* off. (L. sp. 922., E. B. 735.)

2. ! *S. Irio*. (L. sp. 921.) *London Rocket*. Waste places, &c. Fl. yellow. July, Aug. Annual. E. B. 1631., H. 307., D. C. i. p. 192.

3. ! *S. Sophia*. (L. sp. 922.) *Flaxweed*. Waste places, &c. Fl. yellow. Aug. Annual. E. B. 963., H. 307., D. C. i. p. 193.

Note. *Arabis Thaliana*, owing to its having incumbent cotyledons, is introduced here as *S. Thalianum* by Hooker. See Hook. brit. flora, ed. 3. p. 307.

XXII. ALLIARIA. (D. C. prod. i. p. 196.)

Calyx loose, equal at the base, caducous. *Petals* with obovate limbs. *Stamens* edentulous; glands 4, placed between the stamens and pistil. *Siliques* subtetragonal, owing to the prominent nerves. *Style* very short. *Seeds* subcylindrical. — Flowers white.

1. ! *A. officinalis*. (D. C. l. c.) *Jack by the Hedge*, *Sauce alone*. Hedge banks, &c. Very common. Fl. white. May, June. Perennial. D. C. l. c. *Erys. Alliaria*. (L. sp. 922., E. B. 796., H. 308.)

XXIII. ERYSIMUM. (L. gen. n. 814., D. C. prod. i. p. 196.)

Calyx closed. *Petals* entire. *Stamens* edentulous. *Siliques* tetragonal, with

carinate valves, sessile. *Style* very short. *Stigmas* 2, spreading. *Seeds* ovate or oblong, in a single row.

Leaves glabrous, cordato-amplexicaule - - - 2. *E. PERFOLIATUM*.

Leaves with stellate hairs, lanceolate, not amplexicaule - - - } 1. *E. CHEIRANTHOIDES*.

1. ! *E. cheiranthoides*. (L. sp. 923.) *Wormseed, Treacle Mustard*. Fields, &c. Fl. yellow. July, Aug. Annual. E. B. 942., H. 307., D. C. i. p. 198.

2. *E. perfoliatum*. (Crantz.) *Hare's Ear Treacle Mustard*. Cliffs in Essex, Sussex, &c. Fl. white. June. Annual. D. C. i. p. 199. *E. orientale*. (H. 308.) *Brassica orientalis*. (L. sp. 931., E. B. 1804.)

Tribe VI. CAMELINEÆ, or LATISEPT NOTORHIZEÆ.

(D. C. prod. i. p. 201.)

Silicle 2-celled, or by abortion 1-celled, bivalved. *Valves* more or less concave, generally dehiscent. *Septum* elliptical in the greater diameter of the fruit. *Seeds* numerous, ovate, immarginate. *Cotyledons* flat, incumbent.

XXIV. CAMELINA. (Crantz. fl. aust., D. C. prod. i. p. 201.)

Calyx equal at the base. *Petals* entire. *Stamens* edentulous. *Silicle* obovate or globose, surmounted by the persistent filiform style. *Valves* ventricose. *Cells* many-seeded. *Seeds* oblong, immarginate.—Flowers yellow.

1. ! *C. sativa*. (Crantz. aust.) *Gold of Pleasure*. Fields, growing among flax. Fl. yellow. June, July. Annual. H. 303., E. B. 1254., D. C. l. c. *Myagrum sativum*. (L. sp. 894.)

Tribe VII. LEPIDINEÆ, or ANGUSTISEPT NOTORHIZEÆ.

(D. C. prod. i. p. 202.)

Silicle with a very narrow septum. *Valves* carinate or very concave. *Seeds* in each cell solitary or few, ovate, immarginate. *Cotyledons* flat, incumbent.

XXV. CORONOPUS. (Gærtn.) SENEBIERA. (D. C. prod. i. p. 202.)

Calyx equal, patent. *Petals* entire. *Stamens* edentulous (sometimes by abortion 4 or 2). *Silicle* didymous, subcompressed, bilocular, and indehiscent. *Stigma* sessile. *Valves* subglobose, rugose, or subcristate. *Cells* 1-seeded. *Seeds* pendulous, subgloboso-triquetrous.—Flowers very small, white.

Silicle emarginate, not crested - - - 1. *C. DIDYMA*.

Silicle entire, crested with sharp points - - - 2. *C. RUELLII*.

1. *C. didyma*. (Smith.) *Small Wart Cress*. South and south-west of England, near the sea. Fl. white. July. Annual. H. 298. *Lepidium didymum*. (L. mant. 92., E. B. 248.) *Senebiera pinnatifida*. (D. C. i. p. 202.)

2. ! *C. Ruellii*. (Gærtn.) *Wart Cress*. Waste ground and way sides. Common. Fl. white. June, Sept. Annual. Biennial. E. B. 1660., H. 297. *Seneb. coron.* (D. C. i. p. 203.)

XXVI. CAPSELLA. (D. C. prod. i. p. 177.)

Calyx equal. *Petals* entire. *Stamens* edentulous. *Stigma* sessile. *Silicle* depresso-complanate, triangular, truncated at the apex; the septum linear. *Cells* 8—10-seeded, valves carinate, compressed, not winged on the back.—Flowers white.

1. ! *C. Bursa Pastoris*. (D. C. l. c.) *Shepherd's Purse*. Very common. Fl. white. Whole year. Annual. D. C. l. c. H. 298. *Thlaspi B. Past.* (L. sp. 903., E. B. 1485.)

XXVII. SUBULARIA. (L. gen. n. 799., D. C. prod. i. p. 235.)

Calyx suberect. *Petals* oval. *Stamens* edentulous. *Silicles* oval, pointless, the valves convex. *Cells* 4-seeded.—Flowers white, radical leaves, subulate.

1. *S. aquatica*. (L. sp. 896.) *Awl Wort*. Margins of Alpine lakes, in shallow water. Fl. white. July. Perennial. E. B. 732., H. 301., D. C. i. p. 235.

XXVIII. LEPIDIUM. (L. gen. n. 801., D. C. prod. i. p. 203.)

Calyx equal. *Petals* entire. *Stamens* edentulous. *Silicle* oval, depressed, dehiscent; the valves carinated. *Septum* membranaceous, very narrow. *Seeds* 1 in each cell, pendulous, subtriquetrous, or compressed.—Flowers white.

- Valves winged
 silicle orbicular, cotyledons tripartite - - 2. *L. SATIVUM*, clt.
 silicle ovate, cotyledons entire
 silicle scaly, style very short - - 3. *L. CAMPESTRE*.
 silicle not scaly, style exerted - - 4. *L. SMITHII*.
- Valves not winged
 leaves amplexicaule, style exerted - - 1. *L. DRABA*.
 leaves not amplexicaule, style very short
 lower leaves pinnatifid, stamens 2, petals none - 5. *L. RUDERALE*.
 all the leaves undivided, stamens 6, petals 4. - 6. *L. LATIFOLIUM*.
1. ! *L. Draba*. (L. sp. 616.) *Whitlow Pepperwort*. Fields and hedges. Rams-
 gate. Thanet. Rare. Fl. white. June. Perennial. E. B. 2683., H. 299.,
 D. C. i. p. 203. Cochl. *Draba*. (L. sp. ed. 2. 904.)
2. *L. sativum*. (L. sp. 899.) *Garden Cress*. Silicles orbicular, winged, emar-
 ginate. Leaves variously divided and incised. Branches not thorny. Native of
 Asia. Cult. as a salad, very common. Fl. white. June. Annual. D. C.
 i. p. 204.
3. ! *L. campestre*. (Br. hort. kew. iv. p. 465.) *Mithridate Pepperwort*. Dry
 gravelly soil. Fl. white. July. Annual. H. 300., D. C. i. p. 204. *Thlaspi*
campestre. (L. sp. 902., E. B. 1385.)
4. ! *L. Smithii*. (Hooker.) *Smooth Field Pepperwort*. Borders of fields.
 Norfolk; also Wales, Scotland. Fl. white. June, July. Perennial. H. 300.
Thlaspi hirtum. (E. B. 1803., not Lin.)
5. ! *L. ruderale*. (L. sp. 900.) *Narrow-leaved Pepperwort*. Waste places
 near the sea. Fl. white. June. Annual. E. B. 1595., H. 300., D. C. i. p. 205.
6. ! *L. latifolium*. (L. sp. 899.) *Broad-leaved Pepperwort*. Wet places near
 the sea, especially on the east coast. Fl. white. July. Perennial. E. B. 182.,
 H. 299., D. C. i. p. 207.

Tribe VIII. ISATIDÆ, or NUCAMENTACEOUS NOTORHIZÆ.

(D. C. prod. i. p. 209.)

Silicle with indistinct or indehiscent carinate valves, 1-celled, 1-seeded;
 the septum imperfect. *Seeds* ovate-oblong, immarginate. *Cotyledons* flat,
 oblong, incumbent.

XXIX. ISATIS. (L. gen. n. 834., D. C. prod. i. p. 210.)

Calyx equal, patent. *Petals* entire. *Stamens* edentulous. *Stigma* sessile.
Silicle oval-oblong, 1-celled, somewhat depressed; the valves carinate, scarcely
 dehiscent, slightly winged on the back. *Seed* pendulous.—Flowers yellow.
 Leaves entire; upper ones sessile and acutely sagittate at the base.

1. ! *I. tinctoria*. (L. sp. 936.) *Dyer's Woad*. Cultivated fields in the east of
 England. July. Biennial. E. B. 97., H. 298., D. C. i. p. 211.

Suborder III. Orthoploceæ. (⊃) (D. C. prod. i. p. 213.)

Cotyledons incumbent, conduplicate, or longitudinally folded on the middle
 nerve, and enclosing the dorsal radicle within the folds. *Seeds* immarginate,
 generally globose.

Tribe IX. BRASSICÆ, or SILIQUOSE ORTHOPLOCEÆ.

(D. C. prod. i. c.)

Siliques with longitudinally dehiscent valves, and linear septum.

XXX. BRASSICA. (L. gen. n. 820., D. C. prod. i. c.)

Calyx erect. *Petals* obovate. *Stamens* edentulous. *Siliques* terete, with
 a short obtuse style. *Seeds* in a single row, subglobose.

Radical leaves rough

root fleshy, orbicular, depressed - - - 3. *B. RAPA*.

root slender - - - - 2. *B. CAMPESTRIS*.

Radical leaves smooth

root cylindrical, cauline leaves waved, not amplexi- } 1. *B. OLERACEA*.
 caule - - - - - }

root fusiform, cauline leaves amplexicaule - - - 4. *B. NAPUS*.

1. *B. oleracea*. (L. sp. 932.) *Cabbage*. (D. C. i. p. 213.)
α. sylvestris. (D. C. l. c.) Cliffs by the sea side. Fl. yellow. May, June. Biennial. E. B. 637., H. 309.
β. acephala. (D. C.) *Curled Kale*.
γ. bullata. (D. C.) *Savoy Cabbage*.
δ. capitata. (D. C.) *Common Red and White Cabbage*.
ε. caulorapa. (D. C.) *Turnip-stemmed Cabbage*.
ζ. botrytis. (L.) *a. cauliflora*. *Cauliflower*. *b. asparagoïdes*. *Broccoli*. For a very full and interesting account of the cultivation of the varieties of this and other sp. of Br., see Don's gen. syst. of gard. vol. i.
2. ! *B. campestris*. (L. sp. 931.) *Wild Navew*. Fields, &c. Fl. yellow. June, July. Annual. Biennial. E. B. 2234., H. 309., D. C. i. p. 214.
α. oleifera. (D. C.) Cult. for oil. Not common.
β. pabularia. (D. C.) Cult. for sheep fodder. Not common.
γ. Napobrassica. (D. C.) *Swedish Turnip*. Cult. (Don, l. c.)
3. ! *B. Rapa*. (L. sp. 931.) *Turnip*. Fields, &c.; also cult. Fl. yellow. April, May. Biennial. E. B. 2176., H. 309., D. C. i. p. 214. For varieties, &c., see Don, l. c.
4. ! *B. Napus*. (L. sp. 951.) *Coleseed, or Rape*. Fields, &c. Cult. for oil. Fl. yellow. May, June. Biennial. E. B. 2146., H. 309., D. C. i. p. 214.

XXXI. SINAPIS. (L. gen. n. 821., D. C. prod. i. p. 217.)

Calyx patent, equal at the base. *Corolla*, *stamens*, *silique*, &c., as in *Brassica*. — Fl. yellow.

- Silique* longer than the beak
silique adpressed to the stem - - - 1. *S. NIGRA*.
silique spreading subhorizontally from the stem - - - 2. *S. ARVENSIS*.
Silique shorter than the beak - - - 3. *S. ALBA*.

1. ! *S. nigra*. (L. sp. 933.) *Black Mustard*. Waste ground. Also cult. in Durham, &c. June. Annual. E. B. 969., H. 310., D. C. i. p. 218.
2. ! *S. arvensis*. (L. sp. 935.) *Charlock*. Troublesome weed among corn, &c. Fl. yellow. June. Annual. E. B. 1748., H. 309., D. C. i. p. 219.
3. ! *S. alba*. (L. sp. 934.) *White Mustard*. Waste ground. Cult. for early salad. Fl. yellow. July. Annual. E. B. 1677., H. 310., D. C. i. p. 220.

XXXII. DIPLLOTAXIS. (D. C. prod. i. p. 221.)

Calyx loose, equal at the base. *Petals* entire. *Stamens* edentulous. *Silique* compressed, linear. *Valves* flat, with a nerve running up the centre of each. *Style* conical, containing 1—2 seeds, or empty. *Seeds* ovate, small, generally in a double row. — Flowers yellow or white. *Silique*, in our native species, erect.

- Stem* leafy - - - 1. *D. TENUIFOLIA*.
Stem naked, or nearly naked
style filiform, leaves not fleshy - - - 2. *D. MURALIS*.
style conical, leaves fleshy - - - 3. *D. SAXATILIS*.

1. ! *D. tenuifolia*. (D. C. i. p. 222.) *Fine-leaved Diplotaxis*. Old walls. South of England. Westminster School wall. Fl. yellow. July, Aug. Perennial. *Sinapis tenuif.* (H. 310.) *Sisymb. tenuif.* (L. sp. 917., E. B. 525.)
2. *D. muralis*. (D. C. i. p. 222.) *Sand Diplotaxis*. Sandy fields near the sea, in the south of England. Fl. yellow. Aug., Sept. Annual. *Sin. muralis*. (H. 310.) *Sisymb. mural.* (L. sp. 918., E. B. 1090.)
3. *D. saxatilis*. (D. C. i. p. 222.) *Isle of Man Cabbage*. Isle of Man, and the opposite shores of Scotland and Ireland. Fl. yellow. June, July. Perennial. *Brass. monensis*. (H. 309.) *Sisymb. monense*. (L. sp. 918., E. B. 962.)

Tribe X. VELLÆ, or LATISEPT ORTHOPLOCEÆ.

Valves of the silicle concave, dehiscing longitudinally. Dissepiment elliptical. *Seeds* globose. *Cotyledons* conduplicate.

XXXIII. CARRICHTERA. (D. C. prod. i. p. 224.)

Stamens free. *Style* ovate, flat, foliaceous. *Silicle* on an inflexed pendulous pedicel. — Flowers small, pale yellow.

1. *C. Vella*. (D. C. l. c.) *Annual Cress Rocket*. Near Stonehenge. June. Annual. *Vella annua*. (L. sp. 895., E. B. 1442., H. 298.)

Tribe XI. RAPHANEÆ, or LOMENTACEOUS ORTHOPLOCEÆ.

(D. C. prod. i. p. 225.)

Silicle or *siliqua* separating transversely into joints. *Seeds* globose. *Cotyledons* conduplicate.

XXXIV. CRAMBE. (L. gen. n. 825., D. C. prod. i. p. 225.)

Calyx patent, subequal at the base. *Petals* equal, entire. The longer *stamens* with lateral appendages near their apex. *Silicle* coriaceous, 2-jointed; the joints indehiscent, 1-seeded; upper one globose, the inferior, by the abortion of the seeds, appearing like a short pedicel. — Flowers white.

1. *C. maritima*. (L. sp. 937.) *Sea-kale*. Sandy and stony sea shores. Also cult. Common. Fl. white. June. Perennial. E. B. 924., H. 297., D. C. l. c.

XXXV. RAPHANUS. (L. gen. n. 1098., D. C. prod. i. p. 228.)

Calyx erect, bisaccate at the base. *Petals* with an obcordate or obovate limb. *Stamens* edentulous. *Siliqua* terete, acuminate by a conical style, without valves, coriaceous-suberose. *Seeds* in a single row, globose, pendulous.

Siliqua scarcely contracted, of 2 cells - - - 1. *R. SATIVUS*.

Siliqua of 1 cell, moniliform; joints 1-seeded

leaves simply lyrate - - - 2. *R. RAPHANISTRUM*.

leaves interruptedly lyrate - - - 3. *R. MARITIMUS*.

1. *R. sativus*. (L. sp. 935.) *Common Radish*. *Siliques* terete, swollen between the joints, acuminate, scarcely longer than the pedicels. Native of Asia. Cult. in kitchen-gardens. Common. Fl. white, with violet veins. July. Annual. D. C. i. p. 228.

α. *rotundus*. (D. C.) Root subglobose, white or red.

β. *oblongus*. (D. C.) Root oblong, white or red.

γ. *niger*. (D. C.) Root hard, black, oblong, rarely round.

2. *R. Raphanistrum*. (L. sp. 953.) *Jointed Charlock*. Corn fields. Common. Fl. yellow, veined. June, July. Annual. E. B. 856., H. 310., D. C. i. p. 229.

3. *R. maritimus*. (Sm. E. B. 1643.) *Sea Radish*. Sea shore. Not common. Fl. yellow. June. Annual. H. 310., D. C. i. p. 229.

Order VIII. CISTINEÆ. (D. C. prod. i. p. 263.)

Sepals 5, persistent, continuous with the pedicel, generally unequal; the 2 exterior being smaller than the others, and sometimes evanescent; 3 interior contorted in æstivation. *Petals* 5, hypogenous, caducous, equal, contorted in æstivation; but in a direction opposite to that of the sepals. *Stamens* indefinite, few or many, hypogynous, erect. *Filaments* free. *Anthers* ovate, bilocular, birimose, innate. *Ovary* free. *Style* 1, filiform. *Stigma* simple. *Capsule* of 3—5 (seldom 10) valves; in some, having in their centre a placental longitudinal nerve, and then the capsule is 1-celled; in others, the middle nerve projects internally, forming a more or less perfect septum, and then the capsule is completely or incompletely multilocular. The *seeds* are, therefore, either parietal or adnate to the septum; numerous and small. *Albumen* farinose. *Embryo* spiral, or curved within the albumen. — Shrubs or herbs. Leaves simple, penninerved, entire, or subdentate; primordial ones always opposite; the others generally opposite, but sometimes alternate, with 2 foliaceous stipules (or sometimes naked). Racemes generally unilateral, with very fugacious, diurnal, yellow, white, or purple flowers.

Capsule 5—10-valved - - - 1. *CISTUS*, clt.

Capsule 3-valved - - - 2. *HELIANTHEMUM*.

I. *CISTUS*. (L. gen. n. 673., D. C. prod. i. p. 263.)

Capsule 5—10-celled. The *valves* 5—10, septiferous in the middle. *Embryo* filiform, spiral. — Shrubs or undershrubs.

Flowers purple - - - 1. *C. PURPUREUS*, clt.

Flowers white - - - 2. *C. CYPRIUS*, clt.

1. *C. purpureus*. (Lam.) *Purple Rock Cistus*. Leaves oblong, lanceolate, acuminate at both extremities, rugose. Petioles short, hairy. Peduncles 1, 2, or 3 together. Native of the Levant. Cult. in pleasure-grounds. Fl. purple, with a dark spot at the base. June, Aug. Shrub. D. C. i. p. 264.

2. *C. cyprius*. (Lam.) *Common Gum Cistus*. Leaves lanceolate, upper surface glabrous, under surface clothed with hairy tomentum. Peduncles generally many-flowered. Petals spotted. Capsules 5-celled. Native of Cyprus. Cult. in pleasure-grounds. Common. Fl. white, with a dark spot at the base of each petal. July, Aug. Shrub. D. C. i. p. 266.

II. HELIANTHEMUM. (Tourn. inst. 128., D. C. prod. i. p. 266.)

Calyx of 3—5 sepals, 2 exterior smaller. *Capsule* trivalved; the *valves* being either septiferous or seminiferous in the middle. *Embryo* uncinato-inflexed. — Herbs or small shrubs.

Leaves without stipules

shrub - - - - - 3. *H. CANUM*.

herb - - - - - 1. *H. GUTTATUM*.

Leaves with stipules

herb - - - - - 2. *H. LEDIFOLIUM*.

shrubs

flowers yellow - - - - - 4. *H. VULGARE*.

flowers white - - - - - 5. *H. APENNINUM*.

flowers rose-coloured - - - - - 6. *H. ROSEUM*.

1. *H. guttatum*. (Mill. dict. n. 18.) *Spotted Annual Rock Rose*. Jersey; Holyhead Mountain. Fl. yellow, spotted at the base. June, July. Annual. H. 261., D. C. prod. i. p. 271. *Cistus guttatus*. (L. sp. 742., E. B. 544.)

2. *H. ledifolium*. (Willd. enum. 571.) *Ledum-leaved Rock Rose*. Brentdown, Somersetshire. Fl. pale yellow. June, July. Perennial. H. 261., D. C. i. p. 272. *Cistus ledifolius*. (L. sp. 742., E. B. 2414.)

3. *H. canum*. (D. C. prod. i. p. 277.) *Hoary Dwarf Rock Rose*. Alpine rocks, in the north of England. Fl. yellow. May, June. Perennial. H. 261. *Cistus anglicus*, L. *Cistus canus*. (L. sp. 740.) *Cistus marifolius*. (E. B. 396., not Lin.)

4. ! *H. vulgare*. (Gærtn. fruct. i. p. 371.) *Common Rock Rose*. Dry pastures, in chalky and gravelly soil. Fl. yellow. July, Aug. Perennial. H. 261., D. C. i. p. 280. *Cistus Helianthemum*. (L. sp., E. B. 1321.)

β. ! *surrejanum*. (Hook. auct. d. Christy.) Near Croydon. *Cistus surrejanus*. (L. sp. 743., E. B. 2207.)

5. *H. apenninum*. (D. C.) *White Mountain Rock Rose*. Somersetshire and Devonshire. Fl. white. June, July. Perennial. D. C. i. p. 282. *H. polifolium*. (H. 262.) *Cistus polifolius*. (L. sp. 745., E. B. 1322.)

6. *H. roseum*. (D. C.) *Rose-coloured Rock Rose*. Stem suffruticose, rather procumbent, subtomentose. Leaves ovate lanceolate, tomentose on the under surface, green above, hairy. Stipules lanceolato-linear, ciliated. Pedicels and calyx piloso-hirsute. Native of the south of Europe. Cult. on rock-work. Fl. rose-coloured. July, Aug. Small shrub. D. C. i. p. 283.

Order IX. VIOLARIEÆ. (D. C. prod. i. p. 287.)

Calyx of 5 persistent sepals, free, or slightly united, and generally elongated at the base; imbricate in æstivation. *Petals* 5, alternate with the sepals, hypogynous, inserted into the thalamus, unequal in European species; lower one spurred or cucullate. *Stamens* 5, inserted on the thalamus, and alternate with the petals. *Anthers* bilocular, often free and adpressed to the ovary, sometimes more or less united at the base into a monadelphous disk. *Filaments*, in most cases, dilated. *Ovary* 1-celled, with 3 parietal placentas. *Style* 1. *Capsule* 3-valved, polyspermous. *Albumen* fleshy. *Embryo* straight. — Herbs or shrubs, generally with alternate, stipulated leaves.

I. VIOLA. (L. gen. n. 1007., D. C. prod. i. p. 291.)

Sepals elongated, at the base, into appendages. *Petals* unequal; the lower more or less elongated into a spur. *Stamens* approximated, or pressed close together, but not united. *Filaments* dilated at the base.

Plants stemless, or nearly so

scions proceeding from the collet - - - - - 3. *V. ODORATA*.

scions none

leaves and petioles rough with hairs - - - - - 2. *V. HIRTA*.

leaves quite glabrous - - - - - 1. *V. PALUSTRIS*.

Plants with evident stems

- stigma urceolate ; capsule obsoletely hexagonal
 perennial ; stem subsimple, branches only from the } 6. *V. SUDETICA*.
 base - - - - - }
 annual ; stem branched, diffuse - - - - - 7. *V. TRICOLOR*.
 stigma subreflexed, rostrate ; capsule trigonal
 stem channelled, upper leaves cordate acute - - - 4. *V. CANINA*.
 stem round, upper leaves ovato-lanceolate - - - 5. *V. MONTANA*.

1. ! *V. palustris*. (L. sp. 1324.) *Marsh Violet*. Bogs or marshy ground ; especially in mountains. Fl. pale blue. April, July. E. B. 444., H. 121., D. C. i. p. 294.

2. ! *V. hirta*. (L. sp. 1324.) *Hairy Violet*. Thickets, in a chalky or limestone soil. Fl. pale, rather dingy blue ; scentless. April, May. Perennial. E. B. 894., H. 120., D. C. i. p. 295.

3. ! *V. odorata*. (L. sp. 1324.) *Sweet Violet*. Woods and banks. Fl. deep purple ; fragrant. March, April. Perennial. E. B. 619., H. 120., D. C. i. p. 296.

β. imberbis. (Leighton.) Fl. white. Petals not hairy. Sharpstones Hills, Shropshire.

4. ! *V. canina*. (L. sp. 1324.) *Dog's Violet*. Woods and banks ; in clefts of mountain rocks. Fl. blue. April, Aug. Perennial. E. B. 620., H. 121., D. C. i. p. 298.

β. minor. (D. C. fl. fr.) Stem very short. Sandy dunes, Yarmouth. Perennial. *V. flavicornis*. (E. B. 2736.)

5. ! *V. montana*. (L. sp. 1325.) *Mountain Violet*. Mountainous boggy heaths. Near Tunbridge Wells. Fl. pale blue, almost white. May. Perennial. D. C. i. p. 299. *V. lactea*. (E. B. 445., H. 121.)

6. *V. sudetica*. (Willd. enum. suppl. 12.) *Yellow Pansy*. Mountain pastures. Fl. yellow, or purple. May, Sept. Perennial. D. C. i. p. 302. *V. lutea*. (H. 122., E. B. 721.)

7. ! *V. tricolor*. (L. sp. 1326.) *Heartsease, Pansy*. Banks and cult. fields. Fl. of 1, 2, or 3 colours ; blue, yellow, and white. Whole summer. Annual. E. B. 1287., H. 121., D. C. i. p. 303.

β. hortensis. (D. C.) Petals velvet-like, much larger than the calyx. Cult. very common.

γ. arvensis. (D. C.) Petals shorter than the calyx. Corn fields. Summer. Annual. E. B. 2712.

δ. Curtisii. Stem decumbent, angular, rough. Braunton, Devon. E. B. 2693. Forster.

Order X. DROSERACEÆ. (D. C. prod. i. p. 317.)

Sepals 5, persistent, imbricated in æstivation. *Petals* 5, distinct, hypogynous, alternate with the sepals. *Stamens* free, alternate with the petals, and equal to them in number, or double, triple, or quadruple their number. *Anthers* 2-celled. *Ovary* 1. *Styles* 3—5, united at the base, or distinct, bifid, or ramose. *Capsule* 1—3-celled, 3—5-valved ; the margin of the *valves* bent inwards dehiscing at the apex. *Seeds* attached to a central nerve, or only to the base, naked or enclosed in a thin follicular arillus. *Albumen* cartilaginous, or fleshy. *Embryo* straight, with the radicle towards the hilum. — Herbs with alternate leaves ; the petioles being generally furnished with stipulary ciliæ.

Scales opposite the petals, terminating in glandular hairs - 2. PARNASSIA.

Scales none - - - - - 1. DROSERA.

I. DROSERA. (L. gen. n. 391., D. C. prod. i. p. 317.)

Sepals and *petals* 5, not appendiculated. *Stamens* 5. *Styles* 3—5, bipartite.

Leaves rounded, orbicular - - - - - 1. D. ROTUNDIFOLIA.

Leaves oblong

seeds with a loose chaffy coat - - - - - 3. D. ANGLICA.

seeds with a compact rough coat, not chaffy - - - 2. D. INTERMEDIA.

1. ! *D. rotundifolia*. (L. sp. 402.) *Round-leaved Sundew*. Bogs and moist heaths. Common. Hampstead. Fl. white. July. Annual. E. B. 867., H. 151., D. C. i. p. 318.

2. ! *D. intermedia*. (Drev. and Hayne.) *Intermediate Sundew*. Bogs, &c. Not common. Fl. white, or slight rust-colour. Aug. Perennial. D. C. prod. i. p. 318. *D. longifolia*. (L. sp. 403., E. B. 868., H. 151.) Leaves much shorter than in next species; hence, the specific name of *longifolia* is very inapplicable.

3. *D. anglica*. (Huds. ang. 135.) *Great Sundew*. Bogs; especially in the north of England. Fl. white, or rust-coloured. Aug. Perennial. E. B. 869., H. 152., D. C. prod. i. p. 318.

II. ? PARNASSIA. (L. gen. n. 384., D. C. prod. i. p. 320.)

Sepals 5. *Petals* 5. *Scales* 5 (? abortive stamens), opposite the claws of the petals, and terminating in glandular hairs. *Stamens* 5. *Stigmas* 4, sessile. *Capsule* 1-celled, 4-valved. *Valves* septiferous in the middle. *Seeds* with an arillus.

1. ! *P. palustris*. (L. sp. 391.) *Grass of Parnassus*. Bogs and wet places. More frequent in the north. Fl. white, with green pellucid nectaries. Aug., Oct. Perennial. E. B. 82., H. 147., D. C. i. p. 320.

Dr. Lindley refers this genus to the order Saxifragæ.

Order XI. RESEDACEÆ. (D. C. theor. 214., Bot. gal. i. p. 66.)

Sepals 4—6, continuous, with the pedicel persistent. *Petals* 4—6, alternate with the sepals, hypogynous, unequal; the upper with squamiform palmate-partite limbs; the lateral 2—3-lobed, and the lower entire. *Stamens* 10—24, hypogynous. *Filaments* generally somewhat united at the base, monadelphous or polyadelphous. *Anthers* 2-celled, erect. *Nectariferous scales* very obtuse, inserted on the torus beneath the stamens. *Torus* either short or stipitiform. *Ovaries* 3—6, monostylous, sometimes free, inserted on the upper part of the torus, sometimes united into 1 ovary, which is then crowned by 3—6 short conical styles. The *carpels* are therefore either free, folliculiform, few-seeded, and dehiscing internally, or united into a 3—6-valved capsule gaping at the apex, 1-celled, many-seeded. *Placentas* 3—6, adnate to the middle of the carpels or valves, many-seeded (sometimes, in the free carpels, 1—2-seeded). *Seeds* subpendulous from the placenta, in a double row, and furnished with a crustaceous testa. *Albumen* none, or thin and carnosomembranaceous. *Embryo* arcuate. *Cotyledons* fleshy. *Radicle* superior. — Herbs, with alternate leaves. Flowers with short pedicels.

I. RESEDA. (L. gen. n. 608., D. C. bot. gal. i. p. 66.)

Petals 4—6, unequal; the upper lacinated. *Stamens* 10—24. *Carpels* 3—6, united into a 3—6-angled capsule. *Capsule* gaping at the apex, 3—6-celled and crowned by the 3—6 styles. *Placentas* 3—6, alternate with the styles, adnate to the middle of the united valves. *Seeds* numerous, in 2 rows.

Leaves simple or 3-lobed

sepals 6, flowers odorous	-	-	-	-	1. R. ODORATA, clt.
sepals 4, flowers inodorous	-	-	-	-	4. R. LUTEOLA.

Leaves very much divided

sepals 6, petals yellow	-	-	-	-	2. R. LUTEA.
sepals 5, petals white	-	-	-	-	3. R. FRUTICULOSA.

1. *R. odorata*. (L. sp. 646.) *Mignonette*. Leaves oblong, obtuse or mucronulate, waved, entire, or 3-lobed. Calyx as long as the corolla. Fruit loose. Native of Egypt and Barbary. Cult. in gardens. Common. Fl. with orange-coloured anthers. May, Aug. Bot. mag. 29., D. C. bot. gal. i. p. 66.

2. ! *R. lutea*. (L. sp. 645.) *Wild Mignonette*. Waste places and chalky hills. Fl. yellow. July, Aug. Annual. E. B. 321., H. 220., D. C. bot. gal. i. p. 67.

3. *R. fruticulosa*. (L. sp. 645.) *Shrubby Base Rocket*. Near Penzance, Cork, Dublin, &c. Rare. Fl. white. June. Biennial. E. B. 2628., H. 220.

4. ! *R. luteola*. (L. sp. 643.) *Dyers' Weld*. Waste places; especially on a chalky soil. Fl. yellow. July. Annual. E. B. 320., H. 220., D. C. bot. gal. i. p. 67.

Order XII. POLYGALEÆ. (D. C. prod. i. p. 321.)

Sepals 5, imbricate in æstivation, the 2 interior generally petaliform, the 3 exterior smaller; 2 of them are anterior, and sometimes united, the third is

posterior. *Petals* 3—5, hypogynous, more or less united by means of the tube of the stamens (rarely distinct). *Filaments* of stamens adherent to the petals, monadelphous, divided at the apex into 2 opposite equal phalanxes. *Anthers* 8, 1-celled, innate, dehiscing by pores at the apex. *Ovary* 1, free, 2-celled, rarely 1 or 3-celled. *Style* 1. *Stigma* 1. *Pericarp* capsular or drupaceous, 2- or 1-celled. *Valves* septigerous in the middle. *Seeds* pendulous, solitary, often with a carunculate arillus at the base. *Embryo* straight, generally in the axis of a fleshy albumen, (or rarely) exalbuminous, in which case the endopleura is tumid. — Herbs or shrubs. Leaves entire, generally alternate, articulated on the stem.

I. POLYGALA. (L. gen. n. 851., D. C. prod. i. p. 321.)

Sepals persistent, the 2 inner like wings. *Petals* 3—5, adnate to the tube of the stamens; the inferior one keel-shaped. *Capsule* compressed, elliptical, or obcordate. *Seed* pubescent, carunculated at the hilum.

1. ! *P. vulgaris*. (L. sp. 986.) *Common Milkwort*. Dry hills, pastures, &c. Common. Fl. blue, pink, or white. Jan. Aug. Perennial. E. B. 76., H. 320., D. C. i. p. 324.

The plant collected on the heaths about London, and called *Polygala amara*, does not at all resemble the *P. amara* of De Candolle, and is merely a variety of *P. vulgaris*.

The foreign species of this genus have very showy flowers, and are much cultivated in our green-houses; but the one which will bear the open air of our climate best is *P. Chamæbuxus*, a native of the Alps, with procumbent stems and straw-coloured flowers, tipped with purple.

Order XIII. FRANKENIACEÆ. (D. C. prod. i. p. 349.)

Sepals 4—5, equal, persistent, united at the base into a furrowed tube. *Petals* as many as the sepals, alternate with them, hypogynous, unguiculate; throat crowned with scales. *Stamens* hypogynous, either equal in number to the petals, and alternate with them; or sometimes with an additional 1 or 2 opposite the petals. *Filaments* filiform. *Anthers* subrotund. *Ovary* 1, free. *Style* filiform, 2—3, cleft. *Capsule* surmounted by the persistent calyx, 2—3, or even 4-valved, 1-celled. *Valves* placentiferous at both margins, many-seeded. *Embryo* straight in the middle of the albumen. *Radicle* short, directed towards the umbilicus. — Herbs or undershrubs. Leaves opposite, or verticillate, without stipules, but expanded at the base into an amplexicaule membrane.

I. FRANKENIA. (L. gen. n. 445., D. C. prod. i. p. 349.)

Style trifid; the lobes oblong, stigmatoid internally. *Capsule* 3—4-valved, many-seeded.

Leaves obovate, pulverulent on the under surface - 1. *F. PULVERULENTA*.
Leaves linear, glabrous - - - - - 2. *F. LÆVIS*.

1. *F. pulverulenta*. (L. sp. 474.) *Powdery Sea Heath*. On the sea coast of Sussex. Very rare. Fl. pale red, small. July. Annual. E. B. 222., H. 157., D. C. l. c.

2. *F. lævis*. (L. sp. 473.) *Smooth Sea Heath*. Sandy banks in salt marshes. Sheppy, Kent, near Portsmouth, &c. Fl. pale rose-colour. July. Perennial. E. B. 205., H. 157., D. C. l. c.

Order XIV. CARYOPHYLLÆ. (D. C. prod. i. p. 351.)

Calyx generally persistent, of 4 or oftener 5, sepals, which are continuous with the pedicel, and either free or coherent into a 4—5-dentate tube, imbricate in æstivation. *Petals* as many as the sepals (very rarely none), inserted on the torus, which is more or less elevated on a pedicel (anthophorus), alternate with the sepals, unguiculate, having the fauces sometimes crowned with petaloid scales. *Stamens* as many as, or double the number of, the petals, inserted in the torus. *Filaments* subulate, sometimes submonadelphous at the base. *Anthers* 2-celled. *Ovary* simple, 2—5-valved, inserted at the apex of the torus, and crowned by an equal number of styles. *Capsule* of 2—5 valves, united at the base, dehiscing at the apex, generally 1-celled, sometimes 2—5-celled. *Septa* protruding from the middle of the valves, incomplete or con-

tinuous to the axis. *Placenta* central. *Seeds* numerous (very seldom few or definite). *Albumen* farinaceous, generally central. *Embryo* usually peripheral, more or less incurved (seldom central and straight). *Radicle* directed towards the hilum. — Herbs or undershrubs, with opposite entire leaves. Stems jointed.

Sepals united into a cylindrical tube

styles 2

calyx with 2 or more scales at the base - - 1. DIANTHUS.

calyx without scales at the base - - 2. SAPONARIA.

styles 3

capsule a fleshy berry - - - 3. CUCUBALUS.

capsule membranous - - - 4. SILENE.

styles 5

- - - 5. LYCHNIS.

Sepals free or nearly free

petals 4

styles 2 - - - 6. BUFFONIA.

styles 4—5

capsule 1-celled - - - 7. SAGINA.

capsule 4-celled - - - 8. ELATINE.

petals 5

styles 3

petals dentate - - - 9. HOLOSTEUM.

petals slightly notched - - - 16. CHERLERIA.

petals bifid - - - 12. STELLARIA.

petals entire

capsule many-seeded, calyx of 5 sepals - - 13. ARENARIA.

capsule few-seeded, calyx 5-partite - - 14. ADENARIA.

styles 4 or 5

calyx 5-fid, urceolate at the base - - 11. LARBREA.

calyx 5-partite, not urceolate

petals bifid - - - 15. CERASTIUM.

petals entire

stamens 4 (rarely 5), capsule 4—5-valved - 7. SAGINA.

stamens 5—10, capsule 6-valved - 10. SPERGULA.

Tribe I. SILENÆ. (D. C. prod. i. p. 351.)

Sepals united into a cylindrical tube, 4—5-dentate at the apex.

I. DIANTHUS. (Lin. gen. n. 770. D. C. prod. i. 355.)

Calyx tubular, 5-dentate, imbricated at the base with 2—4 opposite scales. *Petals* 5, with long claws. *Stamens* 10. *Styles* 2. *Capsule* 1-celled. *Seeds* compressed, convex on one side and concave on the other, peltate. *Embryo* scarcely curved.

Flowers in clusters

outer scales of the calyx ovate, obtuse, membranous - - 1. D. PROLIFER.

outer scale ovato-lanceolate, subulate

calyx striated villous - - 2. D. ARMERIA.

calyx obsoletely striated, glabrous - - 3. D. BARBATUS, clt.

Flowers solitary, 1 or more on the stem

petals much divided into deep segments - 8. D. PLUMARIUS, clt.

petals slightly crenate, dentate, or notched

outer scales of the calyx generally 2 - 5. D. DELTOIDES.

outer scales of the calyx 4 or more

scales as long as the tube of the calyx - 7. D. CHINENSIS, clt.

scales shorter than the tube

petals bearded at the base - 6. D. CÆSIUS.

petals glabrous at the base - 4. D. CARYOPHYLLUS.

1. ! *D. prolifer*. (L. sp. 587.) *Proliferous Pink*. Gravelly pastures. Rare. Fl. deep pink, very small. Hampton Court, Isle of Wight, Cumberland Fort Portsmouth. July. Annual. E. B. 956., H. 203., D. C. i. p. 355.

2. ! *D. Armeria*. (L. sp. 586.) *Deptford Pink*. Hedges, &c., Deptford, Gravesend. Fl. rose-coloured, with white spots. July, Aug. Annual. E. B. 317., H. 203., D. C. i. p. 355.

3. *D. barbatus*. (L. sp. 586.) *Sweet William*. Flowers aggregated, fasciculated. Calycine scales ovato-subulate, as long as the tube. Leaves lanceolate. Native of the south of Europe. Cult. in gardens. Common. Fl. pink, purple, or white, variously spotted. June, Aug. Perennial. Bot. Mag. 205., D. C. i. p. 353.

4. ! *D. Caryophyllus* (L. sp. 587.) *Clove Pink, or Carnation*. On ruined walls in the south of England. Much cult. Fl. pink, white, or variegated. July. Perennial. E. B. 214., H. 203., D. C. i. p. 359.

5. ! *D. deltoïdes*. (L. sp. 588.) *Maiden Pink*. Borders of fields, on sandy soil. Fl. rose-coloured, with white spots. July, Aug. Perennial. E. B. 61., H. 204., D. C. i. p. 361.

6. *D. cæsius*. (Sm. E. B. 62.) *Mountain Pink*. Limestone rocks. Cheddar. Rare. Fl. of a delicate rose-colour. June, July. Perennial. E. B. 62., H. 204., D. C. i. p. 362.

7. *D. chinensis*. (L. sp. 588.) *China Pink*. Stem branched. Flowers solitary. Scales of the calyx linear, leafy, spreading, as long as the tube. Petals dentate. Leaves, linear lanceolate. Native of China. Cult. in gardens. Common. Fl. purple or white, spotted with red. June. Biennial. Bot. mag. 25., D. C. i. p. 359.

7. *D. plumarius*. (L. sp. 589.) *Common Garden Pink*. Glaucous. Stems 2—3-flowered. Teeth obtuse. Bractæe subovate very short, mucronulate. Petals much laciniated, bearded. Leaves linear, rough at the margin. Native country unknown. Cult. in gardens. Common. Fl. white, purple, or variously spotted. June. Perennial. D. C. i. p. 363.

For a full account of the cultivation of pinks and carnations, see Don's syst. gard. vol. i.

II. SAPONARIA. (Lin. gen. n. 769., D. C. prod. i. 365.)

Calyx tubular, 5-dentate, without scales at the base. *Petals* unguiculate, the claws as long as the calyx. *Stamens* 10. *Styles* 2. *Capsule* 1-celled.

1. *S. officinalis*. (Lin. sp. 584.) *Soapwort*. Road sides, &c.; especially near cottages. Fl. rose-coloured. July, August. Perennial. E. B. 1060., H. 203., D. C. i. p. 1365.

III. CUCUBALUS. (Gærtn., D. C. prod. i. p. 367.)

Calyx campanulate, 5-dentate, naked. *Petals* 2, unguiculate, with the fauces generally crowned. *Limb* bifid. *Capsule* fleshy, 1-celled.

1. *C. bacciferus*. (L. sp. 591.) *Berry-bearing Campion*. Branches divaricated. Leaves ovate. Calyx campanulate. Petals distant. In shady places near Edinburgh, G. Don. Fl. white. June. Perennial. E. B. 1577, D. C. i. p. 367.

IV. SILENE. (Lin. gen. n. 772., D. C. prod. i. p. 367.)

Calyx tubular, 5-dentate, naked. *Petals* 5, unguiculate, having the throat often crowned. *Limb* bifid. *Stamens* 10. *Styles* 3. *Capsule* 3-celled at the base, dehiscing at the apex, with 6 teeth.

Calyx glabrous

stem tufted, short; leaves all linear - - - 1. *S. ACAULIS*.

stem elongated; lower leaves oval or lanceolate

petals whitish; calyx inflated - - - 2. *S. INFLATA*.

petals red; calyx clavate - - - 10. *S. ARMERIA*.

Calyx villous or pubescent

petals entire

petals greenish yellow, or cream-coloured - - - 3. *S. OTITES*.

petals reddish, with a dark spot in each - - - 6. *S. QUINQUEVULNERA*.

petals dentate, notched, or incised

flowers white, greenish, or pale red

petals crowned at the fauces

flowers in leafy racemes, alternate, sub-
spicate - - - } 5. *S. ANGLICA*.

flowers in panicles

panicle secund; flowers cernuous - - - 7. *S. NUTANS*.

panicle many times dichotomous; }
flowers erect - - - } 8. *S. NOCTIFLORA*.

petals not crowned at the fauces - - - 9. *S. ITALICA*.

flowers purple - - - 4. *S. CONICA*.

1. *S. acaulis*. (L. sp. 603.) *Moss Campion*. Snowdon and Scottish mountains. Fl. purple. June, July. Perennial. E. B. 1081., H. 204., D. C. i. p. 367.
2. ! *S. inflata*. (Sm. fl. brit. 467.) *Bladder Campion*. D. C. i. p. 368.
- α. *vulgaris*. (D. C.) Smooth, with lanceolate leaves. Pastures and road sides. Common. Fl. white. Aug. Perennial. H. 204., D. C. i. p. 368.
- β. *maritima*. (D. C.) Piloso-pubescent. Leaves ovato-lanceolate. Sea shore in sandy and stony places. June, Aug. Perennial. *S. maritima*. (E. B. 957., H. 205.)
- γ. *S. uniflora*. (D. C.) Dwarf, with 1, rarely 2, flowers. Alpine rills, Mendip Hills. Aug. Perennial. H. 205.
3. *S. Otites*. (Pers. i. p. 497.) *Spanish Catchfly*. Sandy fields in Norfolk and Suffolk. Fl. greenish-yellow. July, Aug. Perennial. E. B. 85., H. 205., D. C. i. p. 369.
4. *S. conica*. (L. sp. 598.) *Striated Corn Catchfly*. Corn fields near Romney and Sandown Castle, Kent. Fl. purple. July. Annual. E. B. 922., H. 206., D. C. i. p. 371.
5. ! *S. anglica*. (L. sp. 594.) *English Catchfly*. Sandy fields. Sandown. Isle of Wight. Fl. white. July. Annual. E. B. 1178., H. 205., D. C. i. p. 371.
6. ! *S. quinquevulnera*. (L. sp. 595.) *Variegated Catchfly*. Sandy corn-fields. Wrotham, Kent; Duppa's Hill, Croydon. Fl. with 5 deep red spots. June, July. Annual. E. B. 86., H. 205., D. C. i. p. 372.
7. ! *S. nutans*. (L. sp. 596.) *Nottingham Catchfly*. Limestone rocks and chalky cliffs. Fl. white. June, July. Perennial. E. B. 465., H. 206., D. C. i. p. 377.
8. ! *S. noctiflora*. (L. sp. 599.) *Night-flowering Catchfly*. Corn fields, in sandy soil. Not common. Fl. pale red, almost white. July. Annual. E. B. 291., H. 206., D. C. i. p. 379.
9. *S. italica*. (D. C.) *Italian Catchfly*. Cliffs at Dover. Fl. white. June, July. Perennial. H. 206., D. C. i. p. 381. *S. patens*. (E. B. 748.)
10. ! *S. Armeria*. (L. sp. 601.) *Lobel's Catchfly*. Doubtful native. Commonly cult. in gardens. Fl. purple. July. Annual. E. B. 1398., H. 206., D. C. i. p. 383.

V. LYCHNIS. (L. gen. n. 584., D. C. prod. i. p. 385.)

Calyx tubular, 5-dentate, naked. *Petals* 5, unguiculate, crowned at the fauces. *Stamens* 10. *Styles* 5. *Capsule* 1—5-celled. *Anthophorus* long, or none.

Capsule 1-celled

- | | |
|--|----------------------------|
| limb of the petals laciniated, or deeply bifid | |
| stem grooved, reddish | - 5. L. FLOS CUCULI. |
| stem not grooved, green | |
| anthophorus, or pedicel of the torus, long; | } 2. L. CHALCEDONICA, clt. |
| flowers in fascicles | |
| anthophorus very short, or none | |
| flowers hermaphrodite, stem about $\frac{1}{2}$ foot | } 6. L. ALPINA. |
| high | |
| flowers dioecious, stems $1\frac{1}{2}$ —2 feet high | |
| petals white, the lobes broad, converging | } 4. L. DIOICA. |
| petals red, the lobes narrow, diverging | |
| | 3. L. SYLVESTRIS. |
| limb of the petals subentire | |
| laciniæ of calyx foliaceous, much longer | } 8. L. GITHAGO. |
| than the corolla | |
| laciniæ shorter than the corolla | - 7. L. CORONARIA, clt |

Capsule 5-celled

- | | |
|---|-------------------|
| petals bifid, anthophorus none | - 6. L. ALPINA. |
| petals slightly notched, anthophorus long | - 1. L. VISCARIA. |

1. *L. Viscaria*. (L. sp. 625.) *Red German Catchfly*. Dry alpine rocks, Scotland. Fl. rose-coloured. June. Perennial. E. B. 788., H. 214., D. C. i. p. 385.

2. *L. chalconica*. (L. sp. 625.) *Scarlet Lychnis*. Rather glabrous. Flowers fascicled. Calyx cylindrical, club-shaped, ribbed. Petals bilobed. Anthophorus long. Leaves lanceolate, cordate, subpilose, amplexicaule.

Native of Japan. Cult. in gardens. Common. Fl. generally scarlet, varying to white; single or double. July, Aug. Perennial. Bot. mag. 251., D. C. i. p. 385.

3. ! *L. sylvestris*. (D. C.) *Red Campion*. Hedges. Common. Fl. rose-coloured. June, Aug. Perennial. D. C. i. p. 386. *L. dioica*. (L., E. B. 1579., H. 215.)

4. ! *L. dioica*. (L. sp. 626. β .) *White Campion*. Road sides, hedges, &c. Common. Fl. white. June, July. Perennial. E. B. 1580., H. 215., D. C. i. p. 386.

5. ! *L. Flos Cuculi*. (L. sp. 625.) *Ragged Robin*. Moist meadows. Common. Fl. rose-coloured. June. Perennial. E. B. 573., H. 214., D. C. i. p. 387.

6. *L. alpina*. (L. sp. 626.) *Red Alpine Campion*. Summit of Clova Mountains, Scotland. Fl. rose-coloured. June, July. Perennial. E. B. 2254., H. 215., D. C. i. p. 387.

7. *L. coronaria*. (Lam.) *Crown Lychnis*. Tomentose. Stem dichotomous. Peduncles elongated, 1-flowered. Calyx subcampanulate, ribbed. Petals emarginate, crowned, serrated. Native of Italy. Cult. in gardens. Common. Fl. red or white, single or double. July, Aug. Perennial. Bot. mag. 24., D. C. i. p. 387.

8. ! *L. Githago*. (D. C.) *Corn Cockle*. Corn fields. Common. Fl. purple. June, July. Annual. D. C. i. p. 387. *Agrostemma Githago*. (L. sp. 624., E. B. 741., H. 214.)

Tribe II. ALSINÆÆ. (D. C. prod. i. p. 388.)

Sepals 4—5, free, or scarcely united at the base.

VI. BUFFONIA. (Lin. gen. n. 225., D. C. prod. i. p. 388.)

Calyx of 4 sepals. *Petals* 4, entire. *Stamens* 4. *Styles* 2. *Capsule* compressed, 1-celled, bivalved, dispermous.

1. ! *B. annua*. (D. C.) *Annual Buffonia*. ? Near Boston, and on ? Hounslow Heath. Fl. white. June. Annual. *B. tenuifolia*. (? L., E. B. 1313., H. 74.)

VII. SAGINA. (L. gen. n. 236., D. C. prod. i. p. 389.)

Calyx 4—5-partite. *Petals* 4—5, or none. *Stamens* 4—5. *Capsule* 4—5—8-valved, 1-celled, many-seeded.

Petals shorter than the calyx, capsule opening with 4 teeth

leaves fleshy, obtuse - - - - 2. *S. MARITIMA*.

leaves not fleshy, mucronate or aristate

stem procumbent, rooting - - - - 1. *S. PROCUMBENS*.

stem erect or suberect - - - - 3. *S. APETALA*.

Petals as long as, or longer than, the calyx; capsule } opening with 8 teeth - - - - 4. *S. ERECTA*.

1. ! *S. procumbens*. (L. sp. 185.) *Procumbent Pearlwort*. Waste places. Common. Fl. white. May, Aug. Perennial. E. B. 880., H. 79., D. C. i. p. 389.

2. *S. maritima*. (Sm. E. B. 2195.) *Sea Pearlwort*. Sea coast. Fl. white. *Petals* sometimes wanting. May, Aug. Annual. E. B. l. c., H. 80., D. C. i. p. 389.

3. ! *S. apetala*. (L. mant. 559.) *Small-flowered Pearlwort*. Gravelly places, walls. Frequent. Fl. green. May, June. Annual. E. B. 881., H. 79., D. C. i. p. 389.

4. ! *S. erecta*. (L. sp. 185.) *Upright Pearlwort*. Gravelly heaths. Common. Fl. white. May. Annual. E. B. 609., D. C. i. p. 389. *Mœnchia erecta*. (H. 80.)

Note. *S. cerastoides*. (Sm. p. 389.) See *Cerastium tetrandum*.

VIII. ELATINE. (Lin. gen. n. 685., D. C. prod. i. p. 390.)

Calyx 3—4-partite. *Petals* 3—4, without claws. *Stamens* as many as, or double the number of, the petals, i. e. 3—4 or 6—8. *Styles* 4, capitate at the apex. *Capsule* 4-valved, 4-celled, many-seeded. *Seeds* cylindrical.

Flowers pedicellate, hexandrous, tripetalous - - - 2. *E. HEXANDRA*.

Flowers sessile, octandrous, tetrapetalous - - - 1. *E. HYDROPIPER*.

1. *E. Hydropiper*. (L. sp. 527.) *Octandrous Waterwort*. East end of Llyn Coron, Anglesea. Fl. rose-coloured. August. Annual. E. B. 2670., H. 188., D. C. i. p. 390.

2. ! *E. hexandra*. (D. C.) *Hexandrous Waterwort*. Margins of ponds. Rare. Near Eltham, Kent; Crawley, Sussex; &c. Fl. rose-coloured. July, Aug. Annual. *E. Hydropiper*. (E. B. 955., not Lin.) *E. tripetala*. (Lind. 48.)

IX. HOLOSTEUM. (Lin. gen. 136., D. C. prod. i. p. 393.)

Calyx of 5 sepals. *Petals* 5, dentate. *Stamens* 5, or by abortion 3—4. *Styles* 3. *Capsule* 1-celled, dehiscing at the apex by 6 teeth. *Embryo* replicate within the albumen.

1. *H. umbellatum*. (L. sp. 130.) *Umbelliferous Jagged Chickweed*. Old walls about Norwich and Bury. Rare. Fl. white, or reddish. April. Annual. E. B. 27., H. 59., D. C. i. p. 393.

X. SPERGULA. (Lin. gen. n. 798., D. C. prod. i. p. 394.)

Calyx 5-partite. *Petals* 5, entire. *Stamens* 5—10. *Styles* 5. *Capsule* 1-celled, 6-valved, many-seeded.

Leaves in whorls, stipuled	-	-	-	-	1. S. ARVENSIS.
Leaves opposite, without stipules					
petals much longer than the calyx	-	-	-	-	2. S. NODOSA.
petals scarcely, if at all, longer than the calyx					
plant glabrous	-	-	-	-	3. S. SAGINOIDES.
plant hairy	-	-	-	-	4. S. SUBULATA.

1. ! *S. arvensis*. (L. sp. 630.) *Corn Spurrey*. Corn fields. Fl. white. June, Aug. Annual. E. B. 1535., H. 217., D. C. i. p. 394. *S. pentandra*. (E. B. 1536.)

2. ! *S. nodosa*. (L. sp. 630.) *Knotted Spurrey*. Wet, sandy, and marshy places. Common. Fl. white. July, Aug. Perennial. E. B. 694., H. 218., D. C. i. p. 394.

3. *S. saginoides*. (L. sp. 631.) *Pearlwort Spurrey*. Highland mountains. Fl. white. June, July. Perennial. E. B. 2105., H. 218., D. C. i. p. 394.

4. ! *S. subulata*. (Swartz.) *Awl-shaped Spurrey*. Dry, gravelly, and stony pastures. Fl. white. July, Aug. Perennial. E. B. 1082., H. 218., D. C. i. p. 394.

XI. LARBREA. (St. Hil., D. C. prod. i. p. 395.)

Calyx 5-fid, urceolate at the base. *Petals* 5, bipartite, perigynous. *Stamens* 10, perigynous. *Styles* 5. *Ovary* 1-celled, many-seeded. *Capsule* 6-valved at the apex.

1. ! *L. aquatica*. (St. Hil. l. c.) *Bog Stitchwort*. Ditches and marshes. Common. Fl. white. June. Annual. D. C. i. p. 395., and in note 3. 365. *Stellaria uliginosa*. (E. B. 1074., H. 208.)

XII. STELLARIA. (L. gen. n. 773., D. C. prod. i. p. 396.)

Calyx 5-partite. *Petals* 5, bifid. *Stamens* 10, or by abortion 3—8. *Styles* 3. *Capsule* 1-celled, with 6 valves at the apex; many-seeded.

Leaves ovate, or cordate, petiolated					
petals much longer than the calyx	-	-	-	-	1. S. NEMORUM.
petals shorter than the calyx	-	-	-	-	2. S. MEDIA.
Leaves linear, lanceolate, or oblong, sessile					
petals longer than the calyx					
leaves subscabrous, finely serrated; calyx without					} 3. S. HOLOSTEA.
ribs	-	-	-	-	
leaves smooth, entire; calyx 1—3-ribbed					
flowers in a loose panicle	-	-	-	-	4. S. GRAMINEA.
flowers 1 or 2, terminal or axillary					
leaves linear, lanceolate, glaucous; calyx 3-ribbed					5. S. GLAUCA.
leaves oblong, blunt, pubescent; calyx with 1					} 6. S. CERASTOIDES.
downy rib	-	-	-	-	
petals rather shorter than the calyx					
leaves in distant pairs; peduncles much shorter than					} 4. S. GRAMINEA.
the stem	-	-	-	-	
leaves crowded, peduncles longer than the whole					} 7. S. SCAPIGERA.
stem	-	-	-	-	

1. *S. nemorum*. (L. sp. 603.) *Wood Stitchwort*. Moist woods, in the north of England. Fl. white. May, June. Perennial. E. B. 92., H. 207., D. C. i. p. 396.
2. ! *S. media*. (Sm. E. B. 537.) *Chickweed*. Road sides, &c. Very common. Fl. white. The whole year. Annual. E. B. 537., H. 207., D. C. i. p. 396.
3. ! *S. Holostea*. (L. sp. 711.) *Greater Stitchwort*. Hedges, &c. Common. Fl. white. May. Perennial. E. B. 511., H. 207., D. C. i. p. 397.
4. ! *S. graminea*. (L. sp. 604.) *Lesser Stitchwort*. Dry pastures, &c. Common. Fl. white. May. Perennial. E. B. 803., H. 207., D. C. i. p. 397.
5. ! *S. glauca*. (With. bot. arr. i. p. 420.) *Glaucous Marsh Stitchwort*. Wet marshy places. Common. Fl. white. June, July. Perennial. E. B. 825., H. 208., D. C. i. p. 397.
6. *S. cerastoides*. (L. sp. 604.) *Alpine Stitchwort*. Mountains of Scotland. Fl. white. July, Aug. Perennial. E. B. 911., H. 208., D. C. i. p. 398.
7. *S. scapigera*. (Willd. sp. ii. p. 716.) *Many-stalked Stitchwort*. North of Scotland. Fl. white. June. Perennial. E. B. 1269., H. 208., D. C. i. p. 398.

Note.—For *S. uliginosa*, see *Larbreia aquatica*.

XIII. ARENARIA. (L. gen. n. 774., D. C. prod. i. p. 400.)

Calyx of 5 sepals. *Petals* 5, entire. *Stamens* 10, or, by abortion, fewer. *Styles* 3. *Capsule* 1-celled, 6—3-valved at the apex, many-seeded.

Leaves with scariose stipules at their base

- | | | |
|--|-------|--------------|
| seeds rough and angular, not winged | - - - | 1. A. RUBRA. |
| seeds smooth, flat, surrounded by a membranaceous wing | - - - | 2. A. MEDIA. |

Leaves without stipules

leaves subulate

- | | | |
|--|---|--------------|
| petals as long as, or longer than, the calyx | - | 3. A. VERNA. |
|--|---|--------------|

petals shorter than the calyx

- | | | |
|--|---|-------------------|
| flowers fascicled; stem subsimple | - | 6. A. FASTIGIATA. |
| flowers in a loose panicle; stem dichotomous | - | 5. A. TENUIFOLIA. |

leaves linear, obtuse

- | | |
|--|----------------|
| petals much longer than the calyx; leaves ciliated | 8. A. CILIATA. |
|--|----------------|

- | | |
|--|----------------|
| petals shorter than the calyx; leaves not ciliated | 4. A. RUBELLA. |
|--|----------------|

leaves flat, round, or oval

- | | | |
|-----------------------------------|---|----------------|
| petals much longer than the calyx | - | 8. A. CILIATA. |
|-----------------------------------|---|----------------|

petals scarcely as long as the calyx

- | | | |
|-----------------------------|---|------------------|
| leaves petiolated, 3-nerved | - | 9. A. TRINERVIS. |
|-----------------------------|---|------------------|

- | | | |
|--------------------------------|---|----------------------|
| leaves sessile, without nerves | - | 7. A. SERPYLLIFOLIA. |
|--------------------------------|---|----------------------|

1. ! *A. rubra*. (L. sp. 606.) *Purple Sandwort*. Gravelly and sandy soil. Common. Fl. purple. June. Annual. E. B. 852., H. 211., D. C. i. p. 401.

2. ! *A. media*. (L. sp. 606.) *Sea-side Sandwort*. Sea coast. Common. Fl. purple. June, July. Annual. D. C. i. p. 401. *A. marina*. (E. B. 958., H. 211.)

3. *A. verna*. (L. mant. 72.) *Vernal Sandwort*. Rocky and mountainous pastures. North of England, Wales, and Scotland. Fl. white. May, June. Perennial. E. B. 512., H. 209., D. C. i. p. 405.

4. *A. rubella*. (Hooker.) *Alpine Sandwort*. Breadalbane Mountains. Rare. Petals white. Anthers red. July. Perennial. E. B. 2638., H. 210.

5. *A. tenuifolia*. (L. sp. 607.) *Fine-leaved Sandwort*. Sandy fields. Norfolk, Cambridge, &c. Fl. white. June. Annual. E. B. 219., H. 210., D. C. i. p. 405.

6. *A. fastigiata*. (Sm.) *Level-top Sandwort*. Fifeshire, &c. Fl. white. June. Annual. E. B. 1744., H. 210. *A. fasciculata*. (D. C. i. p. 407.)

7. ! *A. serpyllifolia*. (L. sp. 606.) *Thyme-leaved Sandwort*. Walls and dry places. Common. Fl. white. June. Annual. E. B. 923., H. 209., D. C. i. p. 411.

8. *A. ciliata*. (L. sp. 608.) *Fringed Sandwort*. Sligo Mountains, Ireland. Rare. Fl. white. Aug., Sept. Perennial. E. B. 1745., H. 209., D. C. i. p. 411.

9. ! *A. trinervis*. (L. sp. 605.) *Three-nerved Sandwort*. Shady woods and ditches. Fl. white. May. Annual. E. B. 1483., H. 209., D. C. i. p. 412.

XIV. ADENARIUM. (Rafin. journ. phys., D. C. prod. iii., note 366.)

Calyx 5-partite. *Petals* 5, entire, inserted into the lower part of the calyx. *Stamens* 10, inserted with the petals. *Styles* 3—5. *Glands* 10, springing from the torus around the ovary. *Capsules* 3—5-valved, 1-celled. *Seeds* few.

1. ! *A. peploides*. (Rafin. l. c.) *Sea-side Sandwort*. Sandy shores. Common. Fl. white. July. Perennial. D. C. iii. p. 366. *Arenaria peploides*. (L. sp. 605., E. B. 189., H. 209.)

XV. CERASTIUM. (L. gen. n. 797., D. C. prod. i. p. 414.)

Calyx 5-partite. *Petals* 5, bifid. *Stamens* 10. *Styles* 5. *Capsule* 1-celled, cylindrical or globose, dehiscent at the apex by 10 circinnate, or ascending, teeth.

Petals shorter or about the length of the calyx

pedicels not exceeding the length of the calyx - 1. *C. VULGATUM*.

pedicels longer than the calyx

stamens 4, border of calyx scarcely membranous 4. *C. TETRANDRUM*.

stamens 5, border of calyx scariose - - 3. *C. SEMIDECANDRUM*.

stamens 10, border of calyx slightly membranous 2. *C. VISCOSUM*.

Petals longer than the calyx

leaves narrow, linear

the whole plant covered with dense white down 5. *C. TOMENTOSUM*, clt.

plant pubescent, not tomentose - - - 9. *C. ARVENSE*.

leaves ovate or cordate

petals deeply bifid; leaves cordate - 6. *C. AQUATICUM*.

petals emarginate, or slightly bifid; leaves ovate

stem elongated, sub-3-flowered - - 7. *C. ALPINUM*.

stem short, 1—2-flowered - - - 8. *C. LATIFOLIUM*.

1. ! *C. vulgatum*. (L. sp. 627.) *Broad-leaved Mouse-ear Chickweed*. Common. Fl. white. April, June. Annual. E. B. 789., H. 215., D. C. i. p. 415.

2. ! *C. viscosum*. (L. sp. 627.) *Narrow-leaved Mouse-ear Chickweed*. Common. Fl. white. April, Sept. Annual. E. B. 790., H. 215., D. C. i. p. 416.

3. ! *C. semidecandrum*. (L. sp. 627.) *Little Mouse-ear Chickweed*. Dry waste places on sandy soil. Fl. white. March, April. Annual. E. B. 1630., H. 216., D. C. i. p. 416.

4. ! *C. tetrandrum*. (Curt.) *Four-cleft Mouse-ear Chickweed*. Waste ground, walls, &c. Near the sea. Fl. white. May, June. Annual. H. 216. *Sagina cerastoides*. (E. B. 166., D. C. i. p. 389.)

5. *C. tomentosum*. (L. sp. 629.) *Woolly Mouse-ear, Chickweed*. Stem repent, diffuse. Leaves oblong, spathulate, tomentose, hoary. Peduncles erect, dichotomous. Sepals oblong, tomentose, scariose at the edges. Capsule subcylindrical, longer than the calyx. Native of the south of Europe. Cult. in gardens. Common. Fl. white. June, July. Perennial. D. C. i. p. 418.

6. ! *C. aquaticum*. (L. sp. 609.) *Water Chickweed*. Banks of rivers and ditches. Fl. white. July. Perennial. E. B. 538., H. 217.

7. *C. alpinum*. (L. sp. 628.) *Hairy Alpine Chickweed*. Highland mountains. Rare in Wales. Fl. white. July, Aug. Perennial. E. B. 472., H. 217., D. C. i. p. 419.

8. *C. latifolium*. (L. sp. 627.) *Broad-leaved Alpine Chickweed*. Mountains of Wales and Scotland. Fl. white. July, August. Perennial. E. B. 473., H. 217., D. C. i. p. 419. *C. alpinum* β. (Benth.)

9. ! *C. arvense*. (L. sp. 628.) *Field Chickweed*. Dry, sandy, and gravelly places. Common. Fl. white. June, July. Perennial. E. B. 93., H. 217., D. C. i. p. 419.

XVI. CHERLERIA. (Lin. gen. n. 775., D. C. prod. i. p. 421.)

Calyx of 5 sepals. *Petals* 5, very small, emarginate. *Stamens* 10. *Styles* 3. *Capsule* 3-celled, 3-valved. *Cells* 2-seeded.

1. *C. sedoides*. (L. sp. 608.) *Mossy Cyphel*. Summits of Highland mountains. June, Aug. Perennial. E. B. 1212., H. 211., D. C. i. p. 421.

Order XV. LINEÆ. (D. C. prod. i. p. 423.)

Calyx 3—4—generally 5-sepaled. *Sepals* coherent only at the base, imbricate in æstivation, continuous with the peduncle, and therefore persistent. *Petals* as many as the sepals, hypogynous, unguiculate at the base, slightly united together, and to the ring of the stamens; alternate with the sepals, twisted in æstivation. *Stamens* equal in number, and alternate with the petals, cohering into a monadelphous ring at the base, and having an abortive filament, or tooth, between each. *Anthers* innate, bilocular, birimose. *Ovaries* subglobose, with as many cells as there are sepals, rarely fewer. *Styles* as numerous as the cells of the ovary. *Capsule* globose, crowned by the permanent bases of the styles, composed of carpels having induplicate margins, and dehiscing at the apex by two valves, and which are divided into two partial cells, by an incomplete dissepiment arising from the centre. *Seeds* in each cell 2, inverted. *Albumen* generally none, but in its stead there is a tumid fleshy endopleura. *Embryo* straight, with the radicle turned towards the hilum. — Herbs or shrubs, with entire exstipulate leaves.

All the parts of the flower in fives - - - - - 1. LINUM.
All the parts of the flower in fours - - - - - 2. RADIOLA.

I. LINUM. (L. gen. n. 389., D. C. prod. i. p. 432.)

Parts of the flower in quinary proportion. *Sepals* entire. *Styles* very rarely 3, generally 5; as are also the *petals*, *stamens*, and *sepals*.

Leaves alternate

sepals acute, 3-nerved

annual; stem subsolitary; flowers large, purplish } 1. L. USITATISSIMUM.
blue - - - - - }

perennial; ramose; flowers small, pale blue - 2. L. ANGUSTIFOLIUM.

sepals obtuse, obscurely 5-ribbed - - - - - 3. L. ANGLICUM.

Leaves opposite - - - - - 4. L. CATHARTICUM.

1. ! *L. usitatissimum*. (L. sp. 397.) *Common Flax*. Corn fields; and commonly cultivated, especially in Scotland and Ireland. Fl. purplish blue. July. Annual. E. B. 1357., H. 150., D. C. i. p. 426.

2. ! *L. angustifolium*. (Huds. angl. 134.) *Narrow-leaved Pale Flax*. Sandy and chalky soil, near the sea. Common. Near Croydon. Fl. pale blue. July. Perennial. E. B. 381., H. 150., D. C. i. p. 426.

3. ! *L. anglicum*. (Mill. dict. n. 5.) *English Flax*. Chalky hills. Various parts of England. Fl. pale-blue. June, July. Perennial. D. C. i. p. 426. *L. perenne* var. *anglicum*. (Lin.) *L. perenne*. (E. B. 40., H. 150.)

4. ! *L. catharticum*. (L. sp. 401.) *Purging Flax*. Pastures. Common. Fl. white. June, July. Annual. E. B. 382., H. 150., D. C. i. p. 428.

II. RADIOLA. (Gmel. syst. i. p. 289., D. C. prod. i. p. 428.)

Parts of the flower in quaternary proportion. *Sepals* united nearly to the middle, each trifid at the apex.

1. ! *R. linoïdes*. (Gmel. l. c.) *Thyme-leaved Flax-seed*. Moist, gravelly, and boggy places. Fl. white. July, Aug. Annual. D. C. i. p. 428. *R. millegрана*. (Sm. E. B. 893., H. 80.) *Linum Radiola*. (L. sp. 402.)

Order XVI. MALVACEÆ. (R. Brown, p. 8., D. C. prod. i. p. 429.)

Calyx of 5 (rarely 3—4) sepals, more or less coherent at the base, valvate in æstivation, often with bracteas or external sepals forming an involucre, or outer calyx. *Petals* as many as the sepals, and alternate with them; hypogynous, equal; spirally contorted in æstivation, generally adnate to (but sometimes distinct from) the lower part of the tube of the stamens. *Stamens* equal in number, or more commonly a multiple of the petals; generally indefinite (rarely definite), hypogynous. *Filaments* united into a tube, and unequal in length, the outer ones being shorter. *Anthers* 1-celled, reniform, dehiscing by a transverse chink. *Ovary* of many carpels, generally verticillated round the axis, and coherent (sometimes free). *Styles* as many as the carpels, either distinct or united. *Stigmas* as many as the carpels, more or less distinct. *Carpels* either 1—2-seeded, and dehiscing inward by a chink, or polyspermous, with a loculicidal dehiscence, or having a septum in the middle which bears

the seeds on the inner side; in some cases nearly free, in others united into a many-celled capsule, or an anomalous berry. *Albumen* none. *Embryo* straight. *Radicle* terete. *Cotyledons* twisted like a chrysalis. — Herbs, shrubs, or trees. Leaves alternate, generally petiolate and with stipules.

Carpels arranged in a circle round the axis

- | | | | | | | | |
|--------------------|---|---|---|---|---|---|--------------|
| involucre 3-leaved | - | - | - | - | - | - | 1. MALVA. |
| involucre 6—9-fid | - | - | - | - | - | - | 2. ALTHÆA. |
| involucre 3-fid. | - | - | - | - | - | - | 3. LAVATERA. |

Carpels united into a 5-celled capsule - - - - 4. HIBISCUS, clt.

I. MALVA. (L. gen. n. 843., D. C. prod. i. p. 430.)

Calyx surrounded by a 3- (rarely 5—6-) leaved involucre; the *bracteoles* oblong or setaceous. *Carpels* capsular, numerous, arranged in a circle round the axis.

- | | | | | | | |
|-----------------------------|---|---|---|---|---|---------------------|
| Cauline leaves multipartite | - | - | - | - | - | 1. M. MOSCHATA. |
| Cauline leaves 5—7-lobed | - | - | - | - | - | - |
| stem prostrate | - | - | - | - | - | 3. M. ROTUNDIFOLIA. |
| stem erect | - | - | - | - | - | 2. M. SYLVESTRIS. |

1. ! *M. moschata*. (L. sp. 971.) *Musk Mallow*. Meadows and pastures, in a gravelly soil. Fl. rose-colour. July, Aug. Perennial. E. B. 754., H. 315., D. C. i. p. 432.

2. ! *M. sylvestris*. (L. sp. 969.) *Common Mallow*. Waste places, &c. Common. Fl. purple. June, Aug. Perennial. E. B. 671., H. 315., D. C. i. p. 432.

3. ! *M. rotundifolia*. (L. sp. 969.) *Dwarf Mallow*. Waste places, &c. Common. Fl. rose-colour. June, Sept. Perennial. E. B. 1092., H. 315., D. C. i. p. 432.

β. *pusilla*. (Sm.) Petals not longer than the calyx. E. B. 241.

II. ALTHÆA. (L. gen. n. 839., D. C. prod. i. p. 436.)

Calyx surrounded by a 6—9-fid involucellum. *Carpels* capsular, collected into an orbicular head. *Cells* 1-seeded.

Carpels surrounded by a furrowed membranous border 3. A. ROSEA, clt.
Carpels without a border

- | | | | | | | |
|--|---|---|---|---|---|--------------------|
| leaves downy; peduncles many-flowered, shorter than the leaves | - | - | - | - | - | 1. A. OFFICINALIS. |
| leaves rough; pedicels 1-flowered, longer than the leaves | - | - | - | - | - | 2. A. HIRSUTA. |

1. ! *A. officinalis*. (L. sp. 966.) *Marsh Mallow*. Marshes near the sea. Gravesend. Fl. pale rose-colour. Aug., Sept. Perennial. E. B. 147., H. 316., D. C. i. p. 436.

2. ! *A. hirsuta*. (L. sp. 965.) *Hispid Marsh Mallow*. Fields, near Cobham, Kent. Fl. pale rose-coloured. June, July. Annual. E. B. 2674., H. 316., D. C. i. p. 437.

3. *A. rosea*. (Cav. diss.) *Hollyhock*. Stem erect, hairy. Leaves cordate, 5—7-angled, crenate, rugose. Flowers axillary, sessile, subspicate towards the apex. Petals subcrenate. Claws villous. Native of India. Cult. in gardens. Very common. Fl. various in colour. July, Sept. Biennial. D. C. i. p. 437. *Alcea rosea*. (L. sp. 966.)

III. LAVATERA. (L. gen. n. 842., D. C. prod. i. p. 438.)

Calyx surrounded by a 3—6-fid involucellum, the leaflets cohering at the lower part. *Carpels* capsular, 1-seeded, arranged in a circle round the vari-ously dilated axis.

- | | | | | | | |
|---|---|---|---|---|---|------------------------|
| Herbaceous; axis expanded into a disk, covering the ovaries | - | - | - | - | - | 1. L. TRIMESTRIS, clt. |
| Woody; axis small, not expanded into a disk | - | - | - | - | - | 2. L. ARBOREA. |

1. *L. trimestris*. (L. sp. 974.) *Garden Lavatera*. Stem herbaceous. Leaves glabrous, subrotundo-cordate, the upper ones angular. Pedicels solitary. Orb of the axis entirely covering the carpels. Native of Syria. Cult. in gardens. Common. Fl. pink. July, Aug. Annual. Bot. mag. 109., D. C. i. p. 438.

2. *L. arborea*. (L. sp. 972.) *Tree Mallow*. Maritime insulated rocks; and cult. in gardens. Fl. pink. July, Aug. Biennial. E. B. 1841., H. 315., D. C. i. p. 439. |

IV. HIBISCUS. (L. gen. n. 846., D. C. prod. i. p. 446.)

Calyx surrounded by a many-leaved involucre. *Stigmas* 5. *Carpels* united into a 5-celled capsule. *Valves* with a dissepiment in the middle. *Cells* many-seeded (rarely 1-seeded).

1. *H. syriacus*. (L. sp. 978.) *Althæa Frutex*. Stem ligneous, unarmed. Leaves cuneiform-ovate, 3-lobed, dentate. Pedicels scarcely longer than the petioles. Involucellum 6—7-leaved. *Carpels* many-seeded. Native of Syria. Cult. in shrubberies. Fl. purple, white, or red. Conspicuous. Aug., Sept. Shrub. Bot. mag. 83., D. C. i. p. 448.

Order XVII. TILIACEÆ. (Juss., D. C. prod. i. p. 503.)

Calyx naked externally, of 4—5 sepals, valvate in æstivation. *Petals* as many as the sepals, and alternate with them; often foveolate at the claw, entire, very seldom wanting. *Stamens* hypogynous, free, generally indefinite (seldom definite) in number. *Anthers* oval, or subrotund bilocular, dehiscing longitudinally by a double chink. *Glands* as many as the petals, opposite to them, adnate to the stalk of the ovary. *Ovary* 1, consisting of 4—10 carpels united together. *Styles* as many as carpels, united into one. *Stigma*, in general, free. *Capsule* many-celled. *Seeds* numerous in each cell. *Albumen* fleshy. *Embryo* erect. *Cotyledons* flat, foliaceous. — Trees or shrubs, with simple bistipulate leaves.

I. TILIA. (L. gen. n. 660., D. C. prod. i. p. 512.)

Calyx 5-partite, deciduous. *Petals* 5, naked, or with a scale at the base. *Stamens* numerous. *Filaments* free or subpolyadelphous. *Ovary* globose, villous, with 1 style, 5-celled. *Cells* 2-seeded. *Nut* coriaceous, by abortion 1-celled, 1—2-seeded. *Cotyledons* sinuato-dentate.

Leaves glabrous, or the under surface with a tuft of hairs at the axilla of the veins

leaves twice the length of the petiole

leaves scarcely longer than the petiole

Leaves downy on the under surface

fruit globose, not ribbed

fruit turbinate with prominent ribs

- 2. T. INTERMEDIA.

- 1. T. MICROPHYLLA.

- 3. T. RUBRA.

- 4. T. PLATYPHYLLA.

1. ! *T. microphylla* (Vent. diss.) *Small-leaved Lime Tree*. Woods in Essex and Lincolnshire. Fl. straw-coloured. July, Aug. Tree. D. C. i. p. 513. *T. parvifolia*. (E. B. 1705., H. 262.)

2. ! *T. intermedia*. (Hayn. and Sv. Bot. 40.) *Common Lime Tree*. Woods, &c. Cult. Fl. straw-coloured. July. Tree. D. C. i. p. 513. *T. europæa*. (L. 733., E. B. 610., H. 262.)

3. ! *T. rubra*. (D. C.) *Red Lime Tree*. Woods. Fl. straw-coloured. June, July. Tree. D. C. i. p. 513., Lindl. 55.

4. ! *T. platyphylla*. (Scop. carn. n. 641.) *Broad-leaved Lime Tree*. Woods, &c. Cult. Fl. straw-coloured. June, July. Tree. D. C. i. p. 513. *T. grandifolia*. (E. B. 2720., H. 262.)

Order XVIII. CAMELLIÆÆ. (D. C. prod. i. p. 529.)

Sepals 5—7, imbricated in æstivation, the inner one generally larger, subconcave, coriaceous, deciduous. *Petals* as many as the sepals, alternate with them, often subcoherent at the base. *Stamens* numerous; the *filaments* filiform, monadelphous or polyadelphous at the base; the *anthers* ellipsoid or round, versatile. *Ovary* 1, ovato-rotund. *Styles* 3—6, filiform, more or less coherent. *Capsule* 3-celled, 3-valved, dehiscent, 3-seeded by the abortion of numerous ovules. *Valves* (owing to a variety of dehiscence) sometimes septiferous in the middle, sometimes having the margin inflexed. *Seeds* few, large, thick, attached to the central margin of the septa. *Albumen* none. *Cotyledons* large, thick, oleaginous; plano-convex, and articulated at the base. *Radicle* very short, obtuse, turned towards the hilum. *Plumula* scarcely perceptible, ascending. — Evergreen shrubs or trees of China and Japan, the flowers conspicuous.

I. CAMELLIA. (L. gen. n. 848., D. C. prod. i. p. 529.)

Calyx imbricated, being surrounded by bractes or accessory sepals. *Stem* polyadelphous or monadelphous at the base. The *Anthers* ellipsoid. Valves of *capsule* septiferous in the middle, leaving a free triquetrous axis after dehiscence.

1. *C. japonica*. (L. sp. 982.) *Common Camellia*. Leaves ovate, acuminate, acutely serrated. Flowers terminal, subsolitary. Native of Japan. Cult. in green-houses. Common. Fl. pink, white, red, or variegated. Feb., May. Small tree. Bot. mag. 42., D. C. l. c.

* * *Thea chinensis* var. *viridis* et *Bohea* (green and black tea), which have occasionally been cultivated in the open air in England, belong to this family, and are distinguished from *Camellia* by their flowers being pedicellated.

Order XIX. AURANTIACEÆ. (D. C. prod. i. p. 535.)

Calyx urceolate or campanulate, subadnate to the disk, short, 3—5-dentate, marcescent. *Petals* 3—5, broad at the base, free, or slightly united together; inserted on the outside of the hypogynous disk, slightly imbricated in æstivation. *Stamens* either equal in number to, or a multiple of, the petals, inserted on the sides of the hypogynous disk. *Filaments* flattened out at the base, free or polyadelphous, in various degrees of cohesion, sometimes monadelphous, but always free at the apex. *Anthers* terminal, innate, erect. *Ovary* ovate, many-celled. *Style* 1. *Stigma* thick, subdivided. *Fruit* (aurantium D. C.) composed of, 1st, a thick, glandular, evalvular, indehiscent indusium, probably to be considered as a continuation of the torus; 2dly, many carpels (seldom by abortion solitary), verticillate round an imaginary axis; generally separable without laceration, membranous, either containing seeds only, or filled with pulp, which is enclosed in innumerable little bags arising from the parietes. *Seeds* affixed to the inner angles of the carpels, numerous or solitary, exalbuminous, generally pendent, sometimes containing many embryos. *Spermoderm* generally marked with a raphe and cupular chalaza. *Embryo* straight. *Radicle* superior, retracted, turned towards the hilum. *Cotyledons* large, thick, biauriculated at the base, with a conspicuous plumula. — Trees or shrubs filled in every part of the leaves, flowers, and rind of the fruit with vesicular glands, containing an odoriferous volatile oil. Leaves alternate, articulated on the stem.

I. CITRUS. (L. gen. n. 1218., D. C. prod. i. p. 539.)

Parts of the flower generally in quinary proportion. *Calyx* urceolate, 3—5-fid. *Petals* 5—8. *Stamens* 20—60. *Filaments* compressed, more or less united into polyadelphous parcels at the base. *Anthers* oblong. *Stigma* hemispherical. *Fruit* baccate, of 7—12 polyspermous pulpy cells. *Spermoderm* membranous. — Leaves unifoliate, often with a winged petiole. Most of the species are natives of Asia. For cultivation and general history of the Citrus, see Don's System of Gardening, vol. i.

Fruit oblong

petiole naked, rind thick, pulp acidulous - - 1. *C. MEDICA*, clt.

petiole slightly winged, rind thin, pulp very acid 2. *C. LIMONUM*, clt.

Fruit globose

petiole almost naked, pulp sweet - - - 3. *C. AURANTIUM*, clt.

petiole winged, pulp bitter - - - 4. *C. VULGARIS*, clt.

1. *C. Medica*. (Risso.) *Citron*. Cult. in gardens and green-houses. Fl. white, externally purplish. June. Small tree. D. C. i. p. 539.

2. *C. Limonum*. (Risso.) *Lemon*. Cult. in green-houses. Fl. white, externally purplish. June. Small tree. D. C. i. p. 539.

3. *C. Aurantium*. (Risso.) *Common Orange*. Cult. in gardens and green-houses. Fl. white. June. Small tree. D. C. i. p. 539.

4. *C. vulgaris*. (Risso.) *Seville Orange*. Cult. in gardens and green-houses. Fl. white. June. Small tree. D. C. i. p. 539.

Order XX. HYPERICINEÆ. (D. C. prod. i. p. 541.)

Calyx either monosepalous, 4—5-partite, or of 4—5 persistent sepals, often unequal; i. e. the 2 outer ones smaller; the 3 inner larger. *Petals* 4—5, hypo-

gynous, alternating with the lobes of the calyx, contorted in æstivation. *Stamens* numerous, generally indefinite, polyadelphous at the base, rarely free or monadelphous. *Filaments* long. *Anthers* oscillating, minute. *Ovary* 1, free, *Styles* numerous, long, sometimes united into one. *Stigmas* simple, rarely capitate. *Capsule*, or berry, many-valved, many-celled. *Cells* as many as the styles. *Placenta* entire and central, or multipartite and affixed to the incurved margin of the valves. *Seeds* very numerous, generally round, seldom flattened. *Embryo* straight. *Radicle* inferior. *Albumen* none. — Herbs or small shrubs, having a resinous juice, or with numerous glands. Leaves opposite, entire, rarely alternate, often punctate.

Capsule a berry - - - - - 1. ANDROSÆMUM,
Capsule membranaceous, not a berry - - - - - 2. HYPERICUM.

I. ANDROSÆMUM. (All. ped., D. C. prod. i. p. 543.)

Capsule a subunilocular berry. *Calyx* 5-partite, the lobes unequal. *Petals* 5. *Stamens* numerous, united at the base. *Styles* 3.

1. ! *A. officinale*. (All. ped. n. 1440.) *Tutsan*. Hedges, on gravelly soil. Fl. yellow. July. Under shrub. D. C. l. c. *Hypericum Androsæmum*. (L. sp. 1102., E. B. 1225., H. 336.)

II. HYPERICUM. (L. gen. n. 902., D. C. prod. i. p. 543.)

Capsule membranous. *Styles* 3—5. *Stamens* numerous, polyadelphous at the base; seldom subdefinite in number. *Petals* 5. *Sepals* 5, more or less coherent at the base, and unequal.

Styles 5 - - - - - 2. H. CALYCINUM.
Styles 3
 sepals united at the base, unequal in size - - - 1. H. HIRCINUM, clt.
 sepals not united, equal
 sepals with the margins entire
 stem quadrangular
 leaves with pellucid dots - - - 3. H. QUADRANGULUM.
 leaves not dotted - - - - - var. β. DUBIUM.
 stem cylindrical or filiform
 stem prostrate, very slender - - - 4. H. HUMIFUSUM.
 stem erect, firm - - - - - 5. H. PERFORATUM.
 sepals dentate, often dentato-glandular
 stem and leaves pubescent, or hairy
 stem erect, subligneous at the base - - - 7. H. HIRSUTUM.
 stem ascending, weak, herbaceous - - - 6. H. ELODES.
 stem and leaves glabrous
 petals obovate - - - - - 10. H. BARBATUM.
 petals oblong
 petals entire - - - - - 9. H. MONTANUM.
 petals denticulate - - - - - 8. H. PULCHRUM.

1. *H. hircinum*. (L. sp. 1103.) *Goat St. John's Wort*. Branches winged. Leaves submarginate at the base, dilated, sessile, ovato-lanceolate, acute at the apex, with glandular margins. Peduncle bibracteate. Stamens longer than the corolla. Seeds 2, appendiculated. Native of the south of Europe. Cult. in pleasure-grounds. Fl. yellow. July, Aug. Small shrub. D. C. i. p. 544.

2. ! *H. calycinum*. (L. mant. 106.) *Large-flowered St. John's Wort*. Scotland and Ireland. Most probably the outcast of gardens. Fl. large, yellow. July, Sept. Small shrub. E. B. 2017., H. 336., D. C. i. p. 546.

3. ! *H. quadrangulum*. (L. sp. 1104.) *Square-stalked St. John's Wort*. Sides of ditches, &c. Common. Fl. yellow, with purple dots or streaks. July. Perennial. E. B. 370., H. 337., D. C. i. p. 548.

! β. *dubium*. (Chois. D. C. i. p. 548.) *Imperforate St. John's Wort*. Mountainous woods. Not common. Fl. yellow, with purple dots. July, Aug. Perennial. D. C. l. c. *H. dubium*. (E. B. 296., H. 337.)

4. ! *H. humifusum*. (L. sp. 1103.) *Trailing St. John's Wort*. On gravelly soils. Common. Fl. yellow, with black dots. July. Perennial. E. B. 1226., H. 337., D. C. i. p. 549.

5. ! *H. perforatum*. (L. sp. 1105.) *Common St. John's Wort*. Hedges, &c. Common. Fl. yellow, with a few black dots at the tips. July. Perennial. E. B. 295., H. 337., D. C. i. p. 549.

6. ! *H. elodes*. (L. sp. 1106.) *Marsh St. John's Wort*. Spongy bogs. Wandsworth, &c. Common. Fl. pale yellow. July, Aug. Perennial. E. B. 109., H. 338., D. C. i. p. 551.

7. ! *H. hirsutum*. (L. sp. 1105.) *Hairy St. John's Wort*. Woods, &c., on chalky soil. Common. Fl. yellow. July. Perennial. E. B. 1156., H. 338., D. C. i. p. 551.

8. ! *H. pulchrum*. (L. sp. 1106.) *Small upright St. John's Wort*. Dry woods, heaths, &c. Common. Fl. bright yellow, tipped with scarlet. July. Perennial. E. B. 1227., H. 338., D. C. i. p. 551.

9. ! *H. montanum*. (L. sp. 1105.) *Mountain St. John's Wort*. Bushy hills, in chalky or gravelly soil. Fl. lemon-colour, with dots. July. Perennial. E. B. 371., H. 337., D. C. i. p. 552.

10. *H. barbatum*. (L. amoen. iii. p. 323.) *Bearded St. John's Wort*. Perthshire. Rare. Fl. yellow, with black dots. Sept., Oct. Perennial. E. B. 1986., H. 338., D. C. i. p. 551.

Order XXI. ACERINEÆ. (D. C. prod. i. p. 593.)

Calyx 4—5—9-partite. *Petals* 4—9, inserted around the hypogynous disk, alternate with, and generally of the same colour as, the calyx lobes, rarely wanting. *Stamens* inserted into the hypogynous disk, generally 8, rarely 5—12. *Anthers* oblong. *Ovary* didymous. *Style* 1. *Stigmas* 2. *Fruit* consisting of 2 indehiscent carpels, which separate when ripe, forming a samara, i. e. a 1-celled, 1—2-seeded carpel, compressed at the upper part, and terminating in a diverging membranous wing, thickened at the lower part. *Seeds* oblong, attached to the base of the cell. *Endopleura* subcarnose. *Albumen* none. *Embryo* curved or convolute. *Cotyledons* foliaceous. The *radicle* directed towards the base of the cell. — Trees, with opposite simple leaves.

I. ACER. (L. gen. n. 1155., D. C. prod. i. p. 593.)

Flowers polygamous. *Calyx* 5-lobed, sometimes 5-partite. *Stamens* generally 7—9, rarely 5.

Leaf-lobes acuminate; racemes pendulous	-	1. A. PSEUDO-PLATANUS.
Leaf-lobes obtuse; racemes erect	-	2. A. CAMPESTRE.

1 ! *A. Pseudo-Platanus*. (L. sp. 1496.) *Sycamore*. In hedges and plantations. Cult. Fl. yellowish green. June. Large tree. E. B. 303., H. 179., D. C. i. p. 593.

2. ! *A. campestre*. (L. sp. 1497.) *Common Maple*. Hedges, &c. Common. Fl. pale green. June. Large tree. E. B. 304., H. 179., D. C. i. p. 594.

Order XXII. HIPPOCASTANEÆ. (D. C. prod. i. p. 597.)

Calyx campanulate, 5-lobed. *Petals* 5, or by abortion 4, unequal, hypogynous. *Stamens* 7—8, inserted into the hypogynous disk, free, unequal. *Anthers* subincurved. *Style* 1. *Capsule*, when young, of 3 cells, 3 valves; the cells biovulate; valves septiferous in the middle. *Capsule*, when ripe, coriaceous, subglobose, by abortion 2—3-valved, 2—3-celled, 2—4-seeded. *Seeds* large, subglobose, variously compressed and angled. *Testa* shining, very smooth. *Hilum* broad, basilar part of a lighter colour than the rest of the testa. *Albumen* none. *Embryo* curved, inverted. *Cotyledons* fleshy, very thick, germinating under ground within the spermoderm. *Radicle* conical, curved, directed towards the hilum. — Trees, with opposite, compound, palmate leaves.

I. ÆSCULUS. (L. gen. n. 462., D. C. prod. i. p. 597.)

Calyx campanulate. *Petals* 4—5, expanded; the limb ovate. *Filaments* of stamens recurved inwards. *Capsules* echinate.

1. *Æ. Hippocastanum*. (L. sp. 488.) *Horse-Chesnut*. Flowers of 5 petals and 7 stamens; leaflets 7, obovato-cuneate. Native of the north of India. Fl. white, spotted with red and yellow. In woods, &c. Cult. May. Large tree. D. C. l. c.

Order XXIII. AMPELIDÆ. (Humb., &c., nov. gen. v. p. 223.,
D. C. prod. i. p. 627.)

Calyx small, the margin entire or subdentate. *Petals* 4—5, alternate with the teeth of the calyx, inserted into the outer part of the disk, which surrounds the ovarium (and, therefore, doubtful whether belonging to hypogynous or perigynous plants); broader at the base, rarely united into a monopetalous corolla; inflexed at the apex, and subvalvate in æstivation. *Stamens* as many as the petals, and inserted before them into the disk, sometimes by abortion sterile; the *filaments* free or subcoherent at the base; the *anthers* ovate birimose, oscillating, attached to the filaments by the back. *Ovary* globose, free. *Style* 1, very short, or almost wanting. *Stigma* simple. *Berry* globose, 2-celled, the cells 2-seeded when young; but, when ripe, 1-celled from the disappearance of the dissepiment; watery or subcarnose, not separating from the epicarp. *Seeds* 4—5 (or by abortion none), osseous, erect, fixed to the central axis by a short funiculus. *Albumen* fleshy, hard. *Embryo* erect. *Radicle* inferior, subterete. — Sarmentose climbing shrubs. Leaves stipulate at the base; lower ones opposite, upper ones alternate and opposite to the peduncles. Peduncles sometimes changed into tendrils.

Petals separating from apex to base	-	-	-	1. AMPELOPSIS, clt.
Petals coherent at apex, forming a calyptra separating	}	-	-	2. VITIS, clt.
at the base				

I. AMPELOPSIS. (Michx. fl. bor. am., D. C. i. prod. i. p. 632.)

Calyx nearly entire. *Petals* 5, separating from apex to base. *Stamens* 5. *Style* 1. *Stigma* capitate. *Ovary* not immersed in the disk, 2—4-seeded.

1. *A. hederacea*. (Michx.) *Virginian Creeper*, *Five-leaved Ivy*. Leaves palmate, of 3 or 5 leaflets, smooth; leaflets petiolate, oblong, acuminate, mucronatodentate. Racemes corymbose, dichotomous. Stem climbing, radicans. Leaves turning red in autumn. Native of North America. Cult. to cover walls, &c. Common. Fl. greenish purple. July. Small tree. D. C. i. p. 633. *Hedera quinquefolia*. (L. sp. 292.)

II. VITIS. (L. gen. n. 284., D. C. prod. i. p. 633.)

Calyx sub-5-dentate. *Petals* 5, coherent at the apex in the form of a calyptra, separating at the base, and hence at the same time deciduous. *Stamens* 5. *Style* none. *Berry* 2-celled, 4-seeded. The cells or seeds often abortive.

1. *V. vinifera*. (L. sp. 293.) *Vine*. Leaves lobed, sinuate, dentate, naked, or tomentose. Native of Asia. Cult. against walls, and in green-houses. Very common. June. Climbing shrub. D. C. i. p. 633.

At the Luxembourg garden, Paris, 1400 varieties are cultivated.

For an admirable enumeration of the varieties cultivated in England, and directions for the best mode of cultivation, see the *General System of Gardening and Botany*, by G. Don, vol. i. p. 695.

Order XXIV. GERANIACEÆ. (D. C. prod. i. p. 637.)

Calyx persistent, of 5 more or less unequal sepals, imbricated in æstivation. One of the *sepals* sometimes elongated into a hollow spur, which is closely connected with the peduncle. *Petals* 5, alternate with the sepals, unguiculate, equal or unequal; in the former hypogynous, in the latter generally inserted on, or connected with, the calyx. *Filaments* of stamens generally more or less monadelphous at the base (very rarely free), hypogynous or perigynous, double the number of the petals (occasionally some of them sterile), equal or unequal. *Ovary*, in appearance, 5-celled, terminating in a long thick style, crowned by 5 stigmas; but, in reality, the torus is elongated over the slender subpentagonal axis. *Carpels* 5, submembranous, indehiscent, 1-celled, 2-seeded, adpressed to the base of the torus, having at their apex 5 filiform styles, which are closely adnate to the furrows in the torus, and terminate at the apex in 5 short, simple, acute stigmas; after fecundation, the styles twist up in various modes from base to apex, and thus draw the carpels out from the calyx; and, in a short time, both fall off from the torus. *Seed* in the carpels solitary, pendulous, exalbuminous. *Embryo* curved. *Radicle* deflexed, and turned towards the base of the carpel. *Cotyledons* convoluto-plicate, or flex-

uoso-plicate. — Herbs or small shrubs. Leaves at the lower joints opposite or alternate, the peduncles being then opposite the leaves.

Upper segment of the calyx terminating in a spur, or } 3. PELARGONIUM, clt.
nectariferous tube, adnate to the peduncle - }

Calyx not appendiculated

stamens 10, all fertile; awns of carpels glabrous } 1. GERANIUM.
within - - - - - }

stamens 5-antheriferous, 5-sterile; awns bearded } 2. ERODIUM.

I. GERANIUM. (L. gen. n. 832., D. C. prod. i. p. 639.)

Sepals 5, equal. Petals 5, equal. Stamens 10, all fertile, 5 long, and 5 short, having nectariferous glands at the base of the larger ones. Awn of the carpels smooth internally; when ripe, elastically revolute in a circinate manner from base to apex of the axis. — Herbs, very rarely under shrubs. Leaves palmato-lobate. Peduncles 1—2-flowered.

Peduncle 1-flowered - - - - - 1. G. SANGUINEUM.

Peduncle 2-flowered

seeds smooth

capsule plicate or furrowed

petals entire

calyx transversely striated, tuberculated - 12. G. LUCIDUM.

calyx not striated

lobes of the leaves pinnatifid - - - 13. G. ROBERTIANUM.

lobes of the leaves inciso-dentate - - 3. G. PHÆUM.

petals notched - - - - - 7. G. MOLLE.

capsule neither plicate nor furrowed

petals deeply notched at the summit

stem tetragonal; lower leaves 5-lobed, up- } 2. G. NODOSUM.
per ones 3-lobed, the lobes acuminate - }

stem terete; leaves 5—7-lobed, the lobes
obtusely

perennial; stem erect; petals longer than } 6. G. PYRENAICUM.
the calyx - - - - - }

annual; stem prostrate; petals not longer } 8. G. PUSILLUM.
than the calyx - - - - - }

petals slightly, if at all, notched

filaments of the stamens ciliated; lobes of } 4. G. SYLVATICUM.
the leaves broad, shallow - - - }

filaments glabrous; lobes of the leaves li- } 5. G. PRATENSE.
near and deep - - - - - }

seeds dotted

petals entire; leaves rounded lobed - - - 9. G. ROTUNDIFOLIUM.

petals notched, leaves multifid, segments linear

peduncles longer than the leaves - - - 10. G. COLUMBINUM.

peduncles shorter than the leaves - - - 11. G. DISSECTUM.

1. *G. sanguineum*. (L. sp. 958.) *Bloody Cranesbill*. Alpine or limestone pastures. Fl. reddish purple. July. Perennial. E. B. 272., H. 312., D. C. i. p. 639.

β. *lancastrisense*. Stem stunted, nearly simple. *G. prostratum*. (Lind. 58.)

2. ! *G. nodosum*. (L. sp. 953.) *Knotty Cranesbill*. Cumberland, also between Hatfield and Wellwyn, Herts. Fl. purple, veined. May, Aug. Perennial. E. B. 1091., H. 313., D. C. i. p. 640.

* * *G. striatum* (*Pencil Geranium*), with reticulato-venose petals and glabrous carpels, is commonly cult. in gardens.

3. *G. phæum*. (L. sp. 933.) *Dusky Cranesbill*. Woods and thickets, in the north of England. May, June. Perennial. Fl. dark purplish brown. E. B. 322., H. 313., D. C. i. p. 641.

4. *G. sylvaticum*. (L. sp. 954.) *Wood Cranesbill*. Woods and sides of rivers, in subalpine countries. Fl. purplish blue, with crimson veins. July. Perennial. E. B. 121., H. 313., D. C. i. p. 641.

5. ! *G. pratense*. (L. sp. 954.) *Blue Meadow Cranesbill*. Pastures, in mountainous countries. Battersea Fields. Fl. blue. June, July. Perennial. E. B. 404., H. 313., D. C. i. p. 641.

6. ! *G. pyrenaicum*. (L. mant. 97.) *Mountain Cranesbill*. Meadows, &c. Battersea Fields, &c. June, July. Perennial. Fl. light purple. E. B. 405., H. 313., D. C. i. p. 643.

7. ! *G. molle*. (L. sp. 955.) *Dovesfoot Cranesbill*. Common. Fl. light purple. April, Aug. Annual. E. B. 778., H. 314., D. C. i. p. 643.

8. ! *G. pusillum*. (L. sp. 957.) *Small-flowered Cranesbill*. Waste ground, in gravelly soils. Fl. bluish purple. June, Sept. Annual. E. B. 385., H. 314., D. C. i. p. 643.

β. *humile*. (D. C.) Leaves finely incised. Stem lower. Lind. 57.

9. ! *G. rotundifolium*. (L. sp. 957.) *Round-leaved Cranesbill*. Pastures and waste grounds. Fl. reddish purple. June, July. Annual. E. B. 157., H. 314., D. C. i. p. 643.

10. ! *G. columbinum*. (L. sp. 956.) *Long-stalked Cranesbill*. Dry pastures, in a gravelly or limestone soil. Fl. bluish or rose-coloured. June, July. Annual. E. B. 259., H. 315., D. C. i. p. 643.

11. ! *G. dissectum*. (L. sp. 956.) *Jagged-leaved Cranesbill*. Hedges, &c. Common. Fl. pale crimson. May, June. Annual. E. B. 753., H. 314., D. C. i. p. 643.

12. ! *G. lucidum*. (L. sp. 955.) *Shining Cranesbill*. Rocks, in mountainous countries. Walls in Surrey and Bucks; near Richmond. Fl. bright rose-colour. June, July. Annual. E. B. 75., H. 313., D. C. i. p. 644.

β. *Raii*. (Lind.) Leaves roundish, succulent. Sea shores. South of England. June, July. Annual. Lind. syn. 57.

13. ! *G. Robertianum*. (L. sp. 955.) *Herb Robert*. Ditches, walls, &c. Common. Fl. deep crimson, sometimes white. May, Aug. Annual. E. B. 1486., H. 314., D. C. i. p. 644.

β. *purpureum*. (D. C. l. c.) Petals rather larger than the calyx. E. B. 2648.

II. ERODIUM. (L'Hérit., D. C. prod. i. p. 644.)

Sepals 5, equal. *Petals* 5, regular or irregular. *Stamens* 10. The *filaments* monadelphous at the base, 5-antheriferous; 5-alternate ones sterile. *Glands* 5, at the base of the sterile anthers. *Awns* of the carpels bearded internally, twisted elastically in a spire when ripe.

Peduncle with more than 2 flowers

folioles sessile, deeply cut; stamens simple - - - 1. *E. CICUTARIUM*.

folioles with short petiolules, less deeply cut; perfect } 2. *E. MOSCHATUM*.

stamens toothed at the base, - - - }

Peduncles 2-flowered

leaves simply lobed; flowers small - - - 3. *E. MARITIMUM*.

leaves pinnate; petals longer than the calyx - - - 1. *E. CICUTARIUM*.

1. ! *E. cicutarium*. (Sm.) *Hemlock Storksbill*. Waste ground. Fl. pale red. May, Sept. Annual. E. B. 1768., H. 312., D. C. i. p. 646.

2. *E. moschatum*. (Willd.) *Musky Storksbill*. Mountainous pastures. Fl. rose-coloured. June, July. Annual. E. B. 902., H. 312., D. C. i. p. 647.

3. *E. maritimum*. (Sm.) *Sea Storksbill*. Sandy and gravelly sea coasts. Rare. Fl. pale red. May, Sept. Perennial. E. B. 646., H. 312., D. C. i. p. 648.

III. PELARGONIUM. (L'Hérit., D. C. prod. i. p. 649.)

Calyx 5-partite, the upper segment terminating in a spur, or slender nectariferous tube, running down the peduncle, and adnate to it. *Petals* 5 (rarely 4), more or less irregular. *Stamens* 10, monadelphous, unequal, 4—7 only being fertile, the others sterile. *Beaks*, or *styles*, bearded internally, and spirally contorted, as in *Erodium*.—The numerous species of this genus, with very few exceptions, are from the Cape of Good Hope.

Leaves peltate, fleshy - - - - - 3. *P. PELTATUM*, clt.

Leaves cordate, reniform or orbicular, not fleshy

leaves divided into lobes beyond the middle

younger branches and petioles hispid; umbels many-flowered - - - } 6. *P. QUERCIFOLIUM*, clt.

younger branches and leaves viscid, glabrous; umbels 2—4-flowered - - - } 7. *P. GLUTINOSUM*, clt.

leaves obsoletely lobed or undivided

upper petals short and narrow

leaves marked on the upper surface with a } 1. *P. ZONALE*, clt.

zone, not viscid - - - }

- | | |
|--|----------------------------------|
| leaves not marked with a zone, tomentoso- | } 2. <i>P. INQUINANS</i> , clt. |
| viscid - - - - - | |
| upper petals long and broad | } 4. <i>P. CUCULLATUM</i> , clt. |
| umbels 5-flowered; teeth of the leaves not | |
| cartilaginous - - - - - | } 5. <i>P. SPECIOSUM</i> , clt. |
| umbels many-flowered; teeth of the leaves | |
| cartilaginous - - - - - | |

1. *P. zonale*. (Willd.) *Horseshoe Geranium*. Leaves cordato-orbicular, obsoletely lobed, dentate, marked with a zone on the upper surface. Peduncles many-flowered. Petals wedge-shaped. Native of the Cape of Good Hope. Cult. in the open air in the south of England. Fl. scarlet, varying to white, with a coloured margin. April, Dec. Small shrub. D. C. i. p. 659.

2. *P. inquinans*. (Ait.) *Scarlet Geranium*. Leaves orbiculato-reniform, almost undivided, crenate, tomentoso-viscid. Peduncles many-flowered. Petals obovate, wedge-shaped. Native of the Cape of Good Hope. Cult. Common. Fl. scarlet. May, Sept. Small shrub. D. C. i. p. 659.

3. *P. peltatum*. (Ait.) *Ivy-leaved Geranium*. Stem shrubby. Branches fleshy, angular. Leaves peltate, 5-lobed, very entire, fleshy. Umbels few-flowered. Native of the Cape of Good Hope. Cult. in green-houses. Fl. purple, or variegated. June, Aug. Small shrub. Bot. mag. 20., D. C. i. p. 666.

Note. *P. lateripes*, with terete branches, subdentate leaves, and many-flowered umbels, much resembles *P. peltatum* in general appearance, and is also called *Ivy-leaved Geranium*.

4. *P. cucullatum*. (Ait.) *Hooded-leaved Geranium*. Leaves reniform, cucullate, dentate, pubescent. Branches and peduncles with soft hairs. Umbels 5-flowered; lower petals oblong, nectariferous; tube shorter than the calyx. Native of the Cape of Good Hope. Cult. in green-houses in great variety. Fl. purplish red, with dark or light veins. May, July. Small shrub. D. C. i. p. 671.

5. *P. speciosum*. (Willd.) *Great birch-leaved Geranium*. Leaves suborbiculate, truncated, reniform, acute, dentate; the teeth cartilaginous at the apex. Many-nerved, subpubescent. Branches downy. Stipules cordate, lanceolate, acuminate. Umbels many flowers. Lower petals oblong. Nectariferous tube shorter than the calyx. Native of the Cape of Good Hope. Cult. Fl. Upper petals whitish, in the middle striped with dark purple veins. May, June. Small shrub. D. C. i. p. 672.

6. *P. quercifolium*. (Ait.) *Oak-leaved Geranium*. Leaves cordate pinnatifid; the sinuses rounded; the lobes obtuse, crenate. Younger branches and petioles hispid. Umbels many-flowered. Filaments ascending at the apex, nectariferous. Tube rather longer than the calyx. Native of the Cape of Good Hope. Cult. Common. Fl. purple or rose-coloured. March, August. Small shrub. D. C. i. p. 678.

7. *P. glutinosum*. (Ait.) *Glutinous Geranium*. Leaves cordate, hastate-5-angled, dentate, viscid, glabrous. Umbels 2—4-flowered, nectariferous. Tube rather longer than the calyx. Native of the Cape of Good Hope. Cult. Common. Fl. pink or white, with purple lines. May, June. Small shrub. Bot. mag. 143., D. C. i. p. 679.

Order XXV. TROPÆOLEÆ. (D. C. prod. i. p. 683.)

Calyx 5-partite, coloured; upper segment spurred at the base. *Spur* free, the orifice being turned towards the ovary, outside the stamens. *Lobes* either free, or variously united together. *Petals* 5, inserted on the calyx, and alternate with its lobes, unequal, irregular; 2 upper ones sessile, remote, inserted on the fauces of the spur; 3 lower ones unguiculate, smaller, sometimes abortive. *Stamens* 8; the *filaments* free, inserted on the disk; the *anthers* 2-celled, dehiscing by a double chink. *Carpels* 3, closely united into a single 3-cornered ovary. *Styles* 3, united into one. *Stigmas* 3. *Carpels* 3, 1-celled, 1-seeded. *Seeds* large, exalbuminous. *Embryo* large. *Cotyledons* straight, distinct when young, but afterwards closely coherent, and also adherent to the spermoderm; subdistinct at the base. *Radicle* hidden between the processes of the cotyledons, with 4 tubercles, from whence the little roots shoot out.—Herbs, with alternate petiole leaves, without stipules.

I. TROPÆOLUM. (L. gen. n. 466., D. C. prod. i. p. 683.)

Calyx 5-partite, the upper lobe spurred. *Petals* 5, unequal, the three lower ones small, or wanting. *Stamens* 8, free. *Carpels* 3, suberose, reniform, indehiscent, furrowed, rounded.

1. *T. majus*. (L. sp. 490.) *Garden Nasturtium*. Leaves peltinerved, orbicular, sub-5-lobed, the nerves not exsert at the apex. *Petals* obtuse. Native of Peru. Cult. Very common. Fl. deep orange-coloured. July, August. Annual. Bot. mag. 23., D. C. i. p. 683.

Order XXVI. BALSAMINEÆ. (A. Richard, D. C. prod. i. p. 685.)

Calyx 2-sepaled; the sepals small, deciduous, opposite, often mucronate; imbricate in æstivation. *Petals* 4, hypogynous, cruciate; 2 outer ones alternate with the sepals, and callous at the apex; upper one arched, emarginate; lower entire, prolonged at the base into a spur; the 2 inner ones alternate, with the former, more petaloid, equal, often bifid or appendiculated. *Stamens* 5, hypogynous. The *filaments* short, thickened at the apex. *Anthers* subconnate; the 3 lower stamens opposite the petals, with bilocular anthers; the 2 upper opposite the upper petal, with 1- or 2-celled anthers. *Anthers* dehiscing by a longitudinal chink. *Ovary* 1. *Style* none. *Stigmas* 5, or united into a single, sessile, short stigma. *Capsule* of 5 valves, dehiscing elastically. *Placenta* central, 5-angular, the membranous angles extending into the valvular suture, and therefore the young capsule is 5-celled. *Seeds* pendulous, numerous in each cell, exalbuminous. *Embryo* straight. *Radicle* superior. — Tender herbs, with exstipulate penninerved leaves.

Anthers all bilocular, stigmas distinct - - - 1. BALSAMINA, clt.
Anthers, 3 bilocular, 2 unilocular; stigmas united - - - 2. IMPATIENS.

I. BALSAMINA. (Riv.) D. C. prod. i. p. 685.

Anthers 5, bilocular. *Stigmas* 5, distinct. *Capsule* ovate. *Valves* curling elastically inwards, at maturity. *Cotyledons* thick.

1. *B. hortensis*. (Desp.) *Balsam*. Pedicels aggregate. Leaves lanceolate; the upper ones alternate. Spurs shorter than the flowers. Native of India. Cult. in gardens. Common. Fl. red, white, purple, or variegated. July, Sept. Annual. D. C. i. p. 685. *Impatiens Balsamina*. (L. sp. 1328.)

II. IMPATIENS. (L. gen. n. 1003., D. C. prod. i. p. 687.)

Anthers 5; of which 3 are bilocular, while the two in front of the upper petal are 1-celled. *Stigmas* 5, united. *Capsule* prismatic, elongated. *Valves* elastically dehiscing from base to apex, and spirally twisted. *Cotyledons* rather flat.

1. ! *T. Noli-tangere*. (L. sp. 1328.) *Yellow Balsam*. Moist woods, Yorkshire; Guildford, Surrey. Rare. Fl. yellow, spotted with red. July, Aug. Annual. E. B. 937., H. 120., D. C. i. p. 687.

Order XXVII. OXALIDEÆ. (D. C. prod. i. p. 689.)

Calyx 5-sepaled, or 5-partite, persistent, equal. *Petals* 5, hypogynous, equal, sometimes coherent at the base, spirally contorted in æstivation. *Stamens* 10; the *filaments* generally monadelphous at the base; 5 exterior opposite to the sepals, short; the 5 interior opposite to the petals, longer. *Anthers* 2-celled, not adnate. *Ovary* free, of 5 cells. *Styles* 5. *Stigmas* penicilliform, capitate, or subbifid. *Capsule* membranaceous, 5-celled; 5—10-valved, longitudinally dehiscing at the angles. *Seeds* few, attached to the axis; whilst young, enclosed within a fleshy arillus, which at maturity dehiscs elastically, and projects the seed. *Albumen* cartilagineo-fleshy. *Embryo* inverse, with a long superior radicle. — Herbs, with alternate (rarely opposite) leaves.

I. OXALIS. (L. gen. n. 582., D. C. prod. i. p. 690.)

Calyx 5-sepalous; the sepals free or united at the base. *Petals* 5. *Stamens* 10. *Filaments* slightly monadelphous at the base. *Capsule* pentagonal oblong or cylindrical.

Flowers white, with purplish veins - - - 2. O. ACETOSELLA.
Flowers yellow - - - - - 1. O. CORNICULATA.

1. *O. corniculata*. (L. sp. 624.) *Yellow procumbent Wood Sorrel*. Shady waste ground. Devon, Sussex. May, Aug. Annual. E. B. 1726., H. 214., D. C. i. p. 692.

2. *O. Acetosella*. (L. sp. 620.) *Common Wood Sorrel*. Woods, &c. Common. May, June. Perennial. E. B. 762., H. 214., D. C. i. p. 700.

Order XXVIII. RUTACEÆ. (Juss., D. C. prod. i. p. 709.)

Calyx 3—5-sepaled; the sepals more or less united together; and thus the calyx is either dentate, cleft, or partite. *Petals* (very rarely none) generally as many as the sepals, often unguiculate, distinct. *Disk* carnosoglandular, surrounding the ovary, arising from the receptacle external to the petals, and bearing the stamens on the upper part. *Stamens* generally double the number of the petals, all fertile, or the alternate ones barren. *Carpels* as many as the sepals (sometimes by abortion fewer), either distinct or united at the base, or perfectly connate. *Style* arising from the centre of the ovary, single, divided into as many stigmas as there are ovaries. *Carpels*, when ripe, generally distinct, 1-celled, dehiscent, bivalved, cocculose within. *Seeds* affixed to the inner angle, inverse. *Embryo* straight, compressed. *Radicle* superior. — Herbs or shrubs, with opposite or alternate stipulate leaves.

Calyx persistent, fruit subglobose - - - - - 1. RUTA, clt.

Calyx deciduous; capsule of 5 carpels, slightly united at }
their inner angle - - - - - } 2. DICTAMNUS, clt.

I. RUTA. (Tournef., L. gen. n. 523., D. C. prod. i. p. 709.)

Calyx persistent, 4-partite, rarely 3—5-partite. *Petals* as many, unguiculate, subcochleate. *Stamens* double the number of the petals. Nectariferous pores at the base of the ovary as many as the stamens. *Ovary* placed on a short thick stalk. *Capsule* subglobose, divided into as many cells as there are petals. *Albumen* fleshy. *Embryo* arcuate.

1. *R. graveolens*. (L. sp. 548.) *Garden Rue*. Leaves much divided. Lobes oblong; terminal one obovate. *Petals* entire or subdentate. Native of the south of Europe. Cult. in gardens. Common. Fl. yellow. June, July. Perennial. D. C. i. p. 710.

II. DICTAMNUS. (L. gen. 522., D. C. prod. i. p. 712.)

Calyx deciduous, 5-partite. *Petals* 5, slightly unequal. *Stamens* 10, bent outwards. *Filaments* glanduloso-tubercular at the apex. *Stigma* simple. *Capsule* consisting of 5-compressed carpels united internally. *Cells* 2-seeded.

1. *D. Fraxinella*. (Pers. ench. i. p. 464.) *Fraxinelle*. Cult. in gardens. June, July. Perennial. Flowers purple or white; the latter the *D. albus*. of L. sp. 548., D. C. i. p. 712.

Subclass II. CALYCIFLORÆ.

Calyx gamosepalous; the sepals being more or less united at the base. *Torus* more or less adnate to the base of the calyx. *Petals* and *stamens* inserted on that part of the torus which is adnate to the calyx, and, therefore, commonly said to arise from the calyx. *Petals* free or united together. *Ovary* free or adnate to the calyx.

Order XXIX. CELASTRINEÆ. (R. Br., D. C. prod. ii. p. 2.)

Sepals 4—5, coherent at the base, not adherent to the ovary; imbricated in æstivation. *Petals* as many as the sepals, and alternate with them; very rarely wanting. *Stamens* as many as the sepals, alternate with the petals, and, therefore, opposite the sepals; ambiguously perigynous in their insertion. *Anthers* 2-celled. *Ovary* free, surrounded by a fleshy disk, 2—3—4-celled. *Cells* 1- or many-seeded. *Ovules* erect, rarely pendulous. *Style* 1, or none. *Stigma* 2—4-fid. *Pericarp* capsular, baccate, drupaceous, or samaroideous; various in form, and often deformed by the abortion of the cells. *Seeds*, in many, especially in the capsular ones, with an arillus. *Albumen* none, or fleshy. *Embryo* straight in the axis of the seed. — Shrubs or trees, often with stipulated, alternate, or opposite leaves.

Leaves pinnate	-	-	-	-	1. STAPHYLEA.
Leaves simple	∴	-	-	-	
leaves prickly	-	-	-	-	3. ILEX.
leaves not prickly	-	-	-	-	2. EUONYMUS.

Tribe I. STAPHYLEACEÆ. (D. C. l. c.)

Seeds osseous, truncated at the hilum, without an arillus. *Albumen* none, or thin. *Cotyledons* thick. — Leaves compound.

I. STAPHYLEA. (L. gen. n. 374., D. C. l. c.)

Calyx 5-partite, covered at the base by an urceolate disk; the lobes oblong, concave, coloured. *Petals* 5, alternate with the sepals. *Stamens* 5, alternate with the petals. *Ovary* 2—3-lobed. *Capsule* 2—3-celled; the cells membranous, dehiscent, few-seeded.

1. *S. pinnata*. (L. sp. 386.) *Bladder Nut*. Thickets and hedges, Yorkshire. Doubtful native. Cult. in shrubberies. Fl. white. June. Tree. E. B. 1560., H. 147., D. C. ii. p. 3.

Tribe II. EUONYMEÆ. (D. C. prod. ii. p. 3.)

Seeds with an arillus, not truncated at the hilum. *Embryo* erect in the axis of a fleshy albumen. *Cotyledons* foliaceous. — Leaves simple.

II. EUONYMUS. (L. gen. 271., D. C. l. c.)

Calyx 4—6-lobed, flat, covered at the base by a peltate disk. *Petals* 4—6, patent, inserted into the disk. *Stamens* 4—6, inserted into glands, which project above the disk, alternate with the petals. *Style* 1. *Capsule* 3—5-celled, 3—5-angular; the valves septiferous in the middle. *Seeds* 1—4 in each cell. *Embryo* green.

1. ! *E. europæus*. (L. sp. 286.) *Spindle Tree*. Hedges, &c., especially in chalky soil. Common. Fl. greenish white. May. Large shrub. E. B. 362. H. 119., D. C. ii. p. 4.

Tribe III. AQUIFOLIACEÆ. (D. C. prod. ii. p. 11.)

Petals broader at the base, sometimes coherent. *Fruit* indehiscent. *Embryo* straight in the axis of a fleshy albumen. — Leaves simple.

III. ILEX. (L. gen. n. 172., D. C. prod. ii. p. 13.)

Calyx 4—5, dentate, persistent. *Petals* 4—5, alternate with the sepals, free or united at the base into a rotate corolla. *Stamens* 4—5, alternate with the petals, hypogynous. *Ovary* sessile, 4-celled, crowned by the 4—5 subsessile stigmas, which are distinct or coherent. *Berry* with 4—5 stony seeds (pyrena), which are 1-seeded, oblong, and umbilicated at the apex.

1. ! *I. Aquifolium*. (L. sp. 181.) *Common Holly*. Hedges and woods, in a gravelly soil. Fl. white. May, June. Large shrub. E. B. 496., H. 74., D. C. ii. p. 13.

β. *echinatum*. (Mill. dict.) Commonly cultivated, as are also many varieties depending on variegation of the leaves.

Order XXX. RHAMNEÆ. (R. Brown, D. C. prod. ii. p. 19.)

Tube of *calyx* adherent to the ovary. *Lobes* valvate in æstivation, definite in number, 4—5. *Petals* as many as, and alternate with, the lobes of the calyx; often squamiform, with a concave limb. *Stamens* as many as the petals, and opposite to them. *Anthers* 2-celled. *Ovary* either entirely or partially united to the calyx, 2—4-celled, the cells with 1 ovule. *Style* 1. *Stigmas* 2—4. *Pericarp* generally indehiscent, baccate, drupaceous or samaroidous, rarely capsular. *Seeds* erect, without an arillus. *Albumen* none, or generally fleshy. *Embryo* straight in the axis of the seed; the radicle inferior. — Shrubs or small trees, with simple opposite (rarely alternate) leaves; often with stipules.

I. RHAMNUS. (L. gen. n. 265., D. C. prod. ii. p. 23.)

Calyx 4—5-fid; the upper part often separating from the tube after flowering; the lower part persistent, and adherent to the fruit. *Petals* alternate with

the lobes of the calyx, or none. *Stamens* inserted opposite the petals. *Style* 2—4-fid. *Fruit* baccate, sometimes almost dry, 2—4-celled. *Cells* in the dry fruit separable, 1-seeded, opening inwards by a longitudinal chink. *Seeds* oblong, marked on the outer side by a deep furrow, which is broader towards the base.

- | | | | | |
|--|---|---|---|-----------------------|
| Older branches terminating in spines | - | - | - | 2. R. CATHARTICUS. |
| Older branches not terminating in spines | | | | |
| leaves persistent (evergreen) serrated | - | - | - | 1. R. ALATERNUS, clt. |
| leaves deciduous, entire | - | - | - | 3. R. FRANGULA. |

1. *R. Alaternus*. (L. sp. 281.) *Alaternus*. Leaves ovate, elliptico-lanceolate, coriaceous, very glabrous, serrated. Flowers diœcious, racemose, with short peduncles. Native of the south of Europe. Cult. in shrubberies. Very common. Fl. greenish. April, June. Large shrub. D. C. ii. p. 23.

Note. Loudon enumerates 9 varieties of this species as cultivated in England.

2. ! *R. catharticus*. (L. sp. 280.) *Common Buckthorn*. Hedges and thickets. Common. Fl. yellowish green. June. Large shrub. E. B. 1629., H. 119., D. C. ii. p. 24.

3. ! *R. Frangula*. (L. sp. 280.) *Berry-bearing Alder*. Woods and thickets. Fl. greenish. May. Large shrub. E. B. 250., H. 119., D. C. ii. p. 26.

Order XXXI. TEREBINTHACEÆ. (Juss., D. C. prod. ii. p. 61.)

Flowers hermaphrodite, polygamous or diœcious. *Sepals* 3—5, more or less united, imbricated in æstivation; very rarely adherent to the ovary. *Petals* generally distinct, as many as, and alternate with, the sepals; imbricated or valvate in æstivation (very rarely united at the base, or wanting). *Stamens* arising, as well as the petals, from the lower part of the calyx, or from the calycine disk, rarely from the torus surrounding the ovary; double the number of the petals, or equal in number, and alternate with them. *Carpels*, in some, numerous, distinct, monostylous; in others coherent into ovaries: in either case many are abortive, and hence the carpels are (by abortion) solitary and 1-celled; but in these the number of styles or stigmas often indicates the abortions. *Fruit* capsular or drupaceous. *Seed* generally solitary and exalbuminous. *Embryo* straight, curved, arched, or replicate. *Radicle* generally superior. — Trees or shrubs. Leaves alternate, without stipules. Flowers small.

Tribe I. SUMACHINEÆ. (D. C. prod. ii. p. 66.)

Petals and *stamens* inserted on the calycine disk, or on the calyx. *Ovary* 1, unilocular, 1-ovuled. *Seed* exalbuminous, pendulous, supported by a funiculus arising from the base of the ovary. *Cotyledons* foliaceous; the *radicle* inflexed over their commissure.

I. RHUS. (L. gen. n. 369., D. C. prod. ii. p. 66.)

Calyx small, 5-partite, persistent. *Petals* 5, ovate, patent. *Stamens* 5. *Ovary* 1, subglobose. *Styles* 3, short; or *stigmas* 3, sessile. *Fruit* an almost dry drupe, 1-celled, with an osseous 1—3-seeded nut.

- | | | | | | |
|----------------------|---|---|---|---|----------------------|
| Leaves simple | - | - | - | - | 1. R. COTINUS, clt. |
| Leaves imparipinnate | - | - | - | - | 2. R. CORIARIA, clt. |

1. *R. Cotinus*. (L. sp. 383.) *Venus Sumach*. Leaves obovate. Flowers generally abortive; the pedicels elongated into hairy tails. Native of the south of Europe. Cult. in shrubberies. Common. Fl. Autumn shrub. D. C. ii. p. 67.

2. *R. Coriaria*. (L. sp. 379.) *Common Elm-leaved Sumach*. Leaves imparipinnate, with 5—7 pairs, villous. Flowers paniculated. Drupe ovato-rotund, villous. Native of the south of Europe. Cult. in shrubberies. Fl. whitish green. July, Aug. Large shrub. D. C. ii. 67.

Order XXXII. LEGUMINOSÆ. (Juss., D. C. prod. ii. p. 93.)

Calyx of 5 (rarely 4) sepals, more or less united at the base; and, therefore, 5-dentate, 5-fid, or 5-partite. *Sepals* generally unequal; sometimes subequally coherent, sometimes concreted into 2 lips; the upper consisting of 2 sepals,

which are either free at the apex, or entirely united; the lower of 3 sepals generally distinct at the apex. *Petals* 5, or (by abortion) 4—3—2—1, or none; generally unequal, inserted into the base of the calyx (seldom on the torus); generally imbricated in æstivation (rarely valved), almost always free (sometimes united into a gamopetalous corolla). *Stamens* inserted with the petals, generally double their number (seldom 3 or 4 times the number, or fewer); the filaments free, variously united, being either monadelphous, with the tube entire or cleft, open above; or diadelphous, 9 and 1, or 5 and 5; very rarely triadelphous. *Anthers* 2-celled. *Carpel* generally 1, the others being abortive. *Ovary* sessile or stipitate, free. *Style* 1, filiform, arising from the upper suture. *Stigma* terminal or lateral. *Legume* 2-valved, membranous, coriaceous, dehiscent or indehiscent, 1-celled; or, by the folding in of one of the sutures, longitudinally 2-celled; or, by transverse membranes or articulations, many-celled. *Seeds* 1, 2, or more, affixed to the upper suture, inserted alternately into each valve, generally oval or reniform. *Funiculus* various, seldom expanded into an arillus. *Testa* smooth. *Endopleura* often tumid, resembling an albumen. *Embryo* sometimes straight; at other times bent over the commissure of the lobes (homotropous or pleurorhizæous), in either case directed towards the hilum. *Cotyledons* foliaceous or fleshy; the first exsert, the latter germinating within the spermoderm, under ground. — Trees, shrubs, or herbs, with alternate, bistipulate, simple, or variously compound petiolated leaves.

Legumes divided transversely into monospermous cells or articulations

flowers in racemes

- | | | | | |
|---|---|---|---|---------------------|
| legume sessile, with 1 joint | - | - | - | 22. ONOBRYCHIS. |
| legume consisting of many 1-seeded joints | - | - | - | 21. HEDYSARUM, clt. |

flowers in umbels

- | | | | | |
|---|---|---|---|------------------|
| calyx 5-fid, legume with one margin plane and the other with semicircular excavations | - | - | - | 20. HIPPOCREPIS. |
|---|---|---|---|------------------|

calyx 5-dentate, joints with parallel margins

- | | | | | |
|-------------------|---|---|---|---------------------|
| calyx campanulate | - | - | - | 18. CORONILLA, clt. |
| calyx tubular | - | : | - | 19. ORNITHOPUS. |

Legume continuous

calyx bilabiate

stamens diadelphous

- | | | | | |
|----------------|---|---|---|-----------------------|
| keel contorted | - | - | - | 29. PHASEOLUS, clt. |
| keel straight | - | - | - | 12. GLYCYRRHIZA, clt. |

stamens monadelphous

leaves simple, or palmato-trifoliate

- | | | | | |
|---------------------------------------|---|---|---|----------|
| legume scarcely longer than the calyx | - | - | - | 1. ULEX. |
|---------------------------------------|---|---|---|----------|

legume longer than the calyx

- | | | | | |
|---------------------------------------|---|---|---|-------------------|
| calyx spathaceous, vexillum subrotund | - | - | - | 2. SPARTIUM, clt. |
|---------------------------------------|---|---|---|-------------------|

calyx not spathaceous, vexillum oval

- | | | | | |
|--|---|---|---|-------------|
| upper lip of calyx bipartite, the keel not entirely covering the stamens and pistils | - | - | - | 3. GENISTA. |
|--|---|---|---|-------------|

- | | | | | |
|---|---|---|---|-------------|
| upper lip of calyx generally entire, keel enclosing the stamens and pistils | - | - | - | 4. CYTISUS. |
|---|---|---|---|-------------|

- | | | | | |
|---------------------|---|---|---|-------------------|
| leaves 5—9-digitate | - | - | - | 30. LUPINUS, clt. |
|---------------------|---|---|---|-------------------|

calyx equal

stamens monadelphous

- | | | | | |
|-------------|---|---|---|------------|
| calyx 5-fid | - | - | - | 5. ONONIS. |
|-------------|---|---|---|------------|

calyx 5-dentate

- | | | | | |
|-------------------|---|---|---|-------------------|
| calyx cleft above | - | - | - | 2. SPARTIUM, clt. |
|-------------------|---|---|---|-------------------|

- | | | | | |
|-----------------|---|---|---|---------------|
| calyx not cleft | - | - | - | 6. ANTHYLLIS. |
|-----------------|---|---|---|---------------|

stamens diadelphous

calyx 5-fid

- | | | | | |
|---------------------------------------|---|---|---|--------------|
| legume falcate, or spirally contorted | - | - | - | 7. MEDICAGO. |
|---------------------------------------|---|---|---|--------------|

legume straight, or, at least, neither falcate nor spiral

- | | | | | |
|----------------------------------|---|---|---|---------------|
| legume not longer than the calyx | - | - | - | 10. TRIFOLIUM |
|----------------------------------|---|---|---|---------------|

legume decidedly longer than the calyx

- | | | | | |
|---------------------------|---|---|---|----------------|
| legume turgid or inflated | - | - | - | 23. FABA, clt. |
| leaves thick | - | - | - | |

- leaves not thick
 segments of calyx foliaceous, the } 26. PISUM.
 upper short - - - - - }
 segments equal, not foliaceous - 25. ERVUM.
 legume cylindrical or compressed, not
 turgid
 leaves trifoliate
 calyx campanulate, keel shorter than } 8. TRIGONELLA.
 the wings - - - - - }
 calyx tubular, keel about the length } 11. LOTUS.
 of the wings - - - - - }
 leaves pinnate
 segments of the calyx foliaceous - 26. PISUM.
 segments of the calyx not foliaceous
 style forming nearly a right angle } 24. VICIA.
 with the ovary - - - - - }
 style in a continuous line with the
 ovary
 style compressed, dilated at the } 27. LATHYRUS.
 apex, villous in front - - - }
 style slender, linear, and not di- } 28. OROBUS.
 lated, villous at the apex - - }
 calyx 5-dentate
 shrubs or trees
 legume compressed - - - - - 13. ROBINIA, clt.
 legume inflated - - - - - 14. COLUTEA, clt.
 herbs
 leaves trifoliate - - - - - 9. MELILOTUS.
 leaves pinnate, in 2 or many pairs
 legume 1-celled
 legume subturgid - - - - - 15. PHACA.
 legume compressed or cylindrical - 24. VICIA.
 legume 2-celled or semibilocular
 keel obtuse - - - - - 17. ASTRAGALUS.
 keel terminating in a sharp point - 16. OXYTROPIS.

Suborder *Papilionaceæ*. (L. nat. ord. 32., D. C. prod. ii. p. 94.)

Embryo homotropous or pleurorhizæous, i. e. with the radicle lying over the commissure of the lobes. *Sepals* imbricate or subvalvate in æstivation. *Petals* forming a papilionaceous corolla, and therefore always irregular. *Stamens* inserted into the base of the calyx, or perigynous.

Tribe I. *LOTÆ*. (D. C. prod. ii. p. 115.)

Embryo homotropous. *Stamens* monadelphous or diadelphous (9—1). *Legume* continuous, 1-celled, or rarely, by the folding in of one of the sutures, 2-celled. *Cotyledons* flat, changing by germination into leaves with stomats.

Subtribe I. *GENISTEÆ*. (D. C. prod. ii. p. 115.)

Legumes 1-celled. *Stamens* generally monadelphous. *Leaves* simple or palmato-trifoliate, rarely pinnate. *Stem* generally fruticose.

I. *ULEX*. (L. gen. n. 881., D. C. prod. ii. p. 144.)

Calyx bibracteolate, bipartite; lower part tridentate, the upper bidentate. *Stamens* monadelphous. *Legume* oval-oblong, scarcely longer than the calyx, with many ovules, but few seeds. — Shrubs, much branched.

Teeth of the calyx connivent, bractæas lax - - - 1. *U. EUROPEUS*.
 Teeth of the calyx spreading, bractæas adpressed - - - 2. *U. NANUS*.

1. ! *U. europæus*. (L. sp. 1045.) *Common Furze*. Heathy places. Common. Fl. yellow. Feb., Nov. Shrub. E. B. 742., H. 321., D. C. ii. p. 144.
 β. *strictus*. (Mackay.) Branches upright, soft, and succulent. — Irish furze.
 2. ! *U. nanus*. (Forster.) *Dwarf Furze*. Dry heaths. Fl. yellow. Autumn. Small shrub. E. B. 743., H. 321., D. C. ii. p. 144.

II. *SPARTIUM*. (L. gen. n. 858., D. C. prod. ii. p. 145.)

Calyx membranous, spathaceous, cleft above, 5-dentate at the apex, sub

bilabiate. *Vexillum* of the corolla subrotund, somewhat folded. *Carina* acuminate, but slightly agglutinated, the petals being easily separable. *Stamens* monadelphous. *Legume* compressed, many-seeded, without glands.

1. *S. junceum*. (L. sp. 995.) *Spanish Broom*. Glabrous. Leaves few, lanceolate. Flowers in terminal racemes. Native of the south of Europe. Cult. in shrubberies. Fl. yellow. July, Sept. Shrub. Bot. mag. 85., D. C. ii. p. 145.

III. GENISTA. (L. gen. n. 859., D. C. prod. ii. p. 145.)

Calyx bilabiate; the upper lip bipartite, the lower one 3-dentate; or 5-lobed, the 3 lower lobes being united almost to the apex. *Vexillum* oblong-oval. *Keel* oblong, straight, not altogether enclosing the stamens and pistil. *Stamens* monadelphous. *Legume* plano-compressed, or rarely subtergoid, many-seeded (rarely few-seeded,) without glands. — Small shrubs.

Plant spinous - - - - - 1. *G. ANGLICA*.

Plant not spinous

leaves silky beneath, legumes downy - - - 3. *G. PILOSA*.

leaves and legumes glabrous - - - 2. *G. TINCTORIA*.

1. ! *G. anglica*. (L. sp. 999.) *Needle Greenweed*. Moist heaths, &c. Common. Fl. yellow. June. Small shrub. E. B. 132., H. 322., D. C. ii. p. 149.

2. ! *G. tinctoria*. (L. sp. 998.) *Dyers' Greenweed*. Pastures and thickets. Fl. yellow. July. Small shrub. E. B. 44., H. 321., D. C. ii. p. 151.

3. *G. pilosa*. (L. sp. 999.) *Hairy Greenweed*. Near Bury, Suffolk; and Land's End. Fl. yellow. May. Small shrub. E. B. 208., H. 321., D. C. ii. p. 152.

IV. CYTISUS. (L. gen. n. 877., D. C. prod. ii. p. 153.)

Calyx bilabiate; the upper lip generally entire, the lower subtridentate. *Vexillum* ovate, large. *Keel* obtuse, enclosing the stamens and pistil. *Stamens* monadelphous. *Legume* plano-compressed, many-seeded, without glands. — Shrubs.

Flowers white - - - - - 1. *C. ALBUS*, clt.

Flowers yellow

branches angular; flowers solitary - - - 3. *C. SCOPARIUS*,¹

branches terete; flowers in pendulous racemes - 2. *C. LABURNUM*, clt

1. *C. albus*. (Link.) *Portugal Broom*. Branches terete, in twigs. Leaves simple and trifoliate, sessile; the folioles linear, oblong, silky. Flowers fasciculated, disposed in long racemes. Legumes 2-seeded, very villous. Native of Portugal. Cult. in pleasure-grounds. Fl. white. May. Shrub. D. C. ii. p. 153. Spart. multfl. (Ait.)

2. *C. Laburnum*. (L. sp. 1041.) *Laburnum*. Branches terete, whitish. Leaves petiolate. Leaflets ovato-lanceolate, pubescent on the under surface. Branches pendulous, simple. Pedicel and calyx pubescent with closely adpressed hairs. Legumes linear, many-seeded, with adpressed pubescence. Native of the lower range of Alps. Cult. very commonly in pleasure-grounds. Fl. yellow. May, June. Tree. Bot. mag. 176., D. C. ii. p. 153.

Note. *C. alpinus* much resembles the Laburnum, but is distinguished by its glabrous calyx, and glabrous and few-seeded legume. It is generally a fortnight or three weeks later in blossoming.

3. ! *C. scoparius*. (Link. enum.) *Common Broom*. Dry hills. Common. Fl. yellow. June. Shrub. H. 322., D. C. ii. p. 154. Spart. scop. (L. sp. 996., E. B. 1339.)

Many other species of *Cytisus* are cultivated; of these one of the handsomest is *C. purpureus*, easily distinguished by its purple flowers. — A trailing plant, but generally grafted on an upright stem of the common Laburnum, for better effect.

V. ONONIS. (L. gen. n. 863., D. C. prod. ii. p. 158.)

Calyx campanulate, 5-fid, with the segments linear. *Vexillum* large, striated. *Stamens* monadelphous (the tenth sometimes nearly free). *Legume* generally tergoid, sessile, few-seeded.

Plant spinous; lobes of the calyx shorter than the } 2. *O. SPINOSA*.¹
legume - - - - - }

Not spinous; lobes of the calyx longer than the le- } 1. *O. PROCURRENS*.
gume - - - - - }

1. ! *O. procurrens*. (Wallr.) *Trailing Rest-Harrow*. In sandy fields. Fl. purple or white. June, July. Small shrub. D. C. ii. p. 162. *O. arvensis*. (E. B. 2659., H. 322.)

β. *repens*. (D. C.) Branches and leaves very hirsute. Folioles very obtuse. *O. repens*. On sea shores.

2. ! *O. spinosa*. (Wallr.) *Spinous Rest-Harrow*. On dry heaths, &c. Common. Fl. red or white. June, July. Small shrub. E. B. 682., D. C. ii. p. 163., H. 322.

β. ! *glabra*. Folioles oblong. Branches glabrous. *O. antiquorum*. (Lin. Benth.)

VI. ANTHYLLIS. (L. gen. n. 864., D. C. prod. ii. p. 168.)

Calyx tubular, 5-dentate, more or less inflated, persistent. *Wings* of equal length with the keel and vexillum. *Stamens* all coherent. *Legume* ovate, 1-2-seeded (rarely oblong, linear, many-seeded), always enclosed in the calyx.

1. ! *A. Vulneraria*. (L. sp. 1012.) *Woundwort*. Dry pastures, &c. Common. Fl. yellow or reddish. May, Aug. Perennial. E. B. 104., H. 322., D. C. ii. p. 170.

Subtribe II. TRIFOLIÆ. (D. C. prod. ii. p. 171.)

Legume 1-celled. *Stamens* diadelphous — Stem herbaceous, rarely frutescent. Leaves, in general, palmate, 3-5-foliate, rarely imparipinnate.

VII. MEDICAGO. (L. gen. n. 1214., D. C. prod. ii. p. 171.)

Calyx subcylindrical, 5-fid. *Carina* subremote from the vexillum. *Stamens* diadelphous. *Legume* many-seeded, either falcate or twisted into a spire.

Legumes falcate or reniform, of not more than one complete convolution

flowers purple - - - - - 3. *M. SATIVA*.

flowers yellow

legumes reniform, reticulated; seeds ovato-sub- } 1. *M. LUPULINA*.

reniform - - - - - }

legumes falcate, glabrous; seeds oblong - - - 2. *M. FALCATA*.

Legumes cochleato-orbiculate; the spire of 2 or many convolutions

spire flat, generally of 2 convolutions - - - 4. *M. DENTICULATA*.

spire of 3 or more convolutions

leaves glabrous, spotted - - - - - 6. *M. MACULATA*.

leaves downy, not spotted

legumes globose, villous - - - - - 5. *M. MINIMA*.

legumes cochleato-ovate, glabrous - - - - - 7. *M. MURICATA*.

1. ! *M. lupulina*. (L. sp. 1097.) *Black Medick, or Nonsuch*. Waste ground; and cult. in fields. Common. Fl. small, yellow. May, Aug. Annual. E. B. 971., H. 335., D. C. ii. p. 172.

2. ! *M. falcata*. (L. sp. 1096.) *Yellow Sickle Medick*. Pastures and borders of fields. Fl. yellow. June, July. Perennial. E. B. 1016., H. 334., D. C. ii. p. 172.

3. ! *M. sativa*. (L. sp. 1096.) *Lucerne*. On chalky soils. Scarcely native. Fl. purple. June, July. Perennial. E. B. 1749., H. 334., D. C. ii. p. 173.

4. *M. denticulata*. (Willd.) *Reticulated Medick*. On south and east coast. Fl. yellow. April, June. Annual. E. B. 2634., H. 336., D. C. ii. p. 176.

5. ! *M. minima*. (Lamarck.) *Little Bur Medick*. Sandy fields. Norfolk and Suffolk. Near Pegwell, Isle of Thanet. Fl. yellow. June, July. Annual. E. B. 2635., H. 335., D. C. ii. p. 178.

β. *canescens*. (D. C.) Stem and leaves hoary. Pegwell Bay.

6. ! *M. maculata*. (Sibth.) *Spotted Medick*. Gravelly pastures, &c. Fl. yellow. May, June. Annual. E. B. 1616., H. 335., D. C. ii. p. 179.

7. *M. muricata*. (Allion.) *Flat-toothed Medick*. On the sea bank, Orford Suffolk, in the time of Ray. Fl. yellow. June, July. Perennial. H. 3353. D. C. ii. p. 180.

VIII. TRIGONELLA. (L. gen. n. 1213., D. C. prod. ii. p. 181.)

Calyx campanulate, 5-fid. *Keel* very small; the *wings* and *vexillum* subpersistent, giving the flower the appearance of having a tripetalous corolla. *Legume* oblong, compressed, or cylindrical, acuminate, rather erect, many-seeded.

1. ! *T. ornithopodioides*. (D. C.) *Birdsfoot Trigonella*. Dry sandy pastures, especially near the sea. Fl. red. June, July. Annual. D. C. ii. p. 184. Trif. ornithop. (L. sp. 1078., E. B. 1047., H. 329.)

IX. MELILOTUS. (Tournef., D. C. prod. ii. p. 186.)

Calyx tubular, 5-dentate. *Keel* simple. *Wings* shorter than the vexillum. *Legume* longer than the calyx, coriaceous, 1- or few-seeded, scarcely dehiscent. — Leaves pinnato-trifoliate.

Flowers yellow - - - - - 1. *M. OFFICINALIS*.
Flowers white - - - - - 2. *M. LEUCANTHA*.

1. ! *M. officinalis*. (Willd.) *Yellow Melilot*. Bushy places, &c., especially on an argillaceous soil. Fl. yellow. June, July. Annual. H. 328., D. C. ii. p. 186. Trifol. Melil. (L. sp. 1078., E. B. 1340.)

2. ! *M. leucantha*. (Koch.) *White Melilot*. Putney, Chipstead, Surrey, &c. Fl. white. July, Aug. Biennial. E. B. 2689., H. 329., D. C. ii. p. 187.

X. TRIFOLIUM. (L. gen. n. 896., D. C. prod. ii. p. 189.)

Calyx tubular, persistent, 5-fid. *Keel* shorter than the wings and vexillum. *Stamens* diadelphous. *Legume* small, scarcely dehiscent, generally ovate, 1—2-seeded, shorter than the calyx (rarely oblong, 3—4-seeded, and rather longer than the calyx). — Leaves palmato-trifoliate.

Flowers white, red, or cream-coloured (not a decided yellow)

calyx perfectly smooth

capitule of flowers pedunculated - - - 12. *T. REPENS*.

capitule of flowers sessile

petals whitish, shorter than the teeth of the }
calyx - - - - - } 10. *T. SUFFOCATUM*.

petals rose-coloured, rather longer than the }
calyx - - - - - } 11. *T. GLOMERATUM*.

calyx villous, or hirsute, at least on the teeth

calyx not inflated after flowering

flowers purple or pale red

flowers in a cylindrical spike

leaflets linear, or slightly oblong - - - 2. *T. ARVENSE*.

leaflets obcordate - - - - - 1. *T. INCARNATUM*, clt.

flowers in an ovoid or round head

teeth of the calyx equal

teeth of the calyx very villous, longer
than the tube

leaflets linear - - - - - 2. *T. ARVENSE*.

leaflets obcordate - - - - - 9. *T. STELLATUM*.

teeth of the calyx slightly villous, shorter
than the tube

upper leaves opposite, capitule pe- }
dicellated - - - - - } 5. *T. MARITIMUM*.

upper leaves alternate, capitule ses- }
sile - - - - - } 3. *T. STRIATUM*.

teeth of the calyx unequal

lower tooth of the calyx about half the }
length of the tube of the corolla, }
the other teeth all equal in size - } 8. *T. PRATENSE*.

lower tooth of the calyx about the }
length of the tube of the corolla, }
the other teeth unequal in size - } 7. *T. MEDIUM*.

flowers white, or cream-coloured

lower tooth of the calyx scarcely longer than
the others

flowers in short spikes or capitules

capitule of flowers sessile, or subsessile 4. *T. SCABRUM*.

capitule of flowers pedunculated - 13. *T. SUBTERRANEUM*.

flowers in oblong or cylindrical spikes. See ~~fig~~ above.

- lower tooth of the calyx much longer than the others
- flowers cream-coloured, stipules villous } 6. *T. OCHROLEUCUM*.
 flowers white or rose-coloured, stipules }
 hairy at the apex only - - - } 8. *T. PRATENSE*.
- calyx vesicularly inflated
- corolla resupinate, the vexillum inferior - 14. *T. RESUPINATUM*.
 corolla with the vexillum superior - - 15. *T. FRAGIFERUM*.
- Flowers yellow
- flowers in a capitule
- capitule many-flowered, dense; vexillum fur- } 16. *T. PROCUMBENS*.
 rowed, especially after flowering - - - }
 capitule few-flowered, lax; vexillum not fur- } 17. *T. FILIFORME*.
 rowed - - - - - }
- flowers in a spike. See *Melilotus*.

1. *T. incarnatum*. (L. sp. 1083.) *Flesh-coloured Trefoil*. Stem erect, leaflets subrotundo-obcordate, crenate, villous. Stipules broad, very short, obtuse, dry and discoloured at the apex. Spikes terminal, solitary, with long peduncles. Calyx ribbed, very pilose; the segments lanceolato-setaceous, equal, as long as the gamopetalous corolla. Native of the south of Europe. Now cultivated as fodder in England. Fl. crimson, conspicuous. June. Annual. Bot. mag. 328., D. C. ii. p. 190.
2. ! *T. arvense*. (L. sp. 1083.) *Hare's-foot Trefoil*. Sandy barren fields. Common. Fl. pale red or whitish. July, Aug. Annual. E. B. 944., H. 331., D. C. ii. p. 190.
3. ! *T. striatum*. (L. sp. 1085.) *Soft knotted Trefoil*. Dry pastures, &c. Fl. purplish red. June. Annual. E. B. 1843., H. 332., D. C. ii. p. 192.
4. ! *T. scabrum*. (L. amœn.) *Rough rigid Trefoil*. Sandy and chalky soils. Common. Fl. white. May, July. Annual. E. B. 903., H. 331., D. C. ii. p. 192.
5. ! *T. maritimum*. (Huds. ang.) *Teasel-headed Trefoil*. Salt marshes on the east and south coast of England. Fl. pale red. June, July. Annual. E. B. 220., H. 330., D. C. ii. p. 192.
6. ! *T. ochroleucum*. (Lin. sys. nat.) *Sulphur-coloured Trefoil*. Pastures, &c., in argillaceous soil. Fl. cream-coloured. July, Aug. Perennial. E. B. 1224., H. 330., D. C. ii. p. 193.
7. ! *T. medium*. (L. faun. suéc.) *Zigzag Trefoil*. Pastures. Common. Fl. deep purple. July. Perennial. E. B. 190., H. 330., D. C. ii. p. 195.
8. ! *T. pratense*. (L. sp. 1082.) *Common purple Trefoil, Clover*. Meadows and pastures. Common. Fl. purple. May, Sept. Perennial. E. B. 1770., H. 330., D. C. ii. p. 195.
9. *T. stellatum*. (L. sp. 1083.) *Star Trefoil*. Sea side, between Shoreham harbour and the sea, Sussex. Plentiful. Fl. pale rose-colour or whitish. July, Aug. Annual. E. B. 1545., H. 331., D. C. ii. p. 197.
10. *T. suffocatum*. (L. mant. 276.) *Smothered Trefoil*. Sandy sea shores. Rare. Fl. pale pink. July. Annual. E. B. 1049., H. 331., D. C. ii. p. 198.
11. ! *T. glomeratum*. (L. sp. 1084.) *Smooth round-headed Trefoil*. Gravelly heaths. South of England. Fl. rose-coloured. June. Annual. E. B. 1063., H. 331., D. C. ii. p. 198.
12. ! *T. repens*. (L. sp. 1080.) *Dutch Clover, Shamrock*. Meadows and pastures. Very common. Fl. white. June, Oct. Perennial. E. B. 1769., H. 329., D. C. ii. p. 198.
13. ! *T. subterraneum*. (L. sp. 1080.) *Subterranean Trefoil*. Sandy heaths. Common. Fl. white. May. Annual. E. B. 1048., H. 329., D. C. ii. p. 202.
14. *T. resupinatum*. (L. sp. 1086.) *Resupinate Trefoil*. Meadows, near Bristol. Fl. pale red. July. Annual. H. 332., D. C. ii. p. 202.
15. ! *T. fragiferum*. (L. sp. 1086.) *Strawberry Trefoil*. Pastures and way sides. Fl. rose-coloured. July, Aug. Perennial. E. B. 1050., H. 332., D. C. ii. p. 202.
16. ! *T. procumbens*. (L. sp. 1088.) *Hop Trefoil*. Dry pastures, &c. Common. Fl. yellow. June, July. Annual. E. B. 945., H. 332., D. C. ii. p. 205.
 β. *campestre*. (D. C.) With rather erect stems: very much resembles *T. agrarium*, Lin.
17. ! *T. filiforme*. (L. sp. 1088.) *Lesser Yellow Trefoil*. Dry pastures, &c. Common. Fl. yellow. June, July. Annual. E. B. 1257., H. 333., D. C. ii. p. 206. *T. minus*. (E. B. 1256.)

XI. LOTUS. (L. gen. n. 897.) D. C. prod. ii. p. 209.

Calyx tubular, 5-fid. *Wings* about as long as the vexillum. *Keel* rostrate. *Legume*, cylindrical or compressed, not winged. *Style* straight. *Stigma* awl-shaped. — Herbs.

Peduncles few, 1—3-flowered	-	-	-	1. L. ANGUSTISSIMUS.
Peduncles many, 6—10-flowered	-	-	-	2. L. CORNICULATUS.
stems erect	-	-	-	β. MAJOR.
stems recumbent	-	-	-	
folioles obovate; stem pithy	-	-	-	α. ARVENSIS.
folioles linear, lanceolate; stem nearly solid	-	-	-	γ. TENUIFOLIUS.

1. *L. angustissimus*. (L. sp. 1090.) *Slender Birdsfoot Trefoil*. Rocky beach at Hastings and in Devon. Rare. Fl. yellow. May, June. Annual. H. 334., D. C. ii. p. 213. *L. diffusus*. (D. C. l. c. E. B. 925.)

2. ! *L. corniculatus*. (L. sp. 1092.) *Common Birdsfoot Trefoil*. Pastures, &c. Common. Fl. yellow. July, Aug. Perennial.

α. *arvensis*. (D. C.) Leaflets obovate. *L. corniculatus*. (E. B. 2090., H. 333.)

β. *major*. (D. C.) Stem erect, hairy. *L. major*. (E. B. 2091., H. 334.)

γ. *tenuifolius*. Leaflets linear lanceolate. *L. tenuis*. (E. B. 2615., H. 333.)

Subtribe III. GALEGEÆ. (D. C. prod. ii. p. 243.)

Legume, 1-celled. *Stamens* diadelphous (rarely monadelphous). Herbs, shrubs, or trees.

XII. GLYCYRRHIZA. (L. gen. 882.) D. C. prod. ii. p. 247.

Calyx naked, tubular, 5-fid, bilabiate. *Vexillum* ovate, lanceolate, straight. *Carina* bipetalous, or easily divisible, straight, acute. *Stamens* diadelphous. *Style* filiform. *Legume* compressed, 1-celled, 1—4-seeded.

1. *G. glabra*. (L. sp. 1046.) *Common Liquorice*. Leaflets ovate, subretuse, subglutinous beneath. Stipules none. Spike pedunculated, shorter than the leaves. Flowers distant. Legumes smooth, 3—4-seeded. Cult. in Yorkshire, for its roots. Fl. pale blue. June, Sept. Perennial. Med. bot. 458., D. C. ii. p. 247.

XIII. ROBINIA. (L. gen. n. 879., D. C. prod. ii. p. 261.)

Calyx teeth 5, lanceolate; the 2 upper shorter, or approximated. *Corolla* papilionaceous. *Vexillum* large. *Carina* obtuse. *Stamens* diadelphous, deciduous. *Ovary* with 16—20 ovules. *Style* bearded in front. *Legume* compressed, subsessile, many-seeded; the valves flat and thin. *Seminiferous suture* marginate.

Leaves with stipular spines, flowers white - - - 1. R. PSEUDACACIA, clt.

Leaves without spines, flowers red - - - 2. R. HISPIDA, clt.

1. *R. Pseudacacia*. (L. sp. 1043.) *False Acacia*, *Locust Tree of the Americans*. Spines stipular. Branches twig-like. Racemes lax, pendulous. Legumes glabrous. Folioles ovate. Native of North America. Cult. in plantations. Common. Fl. white. June. Tree. There are many varieties, as β. *inermis*, γ. *crispa*, δ. *umbraculifera*. (D. C. ii. p. 261.)

2. *R. hispida*. (L. mant. 101.) *Rose Acacia*. Spines none. Folioles obovate. Branches and racemes lax, hispid. The 3 lower teeth of calyx acuminate. Legumes hispid. Native of Virginia and Carolina. Cult. in sheltered situations in England. Fl. rose-coloured. May, Sept. Large shrub. Bot. mag. 311., D. C. ii. p. 262. Var. β. *rosea* (D. C.), with subglabrous branchlets.

XIV. COLUTEA. (L. gen. n. 880., D. C. prod. ii. p. 270.)

Calyx 5-dentate. *Vexillum* flattened, with 2 callosities, longer than the obtuse keel. *Stamens* diadelphous (9—1). *Stigma* lateral, hooked under the apex of the style, which is bearded longitudinally at the back. *Legume* stipitate, ovate, boat-shaped, inflated and scariose.

1. *C. arborescens*. (L. sp. 1045.) *Bladder Senna*. Folioles elliptic, retuse. Peduncle about 6-flowered. Protuberances of the vexillum abbreviated. Legumes closed. Native of south of Europe. Very commonly cult. in shrubberies, &c. Fl. yellow. June, Aug. Large shrub. Bot. mag. 81., D. C. ii. p. 270.

Note. *C. cruenta* much resembles this species, but is distinguished by the legumes gaping at the apex, and by its reddish coloured flowers (the vexillum having a yellow spot at the base).

Subtribe IV. ASTRAGALÆ. (D. C. prod. ii. p. 273.)

Legume longitudinally bilocular, or subbilocular by the folding in of one of the sutures. *Stamens* diadelphous (9—1). — Leaves pinnate.

XV. PHACA. (L. gen. n. 891., D. C. prod. ii. p. 273.)

Calyx 5-dentate; the 2 upper teeth remote. *Keel* obtuse. *Style* not bearded. *Stigma* capitate. *Legume* subturgid, 1-celled; the upper suture seminiferous tumid.

1. *P. astragalina*. (D. C.) *Alpine Milk Vetch*. Glen of the Dole Clova, Dr. Graham. Fl. white, tipped with violet. July. Perennial. D. C. ii. p. 274. *Astragalus alpinus* var. (L. sp. 1070., E. B. 2717., H. 327.)

XVI. OXYTROPIS. (D. C. prod. ii. p. 275.)

Calyx 5-dentate. *Keel* terminating in an exerted mucro. *Legume* bilocular, or subbilocular.

Flowers bright purple - - - - - 1. *O. URALENSIS*.

Flowers cream-coloured - - - - - 2. *O. CAMPESTRIS*.

1. *O. uralensis*. (D. C.) *Purple Mountain Milk Vetch*. Dry mountain pastures. Scotland. Fl. bright purple. July. Perennial. H. 327., D. C. ii. p. 276. *Astr. ural.* (E. B. 466.)

2. *O. campestris*. (D. C.) *Yellow Mountain Milk Vetch*. Clova Mountains, Scotland. Fl. yellow, tinged with purple. July. Perennial. E. B. 2522., H. 328., D. C. ii. p. 278.

XVII. ASTRAGALUS. (L. gen. n. 892., D. C. prod. ii. p. 281.)

Calyx 5-dentate. *Carina* obtuse. *Stamens* diadelphous. *Legume* 2-celled, or partially 2-celled; the lower suture being inflexed.

Flowers purple or white - - - - - 1. *A. HYPOGLOTTIS*.

Flowers cream-coloured - - - - - 2. *A. GLYCYPHYLLOS*.

1. ! *A. hypoglottis*. (L. mant. 274.) *Purple Milk Vetch*. Gravelly and chalky pastures, east of England. Woodford, Epping Forest. Fl. purple. July. Perennial. E. B. 274., H. 327., D. C. ii. p. 281.

2. ! *A. glycyphyllos*. (L. sp. 1067.) *Sweet Milk Vetch*. Woods and thickets. Fl. dingy yellow. July. Perennial. E. B. 203., H. 327., D. C. ii. p. 292.

Tribe II. HEDYSARÆ. (D. C. prod. ii. p. 307.)

Embryo homotropus. *Corolla* papilionaceous. *Stamens* generally monadelphous, or diadelphous (rarely free). *Legume* transversely divided into 1-seeded cells or joints. *Cotyledons* flat, changed by germination into leaves with stomats.

Subtribe I. CORONILLÆ. (D. C. prod. ii. p. 308.)

Flowers in umbels. *Legume* terete or compressed.

XVIII. CORONILLA. (L. gen. n. 883., D. C. prod. ii. p. 309.)

Calyx campanulate, short, 5-dentate; the 2 upper teeth approximated, and subcoherent. *Claws* of the petals generally longer than the calyx. *Keel* acute. *Stamens* diadelphous, (9—1). *Legume* rather terete, slender; disarticulating, when ripe, into oblong 1-seeded joints. *Seed* ovate or cylindrical.

1. *C. Emerus*. (L. sp. 1146.) *Coronilla, or Scorpion Senna*. Fruticose, glabrous, with very small stipules. Folioles 5—7, obovate. Peduncles 3-flowered. Native of the south of Europe. Very commonly cult. in England. Fl. yellow. April. June. Large shrub. Bot. mag. 445., D. C. ii. p. 309.

XIX. ORNITHOPUS. (L. gen. n. 884., D. C. prod. ii. p. 311.)

Calyx bracteate, tubular, subequally 5-dentate. *Keel* very small, compressed. *Stamens* diadelphous (9—1). *Legume* compressed, consisting of many 1-seeded, indehiscent, articulations, which are truncated at both ends.

1. ! *O. perpusillus*. (L. sp. 1049.) *Birdsfoot*. Sandy heaths. Fl. white, with red lines. June. Annual. E. B. 369., H. 328., D. C. ii. p. 312.

XX. HIPPOCREPIS. (L. gen. n. 885., D. C. prod. ii. p. 312.)

Calyx 5-fid; the lobes equal, acute. *Keel* divided. *Stamens* diadelphous (9—1). *Style* filiform, acute. *Legumes* many-jointed; the joints curved in the form of a horseshoe; and, therefore, the edge of the legume appears as if cut into numerous sinuses. *Seed* cylindrical or compressed, oblong, attached to the middle part of each joint, curved; the umbilicus being in the middle of the curvature.

1. ! *H. comosa*. (L. sp. 1050.) *Tufted Horseshoe Vetch*. Chalky pastures. Croydon, &c. Fl. yellow. July. Perennial. E. B. 31., H. 328., D. C. ii. p. 312.

Subtribe II. EUHEDYSARÆ. (D. C. prod. ii. p. 313.)

Flowers racemose. *Legumes* compressed.

XXI. HEDYSARUM. (L. gen. n. 887., D. C. prod. ii. p. 340.)

Calyx 5-fid; the segments lineari-subulate, subequal. *Vexillum* large. *Wings* much shorter than the obliquely truncated keel. *Stamens* diadelphous (9—1). The *fasciculus* of filaments abruptly infracted. *Legumes* consisting of many compressed, 1-seeded, orbicular, or lenticular, regular joints, which are firmly knitted together in the middle, and are, therefore, convex at both sutures.

1. *H. coronarium*. (L. sp. 1058.) *French Honeysuckle*. Stem diffuse. Foli-
oles 3—5 pairs, elliptical or subrotund, pubescent beneath, and on the edges. Spikes ovate, crowded. Wing double the length of the calyx. *Legumes* of 2—5 orbicular, prickly, glabrous joints. Native of Italy. Cult. in gardens. Fl. red. June, July. Perennial. D. C. ii. p. 341.

XXII. ONOBRYCHIS. (Tournef., D. C. prod. ii. p. 344.)

Calyx 5-fid; the segments subulate, nearly equal. *Corolla* papilionaceous; the keel obliquely truncated. *Wings* short. *Stamens* diadelphous (9—1). *Legume* sessile, compressed, in 1 joint, 1-seeded, indehiscent, subcoriaceous, crested with prickles, or winged; the upper side thick and straight; the lower, thin and convex.

1. ! *O. sativa*. (Lam. fl. fr.) *Saintfoin*. Dry places, in a chalky soil. Also much cult. Fl. crimson, somewhat variegated. June, July. Perennial. E. B. 96., H. 328., D. C. ii. p. 344.

Tribe III. VICIÆ. (D. C. prod. ii. p. 353.)

Corolla papilionaceous. *Stamens* diadelphous (9—1). *Legume* continuous. *Cotyledons* thick, farinaceous, unchanged by germination, and remaining underground, enclosed in the spermoderm; the *radicle* inflexed. — Leaves abruptly pinnate (except in *Cicer*), with the common petiole terminating at the apex in a long mucro, or tendril, and not articulated on the stem.

XXIII. FABA. (Tournef., D. C. prod. ii. p. 354.)

Character the same as of *Vicia*; but the *legume* is large, coriaceous, sub-
tumid. *Seeds* oblong. *Hilum* terminal. — Stem erect.

1. *F. vulgaris*. (Mœnch.) *Common Bean*. Leaves thick, with 2—5 oval mucronate leaflets. Stipules semisagittate, oval. Tendrils almost abortive. Teeth of calyx sublinear. Native of the borders of the Caspian Sea. Cult. Common. Fl. white, with a black silky spot in the wings. June, July. Annual. *Vicia Faba*. (L. sp. 1039., D. C. ii. p. 354.)

XXIV. VICIA. (L. gen. n. 873., D. C. prod. ii. p. 354.)

Calyx tubular, 5-fid, or 5-dentate; the 2 upper teeth shorter. *Corolla* papilionaceous. *Stamens* diadelphous. *Style* filiform, almost forming a right angle with the ovary; villous on the upper side, and on the under below the apex. *Legume* oblong, 1-celled, many-seeded. *Seeds* with a lateral, oval, or linear hilum.

Flowers supported on long peduncles

stipules lunate, deeply toothed at the base; peduncles	}	1. V. SYLVATICA.
5—10-flowered		
stipules semisagittate, entire; peduncles 15—20-	}	2. V. CRACCA.
flowered		

Flowers mostly subsessile, axillary

plant very glabrous - - - - 5. *V. LÆVIGATA*.

plant with either the leaflets or legume pubescent

flowers purple or blue

flowers 3—4, in clusters - - - - 8. *V. SEPIUM*.

flowers 1 or 2

stipules marked with a dark spot - - - 3. *V. SATIVA*.

stipules not spotted - - - - 4. *V. LATHYROIDES*.

Flowers yellow

vexillum glabrous - - - - 6. *V. LUTEA*.

vexillum hairy - - - - 7. *V. HYBRIDA*.

1. ! *V. sylvatica*. (L. sp. 1035.) *Wood Vetch*. Bushy places, in mountainous countries, and between Lyminge and Eltham, Kent. Fl. white, with blue veins. July, Aug. Perennial. E. B. 79., H. 325., D. C. ii. p. 355.

2. ! *V. Cracca*. (L. sp. 1035.) *Tufted Vetch*. Bushy places. Common. Fl. purple. July, Aug. Perennial. E. B. 1068., H. 325., D. C. ii. p. 357.

3. ! *V. sativa*. (L. sp. 1037.) *Common Vetch*. Cult. ground. Common. Fl. purple or red. June. Annual. E. B. 334., H. 325., D. C. ii. p. 360.

β. ! *angustifolia*. (D. C.) Leaflets linear, very long, subretuse, mucronulate. Flowers subsolitary. *V. angustifolia*. (E. B. 2614., H. 325.)

γ. *Bobartii*. Flowers subsolitary. Leaflets linear; lower ones obcordate. *V. Bobartii*. (Forst., Lindl. syn. 84., E. B. 2708.)

4. ! *V. lathyroides*. (L. sp. 1037.) *Spring Vetch*. Road sides and pastures. Not uncommon. Fl. purple. April, May. Annual. E. B. 30., H. 325., D. C. ii. p. 362.

5. *V. lævigata*. (Smith.) *Smooth-podded Vetch*. Pebbly shore of Weymouth. Very rare. Fl. pale blue, or whitish; seldom yellowish. July, Aug. Perennial. E. B. 483., H. 326., D. C. ii. p. 362.

6. *V. lutea*. (L. sp. 1037.) *Rough-podded yellow Vetch*. Rocky ground, near the sea. Suffolk, Sussex. Fl. yellow. June, July. Perennial. E. B. 481., H. 326., D. C. ii. p. 363.

7. *V. hybrida*. (L. sp. 1037.) *Hairy-flowered yellow Vetch*. Glastonbury Tor Hill; also near Lincoln. Fl. yellow. June, July. Perennial. E. B. 482., H. 326., D. C. ii. p. 363.

8. ! *V. sepium*. (L. sp. 1038.) *Wood Vetch*. Woods, &c. Common. Fl. purple. June, July. Perennial. E. B. 1515., H. 326., D. C. ii. p. 364.

XXV. *ERVUM*. (L. gen. n. 874., D. C. prod. ii. p. 366.)

Calyx 5-fid; the segments linear, acute, about the length of the corolla. *Stigma* glabrous. *Legume* oblong, 2—4-seeded.

Legume hairy, 2-seeded - - - - 1. *E. HIRSUTUM*.

Legume glabrous, 4-seeded - - - - 2. *E. TETRASPERMUM*.

1. ! *E. hirsutum*. (L. sp. 1039.) *Hairy Tare*. Corn fields, hedges, &c. Common. Fl. purplish. June. Annual. E. B. 971., H. 327., D. C. ii. p. 366.

2. ! *E. tetraspermum*. (L. sp. 1039.) *Smooth Tare*. Hedges and corn fields, &c. Fl. tipped with deep blue. June, July. Annual. E. B. 1223., H. 327., D. C. ii. p. 367.

Note. *E. Lens*, the lentil, is cultivated in Essex and Oxfordshire; but is not a common crop.

XXVI. *PISUM*. (L. gen. n. 870., D. C. prod. ii. p. 368.)

Segments of calyx foliaceous; the upper shorter. *Vexillum* large, reflexed. *Style* compressed, keeled, villous above. *Legume* oblong, compressed, not winged. *Seeds* many, subglobose. *Hilum* subrotund. *Stipules* large.

Peduncles many-flowered

petioles terete - - - - 1. *P. SATIVUM*, clt.

petioles flat above - - - - 3. *P. MARITIMUM*.

Peduncles 1- (rarely 2-) flowered - - - 2. *P. ARVENSE*, clt.

1. *P. sativum*. (L. sp. 1026.) *Garden Pea*. Petioles terete, with 3 pairs of ovate, entire, glaucous leaflets, often opposite, mucronate, the margins undulated. Stipules ovate, subsemicordate, crenate. Peduncles 2- or many-flowered. Legumes subcarnose. Native country unknown. Cult. Common. Fl. white or red. May, Sept. Annual. D. C. ii. p. 368.

For the numerous cultivated varieties of the pea, see Don's syst. gard. vol. ii. p. 327.

2. *P. arvense*. (L. sp. 1027.) *Field, or Grey Pea*. Petioles terete, with 2—3 pairs of ovate, roundish, crenulated leaflets. Stipules ovate, semicordate, denticulate. Peduncle 1-flowered, very short. Native country unknown. Cult. in fields, for fodder. Fl. red. The vexillum of a deeper colour. June. Annual. D. C. ii. p. 327.

3. *P. maritimum*. (L. sp. 1027.) *Sea-side Pea*. Pebbly beach of the east and south coast of England. Fl. purple, with crimson veins. July. Perennial. E. B. 1046., D. C. ii. p. 368. Lath. pisiformis. (H. 324.)

XXVII. LATHYRUS. (L. gen. n. 1186., D. C. prod. ii. p. 369.)

Calyx campanulate, 5-fid; the 2 upper lobes shortest. *Corolla* papilionaceous. *Stamens* diadelphous. *Style* flattened, dilated at the apex, and villous or pubescent anteriorly. *Legume* oblong, many-seeded, bivalved, 1-celled. *Seeds* globose, or angular.

Petioles destitute of leaflets; the simple dilated stipules or petiole performing the functions of the compound leaf

flowers yellow; stipules very large - 5. *L. APHACA*.
flowers crimson or white; stipules very small - 6. *L. NISSOLIA*.¹

Petioles with only 1 pair of leaflets

flowers yellow - - - 3. *L. PRATENSIS*.
flowers red, blue, or white

legume hairy

flowers large, odorous; pedicels hirsute - 8. *L. ODORATUS*, clt.
flowers small, inodorous; pedicels glabrous - 7. *L. HIRSUTUS*.

legumes glabrous

peduncles many-flowered; plant perennial

peduncles the length of the leaves - 1. *L. SYLVESTRIS*.

peduncles much longer than the leaves - 2. *L. LATIFOLIUS*.

peduncles 2-flowered; plant annual - 9. *L. TINGITANUS*, clt.

Petioles with 2—4 pairs of leaflets

plant perennial, very glabrous; peduncles 3—5-
flowered - - - } 4. *L. PALUSTRIS*.

plant annual, pilose; peduncles 1—2-flowered - 10. *L. BITHYNICUS*.

1 ! *L. sylvestris*. (L. sp. 1033.) *Narrow-leaved Everlasting Pea*. Thickets, &c. in south of England. Fl. large, greenish, with purple veins. July, Aug. Perennial. E. B. 805., H. 324., D. C. ii. p. 369.

2. *L. latifolius*. (L. sp. 1033.) *Broad-leaved Everlasting Pea*. Woods. Rare. Probably an outcast of gardens. Fl. purple. July, Aug. Perennial. E. B. 1108., H. 324., D. C. ii. p. 370.

3. ! *L. pratensis*. (L. sp. 1033.) *Meadow Vetchling*. Moist meadows, &c. Common. Fl. yellow. July, Aug. Perennial. E. B. 670., H. 324., D. C. ii. p. 370.

4. ! *L. palustris*. (L. sp. 1034.) *Blue Marsh Vetchling*. Boggy meadows and thickets in the midland counties. Fl. bluish purple. July, Aug. Perennial. E. B. 169., H. 324., D. C. ii. p. 371.

5. ! *L. Aphaca*. (L. sp. 1029.) *Yellow Vetchling*. Borders of sandy and gravelly fields. Rare. Fl. yellow. June, Aug. Annual. E. B. 1167., H. 323., D. C. ii. p. 372.

6. ! *L. Nissolia*. (L. sp. 1029.) *Crimson Vetchling*. Bushy places and grassy borders of fields. Fl. crimson. May. Annual. E. B. 112., H. 323., D. C. ii. p. 372.

7. *L. hirsutus*. (L. sp. 1032.) *Rough-podded Vetchling*. Cultivated fields. Rare. Fl. pale, with crimson standard. July. Annual. E. B. 1255., H. 323., D. C. ii. p. 373.

8. *L. odoratus*. (L. sp. 1032.) *Sweet Pea*. Hairy. Stems winged. Leaflets mucronulate. Stipules semisagittato-lanceolate, much shorter than the petiole. Peduncles 2—3-flowered, much longer than the leaves. Teeth of calyx broad, longer than the tube. Legumes oblong, linear, compressed, hairy. Native of Sicily. Cult. in gardens. Common. Fl. pink, blue, and white. Odorous. June, Aug. Annual. D. C. ii. p. 374.

9. *L. tingitanus*. (L. sp. 1032.) *Tangier Pea*. Very smooth. Stems winged. Leaflets ovate, obtuse, mucronate. Stipules ovato-semisagittate, much shorter than the petioles. Peduncles 2-flowered, longer than the leaves. Teeth of the calyx nearly equal, shorter than the tube. Legumes oblong, linear, slightly reticulated, compressed. Sutures thick. Seeds scarcely angular, variegated,

black and brown. Native of Morocco. Cult. in gardens. Fl. bright red, with purple vexillum. July. Annual. Bot. mag. 100., D. C. ii. p. 374.

10. *L. bithynicus*. (Lamarck.) *Rough-podded Purple Vetchling*. Bushy places near the sea, in Dorsetshire and Hants. Fl. purple, with white wings. July, Aug. Annual. D. C. ii. p. 374. *Vicia bithynica*. (L. sp. 1038., H. 326., E. B. 1842.)

XXVIII. OROBUS. (L. gen. n. 871., D. C. prod. ii. p. 376.)

Calyx campanulate, 5-fid., the 2 upper lobes the shortest. *Corolla* papilionaceous. *Stamens* diadelphous. *Style* slender, linear, villous at the apex. *Legume* cylindrical, oblong, 2-valved, many-seeded. *Seeds* with a linear hilum.

Plant hairy - - - - - 1. *O. SYLVATICUS*.

Plants glabrous, or scarcely downy

stipules semisagittate; underground stem tuberous - 3. *O. TUBEROSUS*.

stipules linear, lanceolate, acute; stem not tuberous - 2. *O. NIGER*.

1. *O. sylvaticus*. (L. amœn.) *Wood Bitter Vetch*. Rocky and mountainous thickets in the north of England. Fl. purplish white. May, June. Perennial. E. B. 518., H. 323., D. C. ii. p. 378.

2. *O. niger*. (L. sp. 1028.) *Black Bitter Vetch*. Shady rocks, Scotland. Fl. purple. June, July. Perennial. E. B. 2788., H. 323., D. C. ii. p. 378.

3. ! *O. tuberosus*. (L. sp. 1028.) *Tuberous Orobus*. Woods. Fl. purple or pink. May, June. Perennial. E. B. 1153., H. 322., D. C. ii. p. 378.

Tribe IV. PHASEOLEÆ. (D. C. prod. ii. p. 381.)

Corolla papilionaceous. *Stamens* generally diadelphous, 9—1 (rarely monadelphous). *Legume* many-seeded, dehiscent, continuous; often slightly divided by a transverse cellular membrane interposed between the seeds, but not truly articulated. *Radicle* inflexed over the commissure of the lobes. *Cotyledons* fleshy, either not changed by germination, or sometimes converted into thick leaves, nearly destitute of stomata. — Primordial leaves opposite.

XXIX. PHASEOLUS. (L. gen. 866., D. C. prod. ii. p. 390.)

Calyx campanulate, bilabiate; the upper lip bidentate, the lower one tripartite. *Corolla* papilionaceous; the keel as well as the diadelphous stamens and the style, spirally twisted. *Legume* compressed or cylindrical, bivalved, many-seeded; partially divided into cells by transverse projections of the hairy membrane. *Seeds* with an oval oblong hilum.

Racemes longer than the leaves, legume subfalcate - 1. *P. MULTIFLORUS*.

Racemes shorter than the leaves, legumes straight - 2. *P. VULGARIS*.

1. *P. multiflorus*. (Willd. sp. iii. 1030.) *Scarlet Runner*. Stem twining, rather smooth. Leaflets ovate acuminate. Racemes pedunculated, longer than the leaves. Pedicels in pairs. Bracteoles adpressed, rather shorter than the calyx. Legumes pendulous, subfalcate, torulose and rough. Native of central America. Cult. in gardens. (Var. α . *coccineus*, D. C., with scarlet flowers, and β . *albiflorus*, D. C., with white flowers.) July, Aug. Annual. D. C. ii. p. 392.

2. *P. vulgaris*. (Savi mem.) *Common Kidneybean*. Stem twining, rather smooth. Leaflets ovate acuminate. Racemes pedunculated, shorter than the leaves. Pedicels in pairs. Legumes pendulous, rather straight, subtorulose, and with long mucros. Seed ovate, subcompressed. Native of India. Cult. in gardens. Common. Fl. lilac or white. July, Aug. Annual. D. C. ii. p. 392. Varies in size, one var. being dwarf, the *Ph. nanus*. (L. sp. 1016.); also in the colour of seeds. Hence,

α . *unicolor*. Seeds of one colour. Black, blue, copper-colour, white, &c.

β . *fasciatus*. Various striped. *Zebra-striped Bean*.

γ . *variegatus*. Various spotted. *Speckled Bean*.

XXX. LUPINUS. (L. gen. n. 1176., D. C. prod. ii. p. 406.)

Calyx deeply bilabiate. *Corolla* papilionaceous; sides of the vexillum reflexed. *Carina* acuminate. *Stamens* monadelphous; the filamentary tube entire. *Anthems* 10; 5 small, subrotund, shedding their pollen early; 5 oblong, later. *Style* filiform. *Stigma* terminal, subrotund, bearded. *Legume*

coriaceous, oblong, compressed, obliquely torulose. *Stipules* adnate to the petioles. — Leaves generally consisting of 5—9-digitate folioles.

Herbs annual

- | | | | |
|--|---|---|------------------------------|
| flowers without bracteas, white | - | - | 1. <i>L. ALBUS</i> , clt. |
| flowers bracteolate | | | |
| flowers sessile, yellow | - | - | 4. <i>L. LUTEUS</i> , clt. |
| flowers pedicellated | | | |
| lower lip of calyx entire; fl. rose-coloured | - | - | 3. <i>L. PILOSUS</i> , clt. |
| lower lip 3-dentate, 3-fid; fl. blue | - | - | 2. <i>L. HIRSUTUS</i> , clt. |

Herbs perennial

- | | | | |
|---|---|---|----------------------------------|
| leaflets hirsute, obovate; standard of a lighter colour than the keel | - | - | 5. <i>L. NOOTKATENSIS</i> , clt. |
| leaflets lanceolate; standard of a darker colour | - | - | 6. <i>L. POLYPHYLLUS</i> , clt. |

Shrubs - - - - - 7. *L. ARBOREUS*, clt.

1. *L. albus*. (L. sp. 1015.) *White Lupine*. Flowers alternate, pedicellate, ebracteolate. Upper lip of the calyx entire; lower one tridentate. Leaflets obovate oblong, villous beneath. Native of Asia. Cult. in gardens. Fl. white. July, Aug. Annual. D. C. ii. p. 407.

2. *L. hirsutus*. (L. sp. 1015.) *Great Blue Lupine*. Flowers alternate, bracteolate. Upper lip of the calyx bipartite; the lower one trifid. Leaflets oblong, hirsute on both sides. Legume very hirsute. Native of the south of Europe. Cult. in gardens. Fl. blue. July, Aug. Annual. D. C. ii. p. 407.

3. *L. pilosus*. (L. sp. 1015.) *Rose Lupine*. Flowers verticillate, pedicellate, bracteolate. Upper lip of the calyx bipartite; lower one entire. Leaflets oblong, villous. Stem and calyx piloso-hirsute. Native of the south of Europe. Cult. in gardens. Fl. pink. July, Aug. Annual. D. C. ii. p. 407.

4. *L. luteus*. (L. sp. 1015.) *Yellow Lupine*. Flowers verticillate, sessile, bracteolate. Upper lip of the calyx bipartite, lower one tridentate. Leaflets oblong; the lowest one obovate. Native of the south of Europe. Cult. in gardens. Fl. yellow. July, Aug. Annual. Bot. mag. 140., D. C. ii. p. 407.

5. *L. nootkatensis*. (Sims.) *Nootka Sound Lupine*. Herbaceous. Flowers subverticillate, pedicellate, ebracteolate. Lips of the calyx entire. Leaflets obovate, oblong, hirsute. Native of Nootka Sound. Cult. in gardens. Fl. blue, with yellow or purple veins. June, Aug. Perennial. Bot. mag. 1311., D. C. ii. p. 408.

6. *L. polyphyllus*. (Dougl. bot. reg. 1096.) *Many-leaved Lupine*. Herbaceous. Flowers subverticillate, without bracteas, pedicellate. Leaflets 11—15, lanceolate, hairy beneath. Both lips of calyx quite entire. Stems pilose. Native of the north-west coast of America. Cult. in gardens. Common. Fl. purple. The vexillum of a darker shade than the keel. July. Perennial. Don. syst. gard. vol. ii.

7. *L. arboreus*. (Sims, Bot. mag.) *Tree Lupine*. Shrubby. Flowers verticillate, pedicellate, ebracteolate. Both lips of the calyx entire. Keel ciliated within. Leaflets linear-lanceolate acute, pubescent beneath. Native country unknown. Cult. in sheltered situations. Fl. yellow. July, Aug. Shrub. Bot. mag. 682., D. C. ii. p. 409.

Note. *L. multiflorus* is also a shrub, and occasionally cultivated: it may be easily distinguished by its elongated spike of blue flowers having the keel and standard externally yellowish.

Order XXXIII. ROSACEÆ. (Juss., D. C. prod. ii. p. 525.)

Calyx generally of 5 sepals, coherent, and forming a tube; therefore, 5-lobed; generally persistent, free, or adherent to the ovary. *Petals* as many as the sepals (rarely, by abortion, none), inserted on the calyx, and quincuncial in æstivation; generally regular. *Stamens* inserted with the petals; mostly indefinite. *Filaments* incurved in æstivation. *Anthers* bilocular, dehiscing by a double chink. *Carpels* numerous, sometimes, by abortion, solitary; sometimes having the appearance of a single ovary, from their union either together, or with the tube of the calyx. *Ovary* 1-celled. *Styles* simple, generally arising from the side of the ovary; sometimes distinct; seldom coherent. *Seeds* in each carpel 1—2, rarely numerous; erect or inverse, without albumen. *Embryo* straight. *Cotyledons* foliaceous or fleshy. — Herbs, shrubs, or trees. Leaves alternate, with two stipules at the base.

Corolla polypetalous			
ovaries free			
ovary one, naked	-	-	Tribe <i>Amygdaleæ</i> .
drupe fleshy			
stone very rough, furrowed	-	-	2. <i>PERSICA</i> , clt.
stone smooth			
drupe downy externally	-	-	3. <i>ARMENIACA</i> , clt.
drupe very glabrous			
stone compressed	-	-	4. <i>PRUNUS</i> .
stone subglobose	-	-	5. <i>CERASUS</i> .
drupe not fleshy	-	-	1. <i>AMYGDALUS</i> , clt.
ovaries many, rarely 1, surrounded by the calyx			
carpels verticillated round an imaginary axis; becoming capsular, 2—6-seeded			Tribe <i>Spiræaceæ</i> .
flowers white or red, never yellow	-	-	7. <i>SPIRÆA</i> .
flowers yellow	-	-	6. <i>KERRIA</i> , clt.
carpels inserted on the torus, akenes 1-seeded			Tribe <i>Dryadeæ</i> .
calyx 8—9-partite	-	-	8. <i>DRYAS</i> .
calyx 4—5-fid			
calyx naked externally	-	-	10. <i>RUBUS</i> .
calyx thickly covered externally with bristles in the form of an involucre	-	-	14. <i>AGRIMONIA</i> .
calyx externally bracteolated			
carpels surmounted by the indurated elongated styles	-	-	9. <i>GEUM</i> .
carpels not surmounted by the styles			
receptacle carnosio-succulent	-	-	11. <i>FRAGARIA</i> .
receptacle dry			
stamens and carpels numerous	-	-	12. <i>POTENTILLA</i> .
stamens and carpels generally 5	-	-	13. <i>SIBBALDIA</i> .
ovaries adnate to the calyx			
fruit baccate, composed of many nuts, surrounded by the fleshy calyx	-	-	Tribe <i>Rosaceæ</i> .
fruit carnosio, a pomum	-	-	18. <i>ROSA</i> .
calyx 5-fid, or 5-lobed			Tribe <i>Pomaceæ</i> .
fruit (pomum) ovate	-	-	19. <i>CRATEGUS</i> .
fruit (pomum) turbinate or globose			
pomum open at the apex	-	-	21. <i>MESPILUS</i> .
pomum closed			
cells 2-seeded	-	-	22. <i>PYRUS</i> .
cells many-seeded	-	-	23. <i>CYDONIA</i> , clt.
calyx 5-dentate	-	-	20. <i>COTONEASTER</i> .
Corolla monopetalous, or wanting			Tribe <i>Sanguisorbeæ</i> .
flowers glomerated or dichotomous	-	-	15. <i>ALCHEMILLA</i> .
flowers in spikes			
stamens 4	-	-	16. <i>SANGUISORBA</i> .
stamens 20—40	-	-	17. <i>POTERIUM</i> .

Tribe I. AMYGDALÆ. (D. C. prod. ii. p. 529.)

Carpels generally (by abortion) solitary, rarely 2, or more, bearing the filiform style nearly on the apex, and ultimately becoming a drupe with a single nut, which is 2-ovuled, with 1—2 seeds. *Umbilical cord* rising from the base of the nut, and running up in a groove nearly to the apex; and, hence, the seed is pendulous. *Endopleura* subtumid. *Cotyledons* 2, thick. *Calyx* not adherent to the ovary, deciduous, 5-fid, bearing 5 petals, and 20—30 stamens, free, and subequal. — Trees or shrubs, with the lower serratures of the leaves, or the petioles, subglandular. Stipules free.

I. *AMYGDALUS*. (L. gen. n. 619., D. C. prod. ii. p. 530.)

Drupe covered with a velvet-like pubescence; the external portion, or rind, fibrous, juiceless, falling off irregularly. *Almond shell* pitted or smooth. Young leaves conduplicate. Flowers sessile, appearing before the leaves. Fruit woolly.

Shrub; calyx cylindrico-campanulate	-	-	1. <i>A. NANA</i> , clt.
Tree; calyx campanulate	-	-	2. <i>A. COMMUNIS</i> , clt.

1. *A. nana*. (L. mant. 396.) *Dwarf Almond Tree*. Leaves oblong, linear, attenuated at the base, serrated, very smooth. Flowers solitary. Native of Odessa. Cult. in shrubberies. Fl. red or white; single or double. March, April. Small shrub. Bot. mag. 161., D. C. ii. p. 530.

2. *A. communis*. (L. sp. 677.) *Common Almond Tree*. Leaves oblong-lanceolate, serrulate. Flowers solitary. Calyx campanulate. Fruit ovoid, compressed, tomentose. Native of the north of Africa. Cult. in pleasure-grounds. Common. Fl. rose-coloured or white, single or double. March, April. Tree.

α. amara. (D. C.) *Bitter Almond*. Styles as long as the stamens.

β. dulcis. (D. C.) *Sweet Almond*. Styles much longer than the stamens.

II. PERSICA. (Tourn., D. C. prod. ii. p. 531.)

Character the same as of *Amygdalus*, except that the *drupe* is very fleshy. *Epicarp* either downy or smooth. *Stone* (putamen) remarkably rough and furrowed.

Fruit tomentose - - - - - 1. *P. vulgaris*, clt.
Fruit smooth - - - - - 2. *P. lævis*, clt.

1. *P. vulgaris*. (Mill. dict.) *Peach*. Native of Persia. Cult. in gardens. Fl. rose-coloured. April, May. Small tree. D. C. ii. p. 531.

α. flesh separating from the stone. Freestone Peach.

β. flesh adherent to the stone. Clingstone Peach.

2. *P. lævis*. (D. C.) *Nectarine*. Native country unknown. Cult. in gardens. Fl. rose-coloured. April, May. Small tree. D. C. ii. p. 531.

α. flesh separating from the stone. Freestone Nectarine.

β. flesh adherent to the stone. Clingstone Nectarine.

III. ARMENIACA. (Tourn., D. C. prod. ii. p. 531.)

Drupe ovato-globose, fleshy, downy on the surface. *Stone* obtuse at one end, and acute at the other, having a furrow on both sides; otherwise not rugose. — Young leaves convolute. Flowers subsessile.

For varieties and culture of peaches and apricots, see Don's syst. gard. ii. p. 495.

1. *A. vulgaris*. (Lamarck. dict. i. p. 2.) *Apricot*. Flowers sessile. Leaves cordate, or ovate. Native of Armenia. Cult. in gardens. Fl. white, with a tinge of red. Feb., March. Small tree. D. C. l. c.

IV. PRUNUS. (L. gen. n. 620., D. C. prod. ii. p. 532.)

Drupe ovate or oblong, fleshy, very smooth, covered with a pruinose powder. *Stone* compressed, sharp on both sides, furrowed at the edges, otherwise smooth. — Young leaves convolute. Pedicels generally umbelato-fasciculated, 1-flowered.

Branches spinous

peduncles mostly solitary; flowers before the leaves - 1. *P. spinosa*.

peduncles in pairs; leaves rather before the flowers - 2. *P. insititia*.

Branches not spinous - - - - - 3. *P. domestica*.

1. ! *P. spinosa*. (L. sp. 681.) *Black Thorn, or Sloe*. Hedges. Very common. Fl. white. April, May. Large shrub. E. B. 842., H. 223., D. C. l. c.

2. ! *P. insititia*. (L. sp. 680.) *Wild Bullace Tree*. Woods and hedges. Fl. white. Berries black or yellow. May. Large shrub. E. B. 842., H. 223., D. C. l. c.

3. ! *P. domestica*. (L. sp. 680.) *Wild Plum Tree*. Woods and hedges. Rather rare, and a doubtful native. Fl. white. May. Small tree. E. B. 1783., H. 223. D. C. ii. p. 533.

α. armenoides. (D. C.) *Mirabelle Plum*. Fruit round, yellow or greenish. Stone subobtuse.

β. claudiana. (D. C.) *Green Gage*. Fruit round, subdepressed, green, often with purple spots. Flesh saccharine.

γ. turonensis. (D. C.) *Orleans Plum*. Fruit obovate, or obovato-globose. Stone obtuse, or mucronulate at the apex. Keel very prominent.

δ. aubretiana. (D. C.) *Magnum Bonum or Mogul Plum*. Fruit ovate, obtuse, yellow or white. Stone scarcely prominent at the base.

ε. pruneauliana. (D. C.) *Damson*. Branches pyramidal. Fruit ovate, more or less obtuse, or elongated; dark purple. Stone much compressed, elongated, prominent at the base, more or less acute at the apex.

For varieties (270) and culture of plums, see Don's syst. of gard., ii. p. 499.

V. CERASUS. (Juss. gen. 340., D. C. prod. ii. p. 535.)

Drupe globose or umbilicate at the base, fleshy, very glabrous, not covered with a pruinose powder. *Stone* subglobose, smooth. — Younger leaves conduplicate. Pedicels 1-flowered, or ramose.

- Flowers umbellate, rarely solitary; pedicels 1-flowered, arising from the buds, and developed before, or with, the leaves
- trees, 10—40 feet high, perfecting their fruit branches spreading
- | | | |
|--|-------|------------------------|
| fruit spherical; the flesh acid, easily separating from the skin | - - - | 4. C. CAPRONIANA, clt. |
| fruit ovate; the flesh not acid, and very adherent to the skin | - - - | 1. C. AVIUM. |
- branches erect, scarcely spreading
- | | | |
|-------------------------------|-------|----------------------|
| fruit with soft juicy flesh | - - - | 3. C. JULIANA, clt. |
| fruit with firm brittle flesh | - - - | 2. C. DURACINA, clt. |
- shrubs, 2—8 feet high, not perfecting their fruit
- | | | |
|-------------------------------|-------|-----------------------|
| peduncles numerous, fascicled | - - - | 6. C. SERRULATA, clt. |
| peduncles solitary | - - - | 5. C. JAPONICA, clt. |
- Flowers racemose, arising from the branches
- | | | |
|---|-------|--------------------------|
| leaves caducous, not coriaceous | - - - | 7. C. PADUS. |
| leaves persistent (evergreen), very smooth and coriaceous | - - - | |
| racemes longer than the leaves, which are not glandular | - - - | 8. C. LUSITANICA, clt. |
| racemes shorter than the leaves, leaves with 2—4 glands beneath | - - - | 9. C. LAUROCERASUS, clt. |

1. ! *C. avium*. (Mœnch.) *Wild Cherry*. Wood and hedges. Fl. white. May. Small tree. E. B. 706., H. 224., D. C. 1. c. The cultivated varieties are called Merries in Hertfordshire and Bucks, from the French *Méris*.

2. *C. duracina*. (D. C. 1. c.) *Heart Cherry*. Young branches ascending; the adult ones scarcely spreading. Flowers subcoetaneous. Fruit cordate. Peduncles long, slender. Suture very depressed. Flesh rather hard. Epicarp adherent to the flesh. Stone ovate. Native country unknown, but cultivated in great variety, and known as white, black, or red heart cherries. Large tree.

3. *C. Juliana*. (D. C. 1. c.) *Geau and Guigniers Cherry*. Young branches ascending; the adult ones scarcely spreading. Flowers subcoetaneous. Fruit ovate, depressed, cordiform. Flesh soft, pulpy, not acid. Epicarp very adherent to the flesh. Leaves glabrous. Native country unknown. Cult. in gardens. Black Eagle, Hertfordshire Black, &c. Large tree.

4. *C. caproniana*. (D. C. 1. c.) *Maydukes, Morellos*. Branches spreading. Flowers subcoetaneous. Calyx campanulate, large. Peduncles generally thick and rigid. Fruit globose, depressed. Suture scarcely depressed. Flesh soft, more or less acid and stiptic. Epicarp not adherent to the flesh. Stone round. Native country unknown. Much cult.; yielding some of our best cherries. Flowers, as in all the foregoing species, white, and about May.

For the cult. var. of cherries, see Don's syst. gard. ii. p. 505.

5. *C. japonica*. (Loisel.) *Japanese Cherry*. Leaves ovate, acuminate, glabrous, and shining. Peduncles solitary. Lobes of the calyx shorter than the tube. Native of Japan. Var. *multiplex*, with red double flowers. March. Small shrub. Cult. in shrubberies. Bot. mag. 2176., D. C. ii. p. 539. Amyg. pumila. (L. mant. 74.)

6. *C. serrulata*. (G. Don.) *Double Chinese Cherry*. Leaves obovate acuminate, setaceously serrated, quite glabrous. Petioles glandular. Fl. in fascicles, double white. April. Large shrub. Native of China. Cult. in pleasure-grounds. Don's syst. gard. ii. p. 514. *Prun. serrulata*. (Lind.)

7. *C. Padus*. (D. C.) *Bird Cherry*. Woods and coppices; especially in the north. Fl. white. May. Small tree. D. C. ii. p. 539. *Prunus Padus*. (L. sp. 677., E. B. 1833., H. 223.)

8. *C. lusitanica*. (Loisel.) *Portugal Laurel*. Racemes straight; axillary, longer than the leaves. Leaves ovato-lanceolate, serrated, without glands. Native country unknown. Cult. in shrubberies. Fl. cream-coloured. June. Large shrub. D. C. ii. p. 540. *Pr. lusitanica*, (L. sp. 678.)

9. *C. Laurocerasus*. (Loisel.) *Laurel*. Racemes shorter than the leaves. Leaves ovate lanceolate, remotely serrated, with 2—4 glands beneath. Fruit ovate acuminate. Native of Trebizond. Cult.; Very common. Fl. white or cream-coloured. April, May. Large shrub. Pr. *Laurocer*. (L. sp. 678.)

Tribe II. SPIRÆACEÆ. (D. C. prod. ii. p. 541.)

Carpels numerous, not adherent to the calyx, distinct, or very rarely subconnate; verticillate round the imaginary axis of the flower, generally 5 (sometimes, by abortion, fewer), apiculated by the style, afterwards becoming capsular and dehiscing at the inner suture, subbivalved. *Seeds* 2—4, rarely, by abortion, 1—3, arising from the middle, or near the base, of the margin of the inner suture, without arillus or albumen. *Embryo* straight. *Cotyledons* flat, rather thick. — Shrubs or herbs.

VI. KERRIA. (D. C. prod. ii. p. 541.)

Calyx 5-fid; the lobes ovate, 3 obtuse, 2 callosa-submucronate at the apex, imbricated in æstivation. *Petals* 5, orbicular. *Stamens* about 20, together with the petals inserted on the calyx. *Carpels* 5—8, free, glabrous, tipped by the filiform style, globose, having the ovule attached to the side.

1. *K. japonica*. (D. C.) *Kerria*, or *Corchorus japonica*. Native of Japan. Very commonly cult. against walls, &c. Fl. yellow, turning white when old. Double. All the year. Small shrub. *Rubus jap.* (L. mant.) *Corchorus japon.* (Thunb., Bot. mag. 1296.)

VII. SPIRÆA. (L. gen. 630., D. C. prod. ii. p. 541.)

Calyx 5-fid, persistent. *Stamens* 10—50, inserted, as well as the petals, on the torus, which is adherent to the calyx. *Carpels* 1, or many, distinct (rarely united at the base), sessile (rarely stipitate). *Seeds* 2—6. *Embryo* inverse.

Shrubs

- | | | |
|--|---|-----------------------------------|
| flowers in small lateral umbels | - | 1. <i>S. HYPERICIFOLIA</i> , clt. |
| flowers in terminal racemes, or panicles | - | 2. <i>S. SALICIFOLIA</i> . |

Herbs

- | | | |
|--|---|----------------------------|
| leaflets downy, whitish beneath; terminal one | } | 3. <i>S. ULMARIA</i> . |
| very large | | |
| leaflets glabrous, all of nearly the same size | - | 4. <i>S. FILIPENDULA</i> . |

1. *S. hypericifolia*. (D. C.) *Spiræa Frutex*. Leaves obovate-oblong, 3—4-nerved, entire or dentate, glabrous or downy. Nerves pinnate. Umbel sessile (or, rarely, corymb pedunculated). Sepals ascending. (D. C. ii. p. 543.)

2. *S. salicifolia*. (L. sp. 700.) *Willow-leaved Spiræa*. Moist woods in the north of England. Fl. rose-coloured. July. Small shrub. *E. B.* 1468., *H.* 226., *D. C. ii.* p. 544.

3. ! *S. Ulmaria*. (L. sp. 702.) *Meadow-sweet*. Meadows and watery places. Frequent. Fl. cream-coloured. July. Perennial. *E. B.* 960., *H.* 226., *D. C. ii.* p. 545.

4. ! *S. Filipendula*. (L. sp. 702.) *Dropwort*. Dry pastures in chalky and gravelly soils. Fl. white, tipped with pink. July. Perennial. *E. B.* 284., *H.* 226., *D. C. ii.* p. 546.

Tribe III. DRYADEÆ. (D. C. prod. ii. p. 549.)

Calyx 5-fid (rarely 4-fid, or multifid), valvate in æstivation, generally with external bractæ alternate with the lobes. *Petals* as many as the true lobes of the calyx, and alternate with them. *Stamens* numerous (rarely 5, and then opposite the lobes of the calyx), inserted at the top of the expanded tube of the calyx. *Carpels* numerous, rarely few, congested, inserted on the torus, not united together, nor to the calyx, bearing the style on its side, near the apex. *Styles* marked with a furrow on the inner side, and expanded into an oblique stigma. *Akenes*, or *carpels*, 1-ovuled, perfectly free, baccate or juiceless. *Seeds* solitary, erect, or inverse, without albumen. *Embryo* straight. *Cotyledons* flat. — Herbs or shrubs, generally with compound leaves, and 2 stipules, laterally adnate to the petiole.

VIII. DRYAS. (L. gen. n. 636., D. C. l. c.)

Calyx 8—9-partite, naked externally; tube subconcave. *Petals* 8—9. *Stamens* numerous. *Carpels* numerous; the style, after flowering, terminating in a barbato-plumose tail. *Seed* ascending. — Herbs, with undivided leaves, tomentose on the under surface. Flowers white.

1. *D. octopetala*. (L. sp. 717.) *Dryas*, or *Mountain Avens*. In alpine situations. Not unfrequent. Fl. white. June. Perennial. E. B. 451., H. 256., D. C. l. c.

IX. GEUM. (L. gen. n. 636., D. C. prod. ii. p. 550.)

Tube of *calyx* concave. *Limb* 5-fid, externally 5-bracteolate. *Petals* 5. *Stamens* numerous. *Carpels* juiceless, caudate, arranged in a capitule. *Style*, after flowering, articulated, or bearded. *Seeds* ascending. — Herbs, with variously pinnatisect leaves.

Flowers small, yellow - - - - 1. *G. URBANUM*.

Flowers large, purple, red, or scarlet
flowers erect, calyx reflexed, petals patent - 2. *G. CHILOENSE*, clt.
flowers cernuous, calyx and petals erect - - 3. *G. RIVALE*.

1. ! *G. urbanum*. (L. sp. 716.) *Wood Avens*; *Herb Bennet*. Hedges and woods. Common. Fl. yellow. June. Perennial. E. B. 1400., H. 255., D. C. ii. p. 551.

2. *G. chilense*. (Balbis.) *Scarlet Avens*. Villous. Stem glandular, radical leaves interruptedly pinnate. Leaflets crenate, serrated; the terminal one large, roundish, cordate. Cauline leaves 3-partite, deeply cut. Stipules large, round, dentate. Fl. panicled, erect. Scarlet. May, July. Perennial. *G. coccineum*. (D. C. ii. p. 551.)

3. *G. rivale*. (L. sp. 717.) *Water Avens*. Marshes in north of England. Common. Fl. purplish orange. June, July. Perennial. E. B. 106., H. 256., D. C. ii. p. 551.

X. RUBUS. (L. gen. n. 632., D. C. prod. ii. p. 556.)

Calyx rather flat beneath, 5-fid, naked. *Petals* 5. *Stamens* numerous, inserted on the calyx. *Carpels* consisting of numerous succulent drupellæ, inserted on a protuberant dry torus, and surmounted by sublateral styles. *Seeds* inverted. — Shrubs (rarely, perennial herbs), with petiolated leaves.

Leaves pinnate - - - - - 1. *R. IDÆUS*.

Leaves digitate, or pedate

stem (mostly biennial), woody

stem nearly erect, not rooting - - - - 2. *R. SUBERECTUS*.

stem arched, or prostrate, rooting

prickles nearly uniform, confined to the angles }
of the stem; leaves generally white beneath } 3. *R. FRUTICOSUS*.

prickles various, not confined to the angles of
the stem; leaves green beneath

calyx covered with glandular bristles, and }
hairy - - - - - } 4. *R. KÜHLERI*.

calyx glabrous, or with a few hairs

calyx, after flowering, reflexed; carpels numerous - - - - } 5. *R. CORYLIFOLIUS*.

calyx, after flowering, erect, embracing the }
fruit; carpels few, 5—10 - - - - } 6. *R. CÆSIUS*.

stem herbaceous, or nearly so

stolons creeping; panicle of a few white flowers 7. *R. SAXATILIS*.

stolons none; flower solitary, deep rose-colour - 8. *R. ARCTICUS*.

Leaves simple or lobed, but neither pinnate nor palmate

herb - - - - - 9. *R. CHAMÆMORUS*.

shrub - - - - - 10. *R. ODORATUS*, clt.

1. *R. idæus*. (L. sp. 706.) *Raspberry*. Woods, especially in mountainous countries. Fl. white. May, June. Small shrub. E. B. 2442., H. 245., D. C. ii. p. 558. Varies by cultivation with white and red fruit.

2. ! *R. suberectus*. (Anderson.) *Upright Bramble*. In boggy heaths, by the sides of streams, especially in mountainous countries. Near Tunbridge, and in Stokes Bay, Hants. Fl. white, sometimes pink. June, Aug. Small shrub. E. B. 2572., H. 246., D. C. ii. p. 556.

** Dr. Lindley considers *R. plicatus* and *R. fissus* to belong to the section of *Suberecti*.

3. ! *R. fruticosus*. (L. sp. 707.) *Common Bramble*; *Blackberry*. Hedges and thickets. Common. Fl. rose-coloured, or white. July, Aug. Small shrub. E. B. 715.

Subsp. 1. ? *R. carpinifolius*. Leaflets ovate, acuminate, flexible; pale green beneath. Hedges in Cheshire, &c. *R. carpinifolius*. (W. & N. 13., E. B. 2664.)

Subsp. 2. ! *R. Radula*. Leaflets opaque, rugose, soft, and white beneath. Panicles very short, leafy, hairy, and glandular. Windsor Forest. *R. Radula*. (W. & N.) Lind. synop. 94.

Subsp. 3. ! *R. rhamnifolius*. Leaflets roundish, acuminate, coriaceous, paler beneath. Panicle long, narrow, and downy. *R. rhamnifolius*. (W. & N.) E. B. 2604., H. 248., D. C. ii. p. 563.

Subsp. 4. ! *R. leucostachys*. Leaflets round, flat, coriaceous. Panicle elongated, more or less shaggy and downy. Thickets, Hants and Berks. *R. leucostachys*. (Smith.) E. B. 2631., H. 249., D. C. ii. p. 562.

Subsp. 5. ? *R. macrophyllus*. Leaflets elliptical or ovate, flexible. Panicle subcorymbose. Sussex. Rare. ? *R. macrophyllus*. (W. & N.) E. B. 2625.

Subsp. 6. ? *R. fissus*. Stem arched. Leaflets 7, shining. Racemes simple. Prickles strong. Hedges, Scotland. *R. fissus*. (Lind. synop. p. 92.)

Subsp. 7. ? *R. plicatus*. Prickles numerous, and larger than in subsp. 6. Sussex, and near Newbury, in boggy places. *R. plicatus*. (W. & N., E. B. 2714., D. C. ii. p. 560.) *R. nitidus*. (E. Fl. p. 404.)

4. ! *R. Köhleri*. (W. & N.) *Köhler's Bramble*. Woods and thickets. Fl. white or pale pink. July, Aug. Small shrub. E. B. 2605., H. 250. *R. villosus* var. *glandulosus*. (D. C. ii. p. 563.)

Subsp. 1. *R. fusco-ater*. Leaflets cuspidate. Panicles very short, loose, and straggling. Woods and hedges. *R. fusco-ater*. (W. & N.) Lind. synop. 93.

Subsp. 2. *R. rudis*. Leaflets acuminate. Panicles long, straggling, and leafy. Woods and hedges. *R. rudis*. (W. & N.) *R. echinatus*. (Lind.)

Subsp. 3. ? *R. diversifolius*. Leaflets very thick, orbicular, shaggy beneath; the upper single, very large, heart-shaped. Panicle long, straggling. Thickets and hedges. *R. diversifolius*. (Lind. synop. 94.) A variety of *leucostachys* of Hooker, according to Borrer.

5. ! *R. corylifolius*. (Smith.) *Hazel-leaved Bramble*. Hedges and thickets. Fl. white. July, Aug. Small shrub. E. B. 827., H. 251., D. C. ii. p. 559.

Note. Dr. Lindley considers *R. macrophyllus* and *R. carpinifolius* of Weihe and Nees as more connected with this species than with *R. fruticosus*.

6. ! *R. cæsius*. (L. sp. 706.) *Dewberry*. Thickets and borders of fields. Fl. white. June, July. Small shrub. E. B. 826., H. 251., D. C. ii. p. 558.

Subsp. 1. *R. hirtus*. Branches covered with long hairs and glandular bristles. Woods, &c. *R. hirtus*. (Walds. & Kit.) Lind. synop. 94.

Subsp. 2. *R. dumetorum*. Branches with scarcely any bristles. Stem leaves quinate. Panicle leafy, straggling. Hedges and dry ditches. *R. dumetorum*. (W. & N.) Lind. syn. 94.

7. *R. saxatilis*. (L. sp. 708.) *Stone Bramble*. Stony mountainous places, especially in the north. Fl. white. June. Perennial. E. B. 2233., H. 252., D. C. ii. p. 564.

8. *R. arcticus*. (L. sp. 708.) *Arctic Bramble*. Isle of Mull and Ben-y-glo, Scotland. Fl. deep rose-colour. June. Perennial. E. B. 1585., H. 252., D. C. ii. p. 565.

9. *R. Chamæmorus*. (L. sp. 708.) *Cloudberry*. Alpine Moors. Fl. large, white. June. Perennial. E. B. 716., H. 252., D. C. ii. p. 565.

10. *R. odoratus*. (L. sp. 707.) *Flowering Raspberry Tree*. Stem fruticose, erect. Petioles, peduncles, and calyx glandular and hairy. Leaves 5-lobed, unequally dentate. Flowers subcorymbose. Segments of calyx ovate acuminate, shorter than the corolla. Carpels numerous, ovate, velvety. Styles infundibuliform. Native of North America. Cult. in shrubberies. Fl. rose-coloured. June, Aug. Shrub. Bot. mag. 150., D. C. ii. p. 566.

XI. FRAGARIA. (L. gen. n. 633., D. C. prod. ii. p. 569.)

Calyx tube concave, 5-fid, with 5 external bracteas. *Petals* 5. *Stamens* numerous. *Carpels* numerous, dry, inserted on a fleshy succulent receptacle, which is ultimately deciduous. *Styles* lateral. *Seeds* appended. — Herbs, with 3-foliate leaves.

Carpels very numerous, superficial; stamens numerous; flowers hermaphrodite } 1. *F. vesca*.

Carpels few, deeply sunk in niches of the receptacle;
stamens few; flowers generally, by abortion,
diœcious

peduncles and pedicels much longer than the leaves 2. *F. ELATIOR.*

peduncles and pedicels about the length of the leaves

leaves glabrous above - - - 3. *F. VIRGINICA*, clt.

leaves very hairy on both sides - - - 4. *F. CHILENSIS*, clt.

1. ! *F. vesca*. (L. sp. 705.) *Wood Strawberry*; *Alpine Strawberry*. Woods and thickets. Very common. Fl. white. May, July. Perennial. E. B. 1524., H. 253., D. C. ii. p. 569.

β. *atrovirens*. (Lind.) Leaflets sessile, hairy, roundish, wedge-shaped. Calyx as long as the corolla. In Northumberland. E. B. 2742.

2. ! *F. elatior*. (Ehrh.) *Hautboy Strawberry*. Groves and hedges. Probably escaped from gardens. Fl. white. June, Sept. Perennial. E. B. 2197., H. 253., D. C. ii. p. 570.

α. *moschata*. (D. C.) *Green Pine*. Fruit perfumed. *F. moschata*. (Duchesne.)

3. *F. virginiana*. (Mill. dict.) *Scarlet Strawberry*. Diœcious (by abortion). Flowers subcampanulate. Petals ovate. Leaves coriaceous, not folded. Petioles short. Peduncles and pedicels the length of the leaves. Receptacle much swollen, pendulous. Styles long. Native of Virginia. Cult. in gardens. Fl. white. April, May. Perennial. D. C. ii. p. 570.

4. *F. chilensis*. (Ehrh.) *Pine Strawberry*. Diœcious by abortion. Leaves glaucous, coriaceous, widely crenate, pilose on the upper and under surfaces. Peduncles thick. Sepals and receptacle erect or pendulous. Native of South America. Cult. in gardens. Fruit white internally. April, May. Perennial. D. C. ii. p. 571.

XII. POTENTILLA. (L. gen. n. 634., D. C. prod. ii. p. 571.)

Tube of calyx concave. Limb 4—5-fid, externally 4—5-bracteolate. Petals 4—5. Stamens numerous. Carpels numerous. Style lateral. Receptacle persistent, juiceless. Seeds appended, inverted. — Herbs or shrubs, with compound leaves.

Flowers yellow

leaves pinnatisect

stem shrubby - - - - 8. *P. FRUTICOSA*.

stem herbaceous - - - - 9. *P. ANSERINA*.

leaves palmatisect

petals generally 4 - - - - 1. *P. TORMENTILLA*.

petals always 5

leaves covered with a white down on under surface - - - } 6. *P. ARGENTEA*.

pubescence, when present, never white

stem with filiform, creeping, and rooting branches - - - } 2. *P. REPTANS*.

stem not creeping

leaflets ciliated

leaflets serrated towards the apex - 3. *P. VERNA*.

leaflets incised towards the apex - 4. *P. SALISBURGENSIS*.

leaflets not ciliated

leaflets 5, incised towards the apex - 4. *P. SALISBURGENSIS*.

leaflets 7, serrated or incised to the base - - - } 5. *P. OPACA*.

Flowers white

leaves pinnatisect - - - - 11. *P. RUPESTRIS*.

leaves palmatisect

leaflets 5 - - - - 12. *P. ALBA*.

leaflets 3

leaflets glabrous on upper surface, 5-dentate; petals oval, longer than the calyx } 13. *P. TRIDENTATA*.

leaflets silky on upper surface, serrated; petals obcordate, the length of the calyx } 14. *P. FRAGARIA*.

Flowers red or purple

leaves pinnatisect; petals acuminate - - 10. *P. COMARUM*.

leaves palmatisect; petals obtuse - - 7. *P. NEPALENSIS*, clt.

1. ! *P. Tormentilla*. (Nest.) *Tormentil*. Moors and heaths. Common. Fl. yellow. June, July. Perennial. E. B. 863., H. 255., D. C. ii. p. 574.

β. ! *nemoralis*. (Ser.) Stem weak, prostrate. Stipules generally lanceolate, undivided, rarely 2—3-dentate. Leaves petiolate, often opposite. *Tormentilla reptans*. (L. sp. 716.) E. B. 864., H. 255.

2. ! *P. reptans*. (L. sp. 714.) *Creeping Cinquefoil*. Meadows and pastures. Common. Fl. yellow. June, Aug. Perennial. E. B. 862., H. 255., D. C. ii. p. 574.

3. *P. verna*. (L. sp. 712.) *Spring Cinquefoil*. Dry pastures. Suffolk, Cambridge, and north of England. Fl. yellow. May, June. Perennial. E. B. 37., H. 254., D. C. ii. p. 575.

4. *P. salisburgensis*. (Hænke.) *Orange Alpine Cinquefoil*. Mountains in the north of England. Fl. yellow. June, July. Perennial. *P. aurea*. (E. B. 561.) *P. alpestris*. (Hook. 254.) *P. aurea* var. *salisburgensis*. (D. C. ii. p. 576.)

5. *P. opaca*. (L. sp. 713.) *Saw-leaved hairy Cinquefoil*. Clova, Scotland. Fl. yellow. June. Perennial. E. B. 2449., H. 254., D. C. ii. p. 575.

6. ! *P. argentea*. (L. sp. 712.) *Hoary Cinquefoil*. Pastures and road sides, in gravelly and chalky soils. Fl. yellow. June. Perennial. E. B. 89., H. 254., D. C. ii. p. 576.

7. *P. nepalensis*. (Hook. exot. fl.) *Nepal Potentilla*. Dark green, hairy. Radical leaves quinate; cauline ones ternate. Leaflets cuneate, oblong, serrate. Stipules large, entire. Petals obcordate. Native of Nepal. Cult. in gardens. Fl. purple. July, Aug. Perennial. D. C. ii. p. 579.

P. atrosanguinea, which is also much cultivated, differs from this in the leaves being all trilobate, and covered with a snowy down on the under surface.

8. *P. fruticosa*. (L. sp. 709.) *Shrubby Cinquefoil*. Middleton, Teesdale, Yorkshire, and Ireland. Fl. yellow. June. Perennial. Also very commonly cult. in shrubberies. E. B. 88., H. 253., D. C. ii. p. 579.

9. ! *P. anserina*. (L. sp. 710.) *Silver Weed*. Road sides, &c. Common. Fl. yellow. June, July. Perennial. E. B. 861., H. 253., D. C. ii. p. 582.

10. ! *P. Comarum*. (Scop. carn.) *Purple Marsh Cinquefoil*. Marshes and peat bogs. Common. Fl. dingy purple. July. Perennial. D. C. ii. p. 583. *Comarum palustre*. (L. sp. 718., E. B. 172., H. 253.)

11. *P. rupestris*. (L. sp. 711.) *Strawberry-flowered Cinquefoil*. Montgomeryshire. Rare. Fl. white. May. Perennial. E. B. 2058., H. 253., D. C. ii. p. 583.

12. *P. alba*. (L. sp. 713.) *White Cinquefoil*. Wales. Fl. white. May, June. Perennial. E. B. 1384., H. 254., D. C. ii. p. 584.

13. *P. tridentata*. (Soland.) *Three-toothed Cinquefoil*. Clova Mountains, Scotland. Very rare. Fl. white. May, June. Perennial. E. B. 2389., H. 255., D. C. ii. p. 585.

14. ! *P. Fragaria*. (Poir.) *Barren Strawberry*. Woods, banks, &c. Common. Fl. white. March, April. Perennial. D. C. ii. p. 585. *Fragaria sterilis*. (L. sp. 709., E. B. 1785.) *P. Fragariastrum*. (H. 255.)

XIII. SIBBALDIA. (L. gen. n. 393., D. C. prod. ii. p. 586.)

Character the same as that of *Potentilla*; but the petals are very small. Carpels and stamens generally 5. Calyx bracteate. Seeds inverted in the nut. Receptacle juiceless.

1. *S. procumbens*. (L. sp. 406.) *Procumbent Sibbaldia*. Summits of Highland mountains. Fl. small, yellow. July. Perennial. E. B. 897., H. 151., D. C. ii. p. 587.

XIV. AGRIMONIA. (L. gen. n. 607., D. C. prod. ii. p. 587.)

Tube of the calyx turbinate, ebracteate, surrounded by bristles in the form of an involucre. Limb 5-fid. Petals 5. Stamens 12—15. Carpels 2, with terminal styles. Akene (or nut) membranous, enclosed in the indurated tube of the calyx. Seeds appended. — Herbs, with pinnatisect leaves.

1. ! *A. Eupatoria*. (L. sp. 643.) *Agrimony*. Borders of fields, and waste places. Fl. yellow. June, July. Perennial. E. B. 1335., H. 220., D. C. ii. p. 587.

Tribe IV. SANGUISORBEÆ. (D. C. prod. ii. p. 588.)

Flowers generally polygamo-dioecious. Calyx 3—5-fid; the lobes valvate in æstivation; the tube contracted at the top surrounding the carpel, and often

subadherent to it. *Petals* none, or 4 united at the base into a rotate corolla. *Stamens* as many as the lobes of the calyx; 1 or more, often abortive. *Carpels* few, 1—2, with a sublateral style. *Stigma* rarely capitate, generally brush-like or bearded. *Akenes* 1-ovuled, dry, and indehiscent. *Seed* inverted. — Herbs or shrubs, generally with compound leaves and small flowers.

XV. *ALCHEMILLA*. (L. gen. n. 165., D. C. prod. ii. p. 589.)

Calyx tubular; the tube contracted at the apex; the limb 8-partite. *Bracteas* alternate (sometimes very small), dentiform. *Petals* none. *Stamens* 1—4. *Ovary* dry, hard, 1-seeded, bearing from the side a filiform capitate style. *Seed* inverted. — Herbs, with palmatilobed or palmatisect leaves.

Flowers sessile, axillary - - - - 3. *A. ARVENSIS*.

Flowers pedunculated, in terminal corymbs

leaves digitate, 5—7-fid, whitish with silky down - 2. *A. ALPINA*.

leaves lobed, 7—9-fid, green, glabrous, or with simple } 1. *A. VULGARIS*.
pubescence - - - -

1. *A. vulgaris*. (L. sp. 178.) *Common Lady's Mantle*. Alpine pastures. Fl. yellowish. June, July. Perennial. E. B. 597., H. 73., D. C. ii. p. 589.

β. *minor*. (Hook.) Leaves very pubescent. *A. hybrida?* (Hoffm.)

2. *A. alpina*. (L. sp. 179. var. α.) *Alpine Lady's Mantle*. Mountains in north of Eng. and Scot. Fl. green, with a yellow tinge. July, Aug. Perennial. E. B. 244., H. 73., D. C. ii. p. 589.

3. ! *A. arvensis*. (Scop. carn.) *Parsley Piert*. Fields, gravelly soils, &c. Common. Fl. green. May, July. Annual. E. B. 1011., H. 73., D. C. ii. p. 590. *Aphanes arvensis*. (L. sp. 179.)

XVI. *SANGUISORBA*. (L. gen. 146., D. C. prod. ii. p. 593.)

Flowers hermaphrodite. *Calyx* 4-fid, bisquamose externally at the base. *Petals* none. *Stamens* 4. *Carpels* 2, enclosed within the tube of the calyx, surmounted by the style, which is brush-like at the apex. *Akene* 1-seeded, dry, and indehiscent. *Seed* inverse. — Perennial herbs, with the flowers aggregated into dense spikes.

Spike ovate, stamens not exsert - - - - 1. *S. OFFICINALIS*.

Spike cylindrical, stamens exsert - - - - 2. *S. MEDIA*.

1. ! *S. officinalis*. (L. sp. 169.) *Great Burnet*. Moist meadows, on a calcareous soil. Fl. dark purple. June, July. Perennial. E. B. 1312., H. 73., D. C. ii. p. 593.

2. *S. media* (L. sp. 169.) *Oblong Burnet*. Pastures in the west of Scotland. Fl. lighter purple. July. Perennial. H. 74., D. C. ii. p. 594.

XVII. *POTERIUM*. (L. gen. 1069., D. C. prod. ii. p. 594.)

Flowers monœcious or polygamous. *Calyx* with 3 scales at the base; the apex of the tube contracted; the limb 4-partite. *Petals* none. *Stamens* 20—30. *Ovaries* 2, surmounted by a filiform style and a brush-like stigma. *Akene* 1-seeded, dry, enclosed in the hardened calyx. *Seed* inverted. — Flowers aggregated into dense spikes.

1. ! *P. Sanguisorba*. (L. sp. 1411.) *Salad Burnet*. Dry and chalky pastures. Common. Fl. dull purple. July. Perennial. E. B. 860., H. 410., D. C. ii. p. 594.

Tribe V. *ROSEÆ*. (D. C. prod. ii. p. 596.)

Tube of the *calyx* contracted at the apex; limb 5-partite; the lobes often pinnatisect, subspirally imbricated at the apex. *Petals* 5. *Stamens* numerous. *Carpels* numerous, dry, indehiscent, and subcrustaceous, with the style arising from the inner side, enclosed within the tube of the calyx, which, when ripe, becomes a berry. *Styles* exserted from the narrowed tube of the calyx, free or aggregated into a columnar style. *Seed* solitary, inverted. *Albumen* none. *Embryo* straight. *Cotyledons* flat. — Shrubs.

XVIII. *ROSA*. (L. gen. n. 631., D. C. prod. ii. p. 597.)

Character the same as of the tribe.

Flowers yellow or orange-coloured

leaves glandular - - - - 10. *R. EGLANTERIA*, clt.

leaves not glandular - - - - 5. *R. BANKSIE*, clt.

- Flowers red or rose-coloured
 styles aggregated into a column - - - 3. *R. STYLOSA*.
 styles free
 sepals erect or spreading, not deflexed after
 flowering
 stem and branches smooth, unarmed - 6. *R. TURBINATA*, clt.
 stem prickly
 fruit urceolate
 bractæas large - - - 9. *R. DICKSONI*.
 bractæas small - - - 13. *R. SABINI*.
 fruit globular or ovato-globular
 peduncles hispid, glandular - - 7. *R. GALLICA*, clt.
 peduncles smooth, glabrous - - 8. *R. CINNAMOMEA*.
 sepals deflexed after flowering, or deciduous
 sepals entire: stipules free, deciduous - 4. *R. INDICA*, clt.
 sepals pinnatifid; stipules adnate
 leaves not glandular - - - 14. *R. CANINA*.
 leaves glandular
 prickles uniform; setæ none, or very
 few
 prickles straight; calyx subpinnate } 17. *R. VILLOSA*.
 or subsimple - - - }
 prickles somewhat hooked; calyx } 16. *R. TOMENTOSA*.
 deeply pinnatifid - - - }
 prickles various, intermixed with setæ
 glandular hairs ferruginous - - 15. *R. RUBIGINOSA*.
 glandular hairs not ferruginous
 calyx reflexed; bud oblong; fruit } 19. *R. DAMASCENA*, clt.
 elongated - - - }
 calyx not reflexed; bud ovate, } 18. *R. CENTIFOLIA*, clt.
 short; fruit ovate or oblong, }
 but not elongated - - - }
- Flowers white, or very slightly tinged with pink
 styles aggregated into a column
 sepals nearly entire; fruit red; leaves deci- } 1. *R. ARVENSIS*.
 duous - - - }
 sepals pinnatisect, elongated, appendiculated; } 2. *R. MOSCHATA*, clt.
 fruit yellow; leaves evergreen - - - }
- styles free
 stipules deciduous - - - 5. *R. BANKSIE*, clt.
 stipules adnate
 sepals entire
 serratures simple - - - 11. *R. PIMPINELLIFOLIA*.
 serratures serrulate - - - 12. *R. INVOLUTA*.
 sepals pinnatifid
 leaves not glandular - - - 14. *R. CANINA*.
 leaves glandular - - - 20. *R. ALBA*, clt.

1. ! *R. arvensis*. (L. mant. 245.) *Trailing Dog Rose*. Woods and hedges in south of England. Fl. white. June, July. Small shrub. E. B. 188., H. 244., D. C. ii. p. 597.

Note. *R. sempervirens*, a cultivated species, resembles *R. arvensis* very much, but is an evergreen.

Subps. 1. *R. capreolata*. (Don.) *Ayrshire Rose*. Prickles slender, very sharp. Leaflets ovate, sharply serrated. Peduncles glanduloso-hispid. Cult. Common.

2. *R. moschata*. (Mill. dict.) *Musk Rose*. Shoots ascending; cauline spines slender, hooked. Leaves 5—7, lanceolate, acuminate, smooth. Stipules very narrow, acute. Flowers generally very numerous. Calyx subhispid. Sepals subpinnate, appendiculated. Fruit ovate. Native of Africa and Asia. Fl. white; the claws yellow. Also red, single and double. July, Oct. Small shrub. D. C. ii. p. 598.

3. ! *R. stylosa*. (Desvaux.) *Close-styled Dog Rose*. Thickets and hedges. Middlesex, Essex, Sussex. Fl. pink. June, July. Small shrub. D. C. ii. p. 599. *R. collina*. (E. B. 1895.) *R. systyla*. (H. 243.)

Subsp. 1. *R. ovata*. (Lind.) Leaflets ovate. Fruit oblong.

Subsp. 2. *R. lanceolata*. (Lind.) Leaflets oval lanceolate, fruit spherical.

Subsp. 3. *R. Monsoniana* (Lind.) Appears to Dr. Lindley to be scarcely a variety.

4. *R. indica*. (L. sp. 705.) *China Rose*. Stems erect, subcanescent, green or purple. Prickles strong, falcate, distant. Folioles 3—5, ovate acuminate, coriaceous, shining, glabrous, serrated. Stipules very narrow, united to the petiole, entire or serrated. Stamens inflexed. Peduncles subarticulated, thickened, smooth, or rugoso-setose. Native of China. Cult. Very common. Fl. pink. Almost the whole year. Large shrub. D. C. ii. p. 600. There are many varieties of this species, as α . *flagrans* or *odoratissima*, Tea Rose; β . *humilis*, Dwarf China Rose; γ . *semperflorens* or *bengalensis* (Bot. mag. 284.); δ . *cruenta*, Blood-red Rose, &c.

5. *R. Banksiæ*. (R. Brown.) *Banksian Rose*. Unarmed, smooth, glabrous. Folioles lanceolate, approximated, 3—5, very slightly serrated. Stipules setaceous, scarcely adherent, deciduous, shining. Flowers umbellate. Fruit globose, black. Native of China. Cult., but not common. Fl. small, white, in clusters. June, July. Small shrub. Bot. mag. 1954., D. C. ii. p. 601.

6. *R. turbinata*. (Ait. hort. kew.) *Frankfort Rose*. Stem unarmed, the branches smooth. Leaflets 5—7, ovato-cordate, rugose, simply serrate, approximated, villous beneath. Stipules very large, amplexicaule. Flowers subcorymbose, large. Peduncles hispid. Calyx turbinate, smooth. Sepals undivided. Native country unknown. Cult. Fl. pink. June, Aug. Small shrub. D. C. ii. p. 603.

7. *R. gallica*. (L. sp. 704.) *French Rose*. Prickles unequal. Stipules narrow, divaricated at the apex. Leaflets 5—7, coriaceous, rigid, ovate or lanceolate, deflexed. Flower bud ovate, globose. Sepals spreading. Fruit subglobose, very coriaceous. Calyx and peduncles more or less finely glandular, hispid, subviscous. Very various in form. Native of the south of Europe. Cult. Common. Fl. dark red. June. Small shrub. D. C. ii. p. 603. Don enumerates more than 200 varieties of this species.

8. *R. cinnamomea*. (L. sp. 703.) *Cinnamon Rose*. Yorkshire and Ayrshire. Doubtful native. Fl. pink. May, Aug. Small shrub. H. 227., D. C. ii. p. 605.

Subsp. 1. *R. Smithiana*. (D. C.) Folioles oblong lanceolate. Stipules narrow. *R. cinnamomea*. (Smith.) E. B. 2388.

Subsp. 2. *R. latifolia*. (D. C.) Folioles ovate. *R. cinnamomea*. (Sm. eng. fl.)

9. *R. Dicksoni*. (Lind.) *Dickson's Rose*. Ireland. Fl. pink. June. Small shrub. E. B. 2707., H. 226.

10. *R. Eglanteria*. (L. sp. 703.) *Yellow Rose*. Young stems covered with prickles; older ones armed with scattered (rarely stipular) prickles. Leaflets ovate or obovate, sharply serrated; smooth above, glandular beneath. Stipules narrow, entire, diverging at the apex. Peduncles and calyx smooth. Sepals spreading, pinnatifid. Fruit globose. Native country unknown. Cult. Fl. varying from yellow to orange. June. Small shrub.

Subsp. 1. *R. lutea*. Petals yellow on both surfaces. Stigmas purple. *R. lutea*. (Mill.) Bot. mag. 363.

Subsp. 2. *R. punicea*. Petals crimson above, yellow beneath. Lind. ros. 84.

11. ! *R. pimpinellifolia*. (L. sp. 307.) *Burnet-leaved Rose*. On sandy and chalky soil, principally near the sea. Fl. cream-coloured. June. Small shrub. D. C. ii. p. 608. Upwards of 200 cultivated varieties are enumerated by Don, syst. gard. ii. 568.

Subsp. 1. *R. vulgaris*. (D. C.) Peduncles and fruit smooth. *R. spinosissima*. (E. B. 187., H. 229.)

Subsp. 2. *R. pilosa*. (Lind.) Very dwarf; leaves acute, hairy on the under surface.

Subsp. 3. *R. pumila*. (D. C.) Leaves and flowers small. Peduncles and calyx rather smooth. *R. spinosissima pusilla*. (Woods.)

Subsp. 4. *R. rubella*. (D. C.) The whole plant slightly hispid. Fl. pale red. *R. rubella*. (E. B. 2522., H. 228.) In Northumberland. Rare.

12. *R. involuta*. (Smith.) *Prickly unexpanded Rose*. Highlands of Scotland. Fl. white, or pale pink. June. Shrub. E. B. 2086., H. 231.

Subsp. 1. *R. Doniana*. Setæ almost wanting. Prickles nearly straight. *R. Doniana*. (Woods, E. B. 2601., Lind. synop. 100.)

* * * *R. Wilsoni* appears intermediate between *R. involuta* and *R. Sabini*.

13. *R. Sabini*. (Woods.) *Sabine's Rose*. Scotland and north of England; also Sussex. Fl. pink. June. Shrub. E. B. 2594., H. 232.

Subsp. 1. *R. gracilis*. (Hook.) Larger prickles falcate. Calyx almost simple. *R. gracilis*. (Woods.) *R. villosa*. (E. B. 583.)

Note. Mr. Borrer considers *R. Doniana* to be a variety of *R. Sabini*.

14. ! *R. canina*. (L. sp. 704.) *Common Dog Rose*. Hedges, &c. Very common. Fl. pink. June. Small shrub. E. B. 992., H. 239., D. C. ii. p. 613.

Subsp. 1. *R. sarmentacea*. (Hook.) Leaflets naked, carinate. Serratures compound. *R. sarmentacea*. (Woods.) E. B. 2595., H. 1. c.

Subsp. 2. *R. surculosa*. (Hook.) Leaflets naked, flat. Serratures simple.

Subsp. 3. *R. dumetorum*. (Desv.) Leaflets more or less hairy, flat. *R. dumetorum*. (E. B. 2610., H. 1. c.) *R. bractescens*. (Woods, Lind.)

Subsp. 4. *R. Forsteri*. (Hook.) Leaflets more or less hairy, not flat. *R. Forsteri*. (Bor.) E. B. 2611., H. 1. c.

Subsp. 5. *R. collina*. (D. C.) Petioles woody. Leaflets ovate obtuse; tomentose beneath, smooth above. Fruit ovate globose. Peduncles smoothish. *R. collina*. (Jacq.) E. B. 2611.

Subsp. 6. *R. cæsia*. Leaflets ovate, hairy on both sides. Prickles very numerous, strongly uncinat. Fruit elliptical, smooth. *R. cæsia*. (Smith.) E. B. 2367., H. 242.

Subsp. 7. *R. hibernica*. Prickles unequal, small, setiform. Folioles ovate acute, rather naked, simply serrated. Fruit ovate, reddish orange, crowned by the ascending sepals. *R. hibernica*. (Smith, 2196.)

15. ! *R. rubiginosa*. (L. mant. 564.) *Sweet Briar*. Bushy places, especially on the chalk in the south of England. Fl. rose-coloured. June. Small shrub. E. B. 991., H. 237., D. C. ii. p. 615.

Subsp. 1. *R. sepium*. (D. C.) Prickles strong. Folioles obovate, elliptical, or lanceolate; smooth on the upper, and glandular on the under, surface. Petioles smooth. Fruit ovate, smooth. Peduncles smooth. *R. sepium*. (Thuil.) E. B. 2653., H. 238.

Subsp. 2. *R. micrantha* (Lind.) Prickles more equal, and less numerous. Sepals deciduous before the fruit is quite ripe. Fruit oblong ovate. *R. micrantha*. (E. B. 2490.)

Subsp. 3. *R. umbellata*. (Lind.) Branches of the inflorescence extremely prickly. Fruit taper. *R. umbellata*. (Leers.)

Subsp. 4. *R. inodora*. (Lind.) Prickles very much hooked, and nearly equal. Leaflets less glandular. Sepals deciduous before the fruit is quite ripe, and very compound. *R. inodora*. (Fries.) E. B. 2579., H. 235., D. C. ii. p. 617. *R. Borreri*. (E. B. 2723.)

16 ! *R. tomentosa*. (Smith.) *Downy-leaved Rose*. Hedges and thickets. Fl. pink. June. Small shrub. E. B. 990., H. 234., D. C. ii. p. 619.

Subsp. 1. *R. foetida*. (D. C.) Leaflets nearly smooth on the upper side. *R. foetida*. (Batard.) *R. scabriuscula*. (Winch.) E. B. 1896.

17. ! *R. villosa*. (L. sp. 704.) *Villous Rose*. North of England and Scotland. Fl. pink, or deep red. June. Small shrub. H. 233., D. C. ii. p. 618. *R. mollis*. (E. B. 2459.)

Subsp. 1. *R. resinosa*. Leaflets narrower, with very numerous glands. *R. tomentosa* γ. (Lind.)

18. *R. centifolia*. (L. sp. 704.) *Cabbage Rose*. Prickles unequal; larger ones falcate. Leaflets ciliated with glands. Flowers drooping. Calyx clammy. Fruit ovate oblong. Native country unknown. Cult. in gardens. Very Common. Fl. white or red, generally double. D. C. ii. p. 619. To this species belong all the varieties of the Provins roses also.

Subsp. 1. *R. muscosa*. (D. C.) *Moss Rose*. Prickles unequal, small, numerous. Leaflets ovate, flat, simply serrated. Peduncles and calyx glandular and mossy. *R. muscosa*. (Ait. hort. kew.)

Subsp. 2. *R. pomponia*. (Lind.) *Pomponc Rose*. Plant very small. *R. pomponia*. (D. C.)

19. *R. damascena*. (Mill. dict.) *Damask Rose*. Prickles unequal; larger ones falcate. Sepals reflexed. Fruit elongated. Native of Syria. Cult. in gardens. Fl. deep red, &c. June, July. Small shrub. D. C. ii. p. 620.

20. *R. alba*. (L. sp. 705.) *White or Blush Rose*. Glauous. Prickles slight, recurved, or none. Leaves ovato-rotund, shortly acuminate. Petioles and the nerves of the leaves glandular or submentose. Sepals pinnatifid. Petals patent. Fruit ovate. Peduncles hispid or smooth. Native of Germany. Cult.

leaves pinnate

flowers paniced, fruit obovate, leaflets downy beneath } 6. *P. SORBUS*.

flowers corymbose, fruit globose, leaflets glabrous - } 5. *P. AUCUPARIA*.

1. ! *P. communis*. (L. sp. 686.) *Pear Tree*. In woods and hedges. Fl. white. April, May. Small tree. E. B. 1784., H. 224., D. C. ii. p. 633.

Note. 677 varieties of cultivated pear are enumerated in Don's syst. of gard. ii. p. 606.

2. ! *P. Malus*. (L. sp. 686.) *Apple*. Woods and hedges. Fl. pale pink. May. Small tree. E. B. 179., H. 225., D. C. ii. p. 635.

α. ! *acerba*. Leaves and calyx tube very glabrous. *P. acerba*. (D.; C.) *The Crab Apple*; *Cider Apple*.

β. ! *mitis*. Under surface of leaves and calyx tube downy. *P. Malus*. (D. C.) *Sweet Apple*.

1400 varieties of cultivated apple are enumerated in Don's syst. of gard. ii. p. 624.

3. ! *P. Aria*. (Ehrh.) *White Beam Tree*. Woods and hedges; especially on a chalky soil. Fl. white. June. Large shrub. E. B. 1858., H. 225., D. C. ii. p. 636.

β. *intermedia*. Leaves inciso-lobate. *P. intermedia*. (Ehrh.)

γ. *pinnatifida*. Leaves deeply pinnatifid or half-pinnate. *P. pinnatifida*. (Ehrh.) E. B. 2331.

4. ! *P. terminalis*. (Ehrh.) *Wild Service Tree*. Woods and hedges, in middle and south of England. Fl. white. April, May. Large shrub. H. 225., D. C. ii. p. 636. Crat. torm. (L. sp. 681., E. B. 298.)

5. ! *P. aucuparia*. (Gærtn.) *Mountain Ash*. Mountainous woods; also commonly cult. Fl. white. May, June. Tree. H. 225., D. C. ii. p. 637. *Sorb. aucup.* (L. sp. 683., E. B. 337.)

6. ! *P. Sorbus*. (Gærtn.) *True Service Tree*. Cornwall and Staffordshire. Rare. Cult. in plantations. Fl. white. May. Large tree. D. C. ii. p. 637. *P. domestica*. (E. B. 350., H. 225.) *Sorbus domest.* (L. sp. 684.)

XXIII. CYDONIA. (Tournef., D. C. prod. ii. p. 638.)

Calyx 5-fid. *Petals* suborbiculate. *Stamens* erect. *Styles* 5. *Fruit* (pomum) closed, 5-celled. *Cells* many-seeded, cartilaginous. *Seeds* covered with a mucilaginous pulp.—Leaves undivided.

Lobes of calyx subfoliaceous, serrated; stamens in a single row } 1. *C. VULGARIS*, clt.

Lobes of calyx short, very entire, obtuse; stamens in two rows } 2. *C. JAPONICA*, clt.

1. *C. vulgaris*. (Pers. ench.) *Quince Tree*. Leaves ovate, obtuse at the base, very entire, tomentose beneath. Calyx tomentose. Native of the south of Europe. Cult. in gardens. Fl. white. May, June. Small tree. D. C. ii. p. 638. *Pyrus Cydonia*. (L. sp. 687.)

2. *C. japonica*. (Pers. ench.) *Pyrus japonica*. Leaves oval, subcuneate, crenate, serrated, very smooth, as well as the calyx. Stipules reniform, serrated. Native of Japan. Cultivated and trained against walls. Fl. scarlet or deep rose-colour, varying to white. May, Nov. Large shrub. D. C. ii. p. 638.

Order XXXIV. CALYCANTHÆ. (Lindl., D. C. prod. iii. p. 1.)

Calyx coloured, subcarnose; the tube urceolate, enclosing the ovaries. *Limb* multipartite; the lobes unequal. *Petals* none. *Stamens* numerous, inserted in many rows, on a fleshy disk, at the fauces of the calyx; the inner ones sterile. *Anthers* 2-celled, adnate, dehiscing externally and longitudinally. *Carpels* numerous, enclosed within the parietes of the calyx (as in the roses). *Ovary* 1-celled, 2-ovuled, and, by the abortion of one ovule, 1-seeded. *Styles* terminal, distinct, exsert from the tube of the calyx. *Stigmas* simple. *Akenes* enclosed within the fleshy tube of the calyx; 1-seeded, the pericarp subcorneous. *Seed* ascending. *Hilum* almost opposite the cicatrix of the pericarp. *Embryo* exalbuminous, straight; the cotyledons convolute; the radicle inferior.—Shrubs, with opposite, simple, exstipulate, rough leaves. Flowers solitary, pedicellated.

I. CALYCANTHUS. (Lind., D. C. prod. iii. p. 2.)

Lobes of the *calyx* in many rows, imbricated, lanceolate; all subcoriaceous coloured. *Stamens* unequal, deciduous; the 12 outer ones fertile. *Akenes* numerous.

1. *C. floridus*. (L. sp. 718.) *Carolina Allspice*. Leaves oval, tomentose beneath. Native of Carolina. Cult. in pleasure-grounds. Fl. dark purplish brown. May, June. Large shrub. Bot. mag. 503., D. C. l. c.

Order XXXV. GRANATEÆ. (Don, D. C. prod. iii. p. 3.)

Tube of *calyx* turbinate. *Limb* 5—7-fid, coriaceous; the lobes valvate in æstivation. *Petals* 5—7. *Stamens* numerous; the *filaments* free; the *anthers* dehiscing anteriorly by a double chink. *Style* filiform. *Stigma* capitate, papulous. *Fruit* large, spherical, crowned by the tubular limb of the calyx, covered by the tube, indehiscent, divided into 2 unequal chambers by a horizontal diaphragm; the upper chamber 5—9-celled; the lower, smaller, 3-celled; the septa in both membranous. *Seeds* numerous, surrounded by a hyaline pulp; exalbuminous. *Embryo* oblong. The *radicle* short, straight. The foliaceous *cotyledons* spirally contorted. — Shrubs or small trees, with deciduous leaves and scarlet flowers.

I. PUNICA. (L. gen. n. 618., D. C. prod. iii. p. 3.)

Character of the genus the same as of the order.

1. *P. Granatum*. (L. sp. 676.) *Pomegranate*. Leaves lanceolate. Stem arborescent. Native of Northern Africa. Cult. in the south of England. Fl. bright scarlet; generally double. July, Sept. Small tree. Bot. mag. 1832., D. C. l. c.

Order XXXVI. ONAGRARIÆ. (Juss., D. C. prod. iii. p. 35.)

Tube of *calyx* either entirely adnate to the ovary, or adherent to its base, and elongated beyond the ovary. *Limb* 2—5-lobed, generally 4-lobed; the lobes valvate in æstivation. *Petals* as many as the calyx lobes, generally regular, alternate with its lobes, contorted in æstivation, and inserted in the upper part of the tube (very rarely wanting). *Stamens* sometimes equal in number to the petals, generally double the number; in a few cases, but half as many. *Filaments* free, filiform. *Anthers* oblong or ovate. *Ovary* many-celled, often crowned by a cupular gland. *Styles* filiform. *Stigma* capitate or lobate. *Fruit* capsular, baccate, or drupaceous, 2- or 4-celled. *Seeds* numerous (or rarely solitary) in each cell, fixed to the central angle. *Albumen* wanting (the tumid endopleura sometimes resembling albumen). *Embryo* straight, with a long terete radicle, and two short cotyledons. — Herbs or shrubs. Leaves simple, alternate, or opposite, entire or dentate, penninerved.

Fruit baccate	-	-	-	-	-	1. FUCHSIA.
Fruit capsular						
petals 2	-	-	-	-	-	6. CIRCEA.
petals 4						
limb of calyx persistent	-	-	-	-	-	5. ISNARDIA.
limb of calyx not persistent						
seed covered with a fine down	-	-	-	-	-	2. EPILOBIUM.
seed not downy						
petals tripartite, unguiculated; stigma petaloid	-	-	-	-	-	4. CLARKIA.
petals not tripartite, sessile	-	-	-	-	-	3. ŒNOTHERA.

Tribe I. FUCHSIEÆ. (D. C. prod. iii. p. 36.)

Fruit baccate. Tube of the *calyx* elongated beyond the ovarium. — American trees or shrubs, with opposite leaves.

I. FUCHSIA. (Lin. gen. n. 126., D. C. prod. iii. p. 36.)

Tube of the *calyx* adherent to the ovary at the base, and prolonged above it into a cylindrical 4-lobed tube, disarticulating after flowering. *Petals* inserted

into the upper part of the tube, alternate with its lobes, seldom wanting. *Stamens* 8. *Ovary* crowned by an urceolate gland. *Style* filiform. *Stigma* capitate. *Berry* oblong or ovato-globose, 4-celled, 4-valved, many-seeded. — Shrubs, often with opposite leaves. *Pedicels* axillary, 1-flowered, sometimes ramose at the apex of the branches. *Flowers* generally nodding, red (rarely white.)

Leaves subsessile, pubescent - - - 1. *F. COCCINEA*, clt.
Leaves petiolate, glabrous - - - 2. *F. MACROSTEMMA*, clt.

1. *F. coccinea*. (Ait. hort. kew.) *Scarlet Fuchsia*. *Stamens* exsert. Leaves opposite, or 3 in a verticle, ovate acute, denticulated, subsessile. *Pedicels* axillary, nutant, longer than the flower. *Calicine lobes* oblong acute, twice as long as the convolute petals. Native of southern America. The first of the *Fuchsias* cultivated in England. *Calyx* scarlet. *Petals* violet. May, Oct. Small shrub. Bot. mag. 97., D. C. iii. p. 38.

2. *F. macrostemma*. (Ruiz and Pav.) *Stamens* exsert. Leaves 3 in a whorl, ovate, acute, denticulate, petiolate, glabrous. *Pedicels* axillary, nutant, longer than the flower. Lobes of the calyx oblong, acute, longer than the obovate patent petals. *Stigma* 4-lobed. Native of Chili. Cult. Common. *Calyx* scarlet. *Petals* purple. May, Oct. Shrub. D. C. iii. p. 37.

Note. *F. conica* and *F. gracilis* may be considered as varieties of *F. macrostemma*. *F. microphylla* and *F. thymifolia* are often cultivated; they are distinguished from the above by the stamens being included.

Tribe II. ONAGRARIÆ. (D. C. prod. iii. p. 40.)

Fruit capsular. *Cells* many-seeded. *Seeds* not winged. Tube of the *calyx* prolonged beyond the ovarium. *Stamens* double the number of the petals. — Herbs, sometimes suffruticose at the base.

II. EPILOBIUM. (L. gen. n. 471., D. C. l. c.)

Calyx 4-sepalous; the *sepals* united into a long tetragonal tube; the *limb* falling off after flowering. *Petals* 4. *Stamens* 8. *Pollen* not viscous. *Capsule* linear, obtusely tetragonal, 4-celled, 4-valved, many-seeded, adherent to the calyx. *Seeds* covered with down.

Flowers irregular; stamens bent down - - - 1. *E. ANGUSTIFOLIUM*.

Flowers regular; stamens erect

stigma 4-cleft

leaves glabrous, with short petioles - - - 5. *E. MONTANUM*.

leaves hirsute or downy, sessile

leaves hairy; stem branched - - - 6. *E. HIRSUTUM*.

leaves downy; stem subsimple - - - 8. *E. PARVIFLORUM*.

stigma undivided

stem markedly tetragonal; leaves sessile, slightly } 9. *E. TETRAGONUM*.
decurrent - - - }

stem 2-edged, obsoletely tetragonal; leaves } 4. *E. ROSEUM*.
stalked - - - }

stem terete

stem 2- or 3-flowered; leaves almost entire - 2. *E. ALPINUM*.

stem many-flowered; leaves serrated or sub-

dentate

stem glabrous; leaves narrow, lanceolate - 7. *E. PALUSTRE*.

stem pubescent above; leaves ovate acuminate - } 3. *E. ALSINIFOLIUM*.
nate - - - }

1. ! *E. angustifolium*. (L. sp. 493.) *Rosebay Willow-herb*. Margins of woods. In many parts of England. Wimbledon Common. Fl. purplish rose-coloured. July. Perennial. E. B. 1947., H. 183. *E. spicatum*. (D. C. iii. p. 40.)

2. *E. alpinum*. (L. sp. 495.) *Alpine Willow-herb*. By the sides of alpine springs and rivulets. Fl. purplish red. July. Perennial. 2—4 inches high. E. B. 2001., H. 184., D. C. iii. p. 41.

3. *E. alsinifolium*. (Vill.) *Chickweed-leaved Willow-herb*. Sides of alpine rivulets. Scotland and Wales. Fl. rose-coloured. July. Perennial. E. B. 2000., H. 184. *E. organifolium*. (D. C. iii. p. 41.)

4. ! *E. roseum*. (Schreb.) *Pale smooth-leaved Willow-herb*. Between More-

ton and Ongar. About Dorking. Fl. rose-coloured. July. Perennial. E. B. 693., H. 183. *E. roseum* var. α . (D. C. iii. p. 41.)

5. ! *E. montanum*. (L. sp. 494.) *Broad smooth-leaved Willow-herb*. Dry shady banks, &c. Common. Fl. rose-coloured. July. Perennial. E. B. 1177., H. 183., D. C. iii. p. 41.

6. ! *E. hirsutum*. (L. sp. 494.) *Great hairy Willow-herb*. Ditches, and sides of lakes and rivers. Common. Fl. rose-coloured; large. July. Perennial. E. B. 838., H. 183., D. C. iii. p. 42.

7. ! *E. palustre*. (L. sp. 495.) *Narrow-leaved Marsh Willow-herb*. Ditches and watery places. Common. Fl. rose-coloured, small. July. Perennial. E. B. 346., H. 184., D. C. iii. p. 43.

8. ! *E. parviflorum*. (Schreb.) *Small-flowered hairy Willow-herb*. Marshes and margins of lakes. Common. Fl. rose-coloured. July. Perennial. E. B. 795., H. 183., D. C. iii. p. 43.

9. ! *E. tetragonum*. (L. sp. 494.) *Square-stalked Willow-herb*. Ditches and watery places. Common. Fl. rose-coloured. July. Perennial. E. B. 1948., H. 183., D. C. iii. p. 43.

III. ŒNOTHERA. (L. gen. n. 469., D. C. prod. iii. p. 45.)

Calyx 4-sepaled. *Sepals* united into a long tetragonal or 8-ribbed tube; the *limb* and part of the tube falling off after flowering. *Petals* 4. *Stamens* 8, erect or bent down. *Pollen* triangular, viscous. *Stigma* 4-fid or spherical. *Capsule* oblong, linear, obtusely tetragonal or obovato-clavate, 4-celled, 4-valved, many-seeded, adherent to the base of the calyx. — Herbs or shrubs, with alternate and variously divided leaves.

Flowers yellow

stem muricated; leaves ovato-lanceolate, flat 1. Œ. BIENNIS.

stem pubescent; leaves linear lanceolate, } 2. Œ. ODORATA, clt.
undulated - - - - - }

Flowers purple - - - - - 3. Œ. PURPUREA, clt.

Flowers white - - - - - 4. Œ. TARAXACIFOLIA, clt.

1. *Œ. biennis*. (L. sp. 492.) *Common Evening Primrose*. Sandy soils of Suffolk, Warwickshire, and Lancashire. Very doubtful native; the genus being altogether American. Cult. in gardens. Common. Fl. yellow, expanding in the evening. July, Sept. Biennial. E. B. 1534., H. 182., D. C. iii. p. 46.

2. *Œ. odorata*. (Jacq.) *Sweet-scented Evening Primrose*. Pubescent. Stem branched, subfruticose. Leaves linear, lanceolate, subdentate, waved. Stamens as long as the corolla. Sepals unguiculate at the back. Petals obcordate, entire. Stigmas and fruit rather thick, elongated, cylindrical, villous. Native of Patagonia. Cult. in gardens. Fl. yellow, becoming purple after expansion. July, Aug. Biennial. Bot. mag. 2403., D. C. iii. p. 48.

* Many other species of *Œnothéra* with yellow flowers are cultivated; such as *Œ. grandiflora*, *Œ. suaveolens*, *Œ. macrocarpa*, *Œ. muricata*, *Œ. longiflora*, *Œ. glauca*, *Œ. fruticosa*, and *Œ. pumila*. For descriptions of these and the other *Œnothéras*, consult Don's System of Gardening, vol. ii.

3. *Œ. purpurea*. (Curt.) *Purple Evening Primrose*. Glaucous. Leaves lanceolate, attenuated at both extremities, obtuse. Tube of the calyx short. Petals broadly obovate, crenate. Stamens much shorter than the corolla. Stigma thick, short, dark purple. Anthers yellow. Capsule ovato-triangular, sessile, angular, hairy. Seeds irregularly angular, dotted, rugose. Native of North America. Cult. in gardens. Fl. purple. Aug. Annual. D. C. iii. p. 49.

* *Œ. Lindleyi* and *Œ. Romanzovii* also have purple flowers, and are both often cultivated. The former has the base of the petals striped with white, and the capsules terete.

4. *Œ. taraxacifolia*. (Hort.) *Taraxacum-leaved Evening Primrose*. Stem branched, elongated, procumbent. Leaves pubescent, alternate, interruptedly pinnatifid, sinuately dentate; the apex entire. Tube very long. Petals large, obovate, entire, 5-nerved. Anthers and stigma shorter than the corolla. Capsule sessile, obovate, tetragonal; the angles winged, pubescent. Native of Peru. Cult. in gardens. Fl. white, turning red. May, Aug. Perennial. Don's syst. gard., vol. ii.

Œ. speciosa has white flowers, and may be distinguished by its leaves being lanceolate, not pinnate nor sinuato-dentate.

IV. CLARKIA. (Pursh, D. C. prod. iii. p. 52.)

Calyx tubular, 4-fid. *Petals* 4, unguiculate, only half the length of the sub-rotund barren anthers. *Style* as long as the petals. *Stigma* 4-partite; the lobes petaloid, subrotund. *Capsule* 4-celled. — Glabrous herbs, with alternate, entire, linear leaves.

1. *C. pulchella*. (Pursh.) *Clarkia*. Native of California. Cult. Common. Fl. rose-purple, very conspicuous. June, July. Annual. D. C. iii. p. 52.

Tribe III. JUSSIEÆ. (D. C. prod. iii. p. 52.)

Fruit capsular; the *cells* many-seeded. Tube of the *calyx* not prolonged beyond the ovary, and immediately partite, persistent. — Herbs, rarely shrubs.

V. ISNARDIA. (L. gen. n. 156., D. C. prod. iii. p. 59.)

Tube of *calyx* ovate or subcylindrical, short, adherent to the ovary. *Limb* 4-partite, persistent. *Petals* 4, alternate with the lobes of the calyx; sometimes rudimentary or wanting. *Stamens* 4, opposite the lobes of the calyx. *Style* filiform from the base, deciduous. *Stigma* capitate. *Capsule* obovate or tetragonal, with 4 valves and 4 cells; many-seeded, with loculicide dehiscence. — Aquatic or marsh herbs.

1. *I. palustris*. (L. sp. 175.) *Marsh Isnardia*. Pool at Buckstead, Sussex. Bog on Petersfield Heath, Hants. Rare. Fl. green. July. Annual. E. B. 2593., H. 73., D. C. iii. p. 61.

Tribe IV. CIRCÆÆ. (D. C. prod. iii. p. 61.)

Tube of *calyx* not prolonged beyond the ovary, immediately divided, deciduous. *Fruit* capsular, ovato-globose. *Stamens* 2, one being sometimes converted into a petal. — Herbs or shrubs. Leaves opposite, petiolated, cordate or ovate. Flowers racemose.

VI. CIRCÆA. (L. gen. n. 24., D. C. prod. iii. p. 63.)

Calyx short, with bipartite limb. *Petals* 2, obcordate. *Stamens* 2, alternate with the petals. *Stigma* emarginate. *Capsule* ovate, rough with uncinulate hairs; 2-celled, 2-valved, 2-seeded. *Seed* in each cell solitary, erect. — A transition genus from Onagrariæ to Halorageæ; agreeing with the former in the long style, and with the latter in the solitary seeds.

Stem erect, pubescent; leaves ovate - - - 1. *C. LUTETIANA*.

Stem ascending, glabrous; leaves cordate - - - 2. *C. ALPINA*.

1. ! *C. lutetiana*. (L. sp. 12.) *Common Enchanter's Nightshade*. Woods and shady places. Common. Fl. white or rose-coloured. June, July. Perennial. E. B. 1056., H. 12., D. C. iii. p. 63.

2. *C. alpina*. (L. sp. 12.) *Alpine Enchanter's Nightshade*. Woods and stony places; near lakes in the north of England and Scotland. Fl. white or rose-coloured. July, Aug. Perennial. E. B. 1057., H. 12., D. C. iii. p. 63.

β. *intermedia*. (Ehr.) Stem erect. Leaves repand, denticulate. In similar situations.

Order XXXVII. HALORAGEÆ. (R. Brown,
D. C. prod. iii. p. 65.)

Tube of the *calyx* adherent to the ovary in its whole length. *Limb* partite or none. *Petals* inserted into the upper part of the tube of the calyx; alternate with, and equal in number to its lobes, or wanting. *Stamens* also inserted on the calyx; double the number of the petals (equal, or rarely fewer). *Ovary* adherent to the calyx; generally many-celled. *Style* none. *Stigmas* as many as the cells of the ovary, sessile. *Fruit* consisting of many carpels; more or less concreted within the calyx; therefore, many-celled, indehiscent, membranous, or nut-like. *Cells* 1-seeded. *Seed* pendulous in the cells. *Albumen* fleshy. *Embryo* central, straight. *Radicle* superior. *Cotyledons* 2, short. — The European species are aquatic herbs, with axillary spiked flowers; sometimes monœcious, or diœcious by abortion.

Petals 4	-	-	-	-	1. MYRIOPHYLLUM.
Petals none					
leaves verticillated	-	-	-	-	3. HIPPURIS.
leaves not verticillated	-				2. CALLITRICHE.

Tribe I. CIRCODIANÆÆ. (Juss., D. C. prod. iii. p. 65.)

Limb of *calyx* evidently partite. *Stamens* equal or double the number of the lobes of the *calyx*. *Petals* and *cells* of the fruit generally as many as the lobes of the *calyx*.

I. MYRIOPHYLLUM. (L. gen. n. 1066., D. C. prod. iii. p. 68.)

Flowers monœcious, or rarely hermaphrodite. — Male flower. *Calyx* 4-partite. *Petals* 4, alternate with the lobes of the *calyx*; very caducous. *Stamens* generally 8. — Female flower. *Calyx* 4-lobed. *Petals* none. *Carpels* 4, sub-concrete, compressed or subglobose, nut-like, indehiscent, 1-seeded. *Seed* subexalbuminous. *Embryo* rather terete, inverse, with obtuse cotyledons, and long radicle. — Floating herbs, rising above the water at the time of flowering. Flowers small; the upper ones male, the lower female.

Spikes nearly naked, floral leaves shorter than the flowers	-	-	-	-	1. M. SPICATUM.
Spikes very leafy, floral leaves much longer than the flowers	-	-	-	-	2. M. VERTICILLATUM.

1. ! *M. spicatum*. (L. sp. 1409.) *Spiked Water Milfoil*. Stagnant waters. Fl. reddish. July, Aug. Perennial. E. B. 83., H. 409., D. C. iii. p. 68.

2. ! *M. verticillatum*. (L. sp. 1410.) *Whorled Water Milfoil*. Ponds in Norfolk and Cambridgeshire, Cheshire and Anglesea. Fl. reddish. July. Perennial. E. B. 218., H. 409., D. C. iii. p. 69.

Tribe II. CALLITRICHINÆÆ. (D. C. prod. iii. p. 70.)

Limb of *calyx* not conspicuous. *Petals* none. *Stamens* 1, rarely 2. *Fruit* 4-celled, 4-seeded. — Aquatic herbs, with opposite leaves.

II. CALLITRICHE. (L. gen. n. 13., D. C. l. c.)

Flowers polygamous, hermaphrodite, diœcious, or generally monœcious. *Bracteas* (? petals) 2, opposite, petaloid, at the base of the flower. *Calyx* not conspicuous, but probably adherent to the base of the ovary; the limb being abortive. — Male flower. *Stamens* 1, rarely 2, with exserted filiform filaments. *Anthers* reniform, 1-celled, dehiscing by a transverse suture. — Female flower. *Ovary* 2-furrowed. *Styles* 2. *Capsule* compressed, 2-furrowed, consisting of 4 concreted carpels approximated in pairs, indehiscent, 1-seeded, lenticularly compressed. *Seed* concreted to the carpel. *Albumen* fleshy. *Embryo* inverted subincurved. *Radicle* long, superior. *Cotyledons* very short. — Annual herbs.

Peduncles elongated	-	-	-	-	2. C. PEDUNCULATA.
Peduncles very short, fruit apparently sessile					
fruitstalks with 2 bracts at the base, lobes of fruit bluntly keeled	-	-	-	-	1. C. VERNA.
fruitstalks without bracts, lobes of fruit broadly winged	-	-	-	-	3. C. AUTUMNALIS.

1. ! *C. verna*. (L. sp. 6.) *Vernal Water Starwort*. Slow-flowing waters. Common. Fl. green. April, May. Annual. H. 390., D. C. iii. p. 70. *C. aquatica* (E. B. 722.) Varies much in the form of the leaves, dependent on the depth of water.

α. *vulgaris*. (D. C.) All the leaves elongato-obovate. *C. verna*. (Fl. Dan.)

β. *intermedia*. (D. C.) Lower leaves linear, obtuse or emarginate; the upper ones oval. *C. dubia*. (Thuil.)

γ. *stellata*. (Hop.) All the leaves oval. Stems short. *C. æstivalis*. (Thuil.)

δ. *cæspitosa*. (Schult.) All the leaves oval, rigid, and small. Stem short, stellato-patent. In moist scarcely inundated places.

ε. *tenuifolia*. (Pers.) All the leaves linear; upper ones 3-nerved.

2. *C. pedunculata*. (D. C.) *Pedunculated Water Starwort*. Ditch at Am-

berley, Sussex. Fl. green. June. Annual. E. B. 2606., H. 390., D. C. iii. p. 71.

3. ! *C. autumnalis*. (L. sp. 6.) *Autumnal Starwort*. Ditches. Fl. green. June, Oct. Annual. E. B. 2732., H. 390., D. C. iii. p. 71. *C. aquatica* γ. (E. B. 722.)

Tribe III. HIPPURIDÆ. (D. C. prod. iii. p. 71.)

Limb of *calyx* entire, very small. *Petals* none. *Stamen* 1. *Fruit* nut-like, 1-celled, 1-seeded.

III. HIPPURIS. (L. gen. n. 11., D. C. l. c.)

Tube of *calyx* adnate to the ovary. *Limb* very small, entire. *Stamens* inserted on the margin of the calyx. *Style* filiform, in a groove of the anther. *Nut* 1-seeded, crowned by the marginated limb of the calyx. *Radicle* cylindrical, longer than the cotyledons.

1. ! *H. vulgaris*. (L. sp. 3.) *Mare's Tail*. Slow-flowing waters. Fl. green. June, July. Perennial. E. B. 763., H. 2., D. C. iii. p. 71.

β. *fluviatilis*. (Hoffm.) Leaves long, membranaceous, sterile. At Surlingham, Norfolk.

Order XXXVIII. CERATOPHYLLÆ. (Gray Brit. Plants, D. C. prod. iii. p. 73.)

Flowers monœcious. *Calyx*, or *perigone*, free; many (10—12) partite; the lobes equal. *Petals* none. — Male flower. *Stamens* 12—20, without filaments. *Anthers* ovate oblong, 2-celled; bi-tricuspidate at the apex, sessile and crowded in the centre of the calyx. — Female flower. *Ovary* free ovate, 1-celled. *Styles* filiform, incurved, oblique. *Stigma* simple. *Nut* 1-celled, 1-seeded, apiculated by the style, indehiscent. *Seed* pendulous from the apex. *Albumen* none. *Embryo* straight. *Radicle* superior. *Cotyledons* 4, verticillate; the 2 broadest opposite. *Plumula* very compound. — Aquatic submersed herbs. Leaves verticillate, rigid, divided into acute, filiform, serrated lobes.

I. CERATOPHYLLUM. (L. gen. n. 1055., D. C. l. c.)

Character the same as of the order.

Fruit armed with 3 spines, segments of the calyx notched 1. *C. DEMERSUM*.

Fruit destitute of spines, segments of the calyx entire - 2. *C. SUBMERSUM*.

1. ! *C. demersum*. (L. sp. 1409.) *Common Hornwort*. Slow-flowing waters. Fl. green. July. Perennial. E. B. 947., H. 409., D. C. iii. p. 73.

2. ! *C. submersum*. (L. sp. 1409.) *Unarmed Hornwort*. Ditches, in the east and south of England. Fl. green. Sept. Perennial. E. B. 679., H. 409., D. C. iii. p. 74.

Order XXXIX. LYTHRARIÆ. (D. C. prod. iii. p. 75.)

Sepals definite in number, coherent beyond the middle. *Calyx* free, tubular or campanulate; the lobes valvate, or distant in æstivation; the *sinuses* being sometimes lengthened into conical lobes or external teeth. *Petals* inserted on the upper part of the tube of the calyx, between the lobes; various in number, sometimes none, generally very caducous. *Stamens* inserted into the tube of the calyx, beneath the petals; equal, double, triple, or quadruple the number of the petals, sometimes fewer. *Anthers* oval, 2-celled, versatile. *Ovary* free. *Style* filiform. *Stigma* generally capitate. *Capsule* membranous, covered or surrounded by the calyx; of 2—4 carpels; while young, generally 2—4-celled, by the slender margins of the carpels being inflexed; but, when ripe, often 1-celled, by the disappearance of the septa; generally longitudinally dehiscing (rarely transversely). *Placenta* central, adnate to the septa when present; or free. *Seeds* numerous, small, exalbuminous. *Embryo* straight. *Radicle* turned towards the hilum. *Cotyledons* flat, foliaceous. — Herbs, with opposite (rarely alternate), exstipulate, simple leaves.

Calyx campanulate, 6—12-dentate; petals shorter than the calyx } 1. PEPLIS.

Calyx cylindrical, 12-fid; petals longer than the calyx - } 2. LYTHRUM.

I. PEPLIS. (L. gen. n. 446., D. C. prod. iii. p. 76.)

Calyx campanulate, 12-fid; 6 of the lobes broader and erect; the other 6 subulate, spreading, arising from the sinuses. *Petals* 6, very small, fugacious, sometimes wanting. *Stamens* 6, alternate with the petals, and opposite the broader lobes of the calyx. *Style* scarcely any. *Stigma* capitate. *Capsule* 2-celled, many-seeded. — Branching herbs. Leaves entire. Flowers axillary, sessile, small, solitary.

1. ! *P. Portula*. (L. sp. 474.) *Water Purslane*. Watery places. Common. Fl. reddish. July, Aug. Annual. E. B. 1211., H. 157., D. C. iii. p. 77.

II. LYTHRUM. (L. gen. n. 604., D. C. prod. iii. p. 80.)

Calyx cylindrical, striated, dentate at the apex. *Teeth* 8—12, of which 4—6 are broader than the rest; 4—6 alternate ones subulate, often horn-shaped (sometimes very small, or none). *Petals* 4—6 (rarely none), arising from the apex of the tube, and alternate with the erect teeth of the calyx. *Stamens* arising from the middle or the base of the calyx; double or equal the number of the petals (sometimes, by abortion, fewer). *Capsule* oblong, 2-celled, many-seeded, included in the calyx.

Stamens about 12; flowers in a whorled leafy spike - 1. *L. SALICARIA*.

! *Stamens* about 6; flowers solitary, axillary - - 2. *L. HYSSOPIFOLIUM*.

1. ! *L. Salicaria*. (L. sp. 640.) *Spiked purple Loosestrife*. Watery places. Common. Fl. purple. July. Perennial. E. B. 1061., H. 219., D. C. iii. p. 82.

2. ! *L. hyssopifolium*. (L. sp. 642.) *Hyssop-leaved purple Loosestrife*. Occasionally inundated places in the eastern counties. Fl. purple. Aug. Annual. E. B. 292., H. 219., D. C. iii. p. 81.

Order XL. TAMARISCINEÆ. (D. C. prod. iii. p. 95.)

Calyx consisting of 4—5 sepals, coherent at the base, and, therefore, 4—5-partite, persistent. *Lobes* subimbricated in æstivation. *Petals* as many as the sepals, alternate with them; inserted into the base of the calyx, marcescent, imbricated in æstivation. *Stamens* equal to, or double the number of, the petals; the *filaments* being either free, or united into a long monadelphous tube. *Ovary* free, trigonal. *Style* 1. *Stigmas* 3. *Capsule* trigonal, 3-valved, 1-celled, many-seeded. *Seeds* parietal, erect, or ascending; covered with down at the apex. *Albumen* none. *Embryo* straight. *Radicle* small, inferior. *Cotyledons* plano-convex, oblong. — Shrubs, with slender branches. Leaves alternate, small, persistent, squamiform. Flowers spiked.

I. TAMARIX. (L. gen. n. 375., D. C. prod. iii. p. 95.)

Calyx 4—5-partite. *Petals* 4—5. *Stamens* 4—5, alternate with the petals, nearly free. *Ovary* terminating at the apex in a beak. *Stigmas* 3, long, divaricated, glandular at the apex. *Seeds* inserted into the base of the valves, or almost in the centre of the capsule. *Coma*, or *down*, of the seeds consisting of many simple hairs arising from the apex, and pappiform.

1. *T. gallica*. (L. sp. 386.) *French Tamarisk*. South coast of England. A doubtful native. Fl. pink. July. Small shrub. E. B. 1318., H. 147., D. C. iii. p. 96.

Order XLI. PHILADELPHEÆ. (Don, D. C. prod. iii. p. 205.)

Tube of the *calyx* turbinate, adherent to the ovary; the *limb* 4—10-partite, persistent. *Petals* equal in number to, and alternate with, the lobes of the calyx; convoluto-imbricated in æstivation. *Stamens* 20—40, inserted on the fauces of the calyx, in 1—2 rows. *Styles* distinct, or more or less concreted into 1. *Stigmas* many. *Capsule* 4—10-celled, semiadnate to the calyx, many-seeded. *Seeds* very small, subulate, crowded in the angles of the cells, having a lax membranaceous arillus, and fleshy albumen. *Embryo* inverted, about as long as the albumen. *Cotyledons* oval, obtuse, flat. *Radicle* terete, longer than the cotyledons, superior, straight, obtuse. — Shrubs, with exstipulate, opposite, not dotted, leaves.

I. PHILADELPHUS. (L. gen. n. 614., D. C. l. c.)

Tube of *calyx* obovato-turbinate; the *limb* 4—5-partite. *Petals* 4—5. *Stamens* 20—40, free, shorter than the petals. *Style* 4—5, coherent, or more or less

distinct. *Stigmas* 4—5, oblong or linear, generally distinct. *Capsule* 4—5-celled, many-seeded. *Seeds* enclosed in a membranous arillus, oblong, and fringed at one end.

1. *P. coronarius*. (L. sp. 671.) *Syringa*. Leaves ovate, acuminate, serrato-denticulate, triple-nerved, glabrous. Flowers racemose. Lobes of calyx acuminate. Styles distinct almost from the base, not exceeding the length of the stamens. Native of the south of Europe. Cult. in shrubberies. Very common. Fl. white, odorous. June. Large shrub. Bot. mag. 391., D. C. iii. p. 205.

Order XLII. MYRTACEÆ. (Brown, D. C. prod. iii. p. 207.)

Sepals 4—6, generally 5, concreted into a tube which is adnate to the ovary. *Petals* inserted on the calyx, as many as its lobes, and alternate with them; quincuncial in æstivation. *Stamens* inserted with the petals, often in many rows, double or many times their number. *Filaments* free or variously connected. *Anthers* 2-celled, dehiscing by a double chink. *Carpels* generally 5 (often fewer by abortion), concreted into a many-celled ovary, which is adnate to the calyx. *Style* consisting of a number of styles perfectly concreted together, and, therefore, called a single style or stigma. *Fruit* generally many-celled, many-seeded. *Embryo* exalbuminous. — Trees or shrubs. Leaves generally opposite, without stipules, entire, dotted with pellucid glands, and with a nerve running parallel to the margin.

I. MYRTUS. (L. gen. n. 617., D. C. prod. iii. p. 238.)

Tube of *calyx* subglobose; the *limb* 5-partite. *Petals* 5 (rarely 4). *Stamens* free. *Berry* 2—3-celled, subglobose, crowned by the limb of the calyx. *Seeds* numerous in each cell, subosseous, reniform, incurved. *Embryo* curved. *Cotyledons* semicylindrical, short. *Radicle* twice the length of the cotyledons. *Pedicels* axillary, one-flowered.

1. *M. communis*. (L. sp. 673.) *Common Myrtle*. Bracteoles 2, beneath the flower, linear, deciduous. Calyx 5-fid. Leaves ovate or lanceolate-acute. Native of the south of Europe. Cult. in gardens. Common. Fl. white. July, Aug. Large shrub. D. C. iii. p. 239.

α. romana. (D. C.) *Broad-leaved Roman Myrtle*. Leaves ovate. Pedicels long.

Many other varieties are cultivated, but this flowers most freely in England.

Order XLIII. CUCURBITACEÆ. (Juss., D. C. prod. iii. p. 297.)

Flowers hermaphrodite, monœcious or diœcious, axillary. *Calyx* gamosepalous. *Sepals* 5, more or less coherent at the base, and, through the medium of the torus, adherent to the carpels. *Petals* 5, free or somewhat united, rarely adherent to the calyx, arising from the margin of the torus; entire, or rarely fimbriated; with strongly marked reticulated veins. *Stamens* 5, generally triadelphous (rarely triadelphous and syngenesious, or free). *Anthers* 2-celled, very long, flexuose (rarely ovate, short). *Style* short. *Stigmas* bilobed, 3—5, thick, velvety. *Carpels* 3—5, fleshy, surrounded by the torus and calyx, and thus forming a pepo, or gourd; the median nerve of the carpels being central, and the seminiferous margins external; *umbilical cord* tumid near the seed. *Arillus* watery, membranous by drying. *Seeds* generally obovate, compressed, attached to the parietes of the fruit; the apex being more or less directed towards the centre; the margin often tumid; by drying appearing 2—3-lobed at the apex and base. *Hilum* oblique; at the apex of the seed; the *spermoderm* being there abruptly perforated by the vessels of the stigma, while the vessels of nutrition encircle the margin of the seed. *Embryo* straight, without albumen. *Cotyledons* foliaceous, palmatinerved. *Radicle* basilar, directed towards the hilum. — Roots annual or perennial, fibrous or tuberous. Stem climbing, herbaceous or shrubby, generally striated. Leaves palmatinerved, often covered with very rough hairs. Cirrhi (or abortive leaves) solitary, lateral. Flowers solitary, panicled, or fascicled; yellow, white, or rose-coloured. Bracteas generally wanting. Branches arising from between the leaves and cirrhi.

Petals free, or scarcely united at the base

calyx 5-dentate; fruit a small berry - - - 2. BRYONIA.

calyx 5-lobed; fruit a pepo - - - 1. CUCUMIS, clt.

Petals united together, and with the calyx, into a mono- }
petalous corolla - - - } 3. CUCURBITA, clt.

I. CUCUMIS. (L. gen. n. 1479., D. C. prod. iii. p. 299.)

Calyx tubuloso-campanulate; the *segments* subulate, scarcely as long as the tube, very slightly united together, or with the calyx. — Male flower. *Stamens* 5, triadelphous. — Female flower. *Stigmas* 3, thick. *Fruit* 3—6-celled. *Seeds* ovate, compressed, nor marginate. — Flowers monœcious or hermaphrodite, yellow.

Fruit ovate or globose - - - 1. C. MELO, clt.

Fruit elongato-oblong, terete - - - 2. C. SATIVUS, clt.

1. *C. Melo*. (L. sp. 1436.) *Melon*. Stem prostrate, rough. Leaves roundish, angular, petioled. Tube of the male calyx subventricose at the base, dilated at the apex. Stamens included. Stigmas of the hermaphrodite flowers 3—4. Fruit ovate or subglobose, furrowed. Native of Asia. Cult. in gardens. Common. Fl. yellow. June, Aug. Annual. D. C. iii. p. 300.

2. *C. sativus*. (L. sp. 1473.) *Cucumber*. Stem rough. Leaves cordate, obsoletely, 5-lobed, petiolate; terminal lobe the largest. Flowers in threes, shortly pedunculated. Tube of the male calyx tubuloso-campanulate. Petals acute. Fruit oblong, often shining. Native of India. Cult. in gardens. Very common. Fl. yellow. May, July. Annual. D. C. iii. p. 300.

Note. *C. Citrullus*, the water melon, is cultivated, but not so commonly as the others. For the cultivated varieties of the melon and cucumber, see Don's syst. of gard. vol. iii.

II. BRYONIA. (L. gen. n. 1480., D. C. prod. iii. p. 304.)

Flowers unisexual. *Petals* scarcely united at the base. — Male flower. *Calyx* 5-dentate. *Stamens* triadelphous. *Anthers* flexuose. — Female flower. *Style* 3-fid. *Fruit* ovate or globose, few-seeded. *Seeds* ovate, slightly compressed, more or less marginate. *Cirrhi* simple, rarely bifurcate.

1. ! *B. dioica*. (Jacq.) *Red-berried Bryony*. Thickets and hedges. Very common. Fl. with greenish veins. May, June. Perennial. E. B. 439., H. 408., D. C. iii. p. 307.

III. CUCURBITA. (L. gen. n. 1478., D. C. prod. iii. p. 316.)

Flowers monœcious. *Corolla* campanulate. *Petals* united together, and with the calyx. — Male flower. *Calyx* hemispherical, campanulate. *Stamens* 5, triadelphous and syngenesious. — Female flower. *Calyx* obovate, clavate, or campanulate; after flowering, the limb separating from the tube. *Stigmas* 3. *Fruit* 3—5-celled. *Seeds* ovate, compressed, with a scarcely tumid margin.

Fruit subrotund - - - C. PEPO, clt.

Fruit obovate or pyriform - - - C. OVIFERA, clt.

1. *C. Pepo*. (L. sp. 1435.) *Common Gourd, or Pumpkin*. Leaves cordate, obtuse, sub-5-lobed, denticulate. Calyx terminating in a short neck beneath the limb. Fruit subrotund or oblong, smooth. Native of Asia. Cult. in gardens. Common. Fl. yellow. June, Aug. Annual. D. C. iii. p. 317.

2. *C. ovifera*. (L. mant. 126.) *Vegetable Marrow*. Leaves cordate, angular, 5-lobed, dentate, pubescent. Calyx obovate, terminating in a short neck; the limb separating after flowering. Native of Astracan. Cult. in gardens. Common. Fl. yellow. July, Sept. Annual. D. C. iii. p. 317.

Order XLIV. PASSIFLOREÆ. (Juss., D. C. prod. iii. p. 321.)

Sepals 5—10, coherent into a tube, free at the apex, in 1—2 rows; the outer lobes large, foliaceous; the inner ones alternate with the former, more petaloid in appearance, sometimes wanting. *Fauces* naked, or adorned with coloured filamentous or membranous appendages, in one or many rows; and the lower part often closed by an operculum. *Petals* none (in *Passiflora*). *Stamens* 5. *Filaments* opposite the external lobes of the calyx, monadelphous; the tube sheathing the stalks of the ovary. *Anthers* versatile, appearing extrorse, but in reality introrse. *Torus* elongated into a long cylindrical stalk. *Ovary* free, ovate. *Style* none, or short. *Stigmas* 3, thick, subbilobed at the

apex. *Fruit* naked or surrounded by the calyx, supported on the stipitate torus, 3-valved, 1-celled. *Valves* either dry and dehiscent, or fleshy, coherent, indehiscent; having a longitudinal placenta in the middle. *Seeds* attached to the placenta, in many rows, covered with a large, and often pulpy, arillus; compressed, generally furrowed. *Embryo* straight, in the centre of a slight fleshy albumen. *Radicle* terete, turned towards the hilum. *Cotyledons* flat, foliaceous. — Climbing shrubs. Leaves alternate, stipulate.

I. PASSIFLORA. (L. gen. n. 1021., D. C. prod. iii. p. 322.)

Tube of the *calyx* very short. *Fauces* adorned by a filamentous crown. Some of the *pedicels* generally cirrose. *Stem* usually climbing.

1. *P. cærulea*. (Lin. amœn.) *Common blue Passion Flower*. Leaves glabrous, 5-partite. Lobes oblong, entire. Petioles with 4 glands at the apex. Stipules falcate. Bracts ovate, entire. Crown shorter than the calyx. Native of the Brazils and Peru. Cult., trained against houses and trellis-work, in the south of England. Very common in the suburbs of London. Calyx green and rose-coloured. Corona in circles of red, white, and blue. Aug., Sept. Climbing shrub. Bot. mag. 28., D. C. iii. p. 330.

Hybrids of this species with *P. racemosa* and *P. alata* are also sufficiently hardy to support the cold of our winter in the open air.

Order XLV. PORTULACEÆ. (Juss., D. C. prod. iii. p. 351.)

Calyx free, or subadnate to the base of the ovary; generally composed of 2 opposite sepals, sometimes of 3—5 coherent sepals. *Petals* generally 5, sometimes 3—4—6 (rarely none); either entirely free, or connected at the base into a short tube; and, when equal in number, alternate with the sepals. *Stamens* and *petals* inserted at the base of the calyx, or sometimes, perhaps, on the torus; number of stamens often varying in the same species; all fertile. *Filaments* not connected together, but concreted to the petals, to which they are also opposite. *Anthers* 2-celled, opening by a double chink, oscillating. *Ovary* 1, subrotund, 1-celled. *Style* either 1, filiform, cleft at the apex into numerous stigmas, or wanting; the stigmas arising numerously from the apex of the ovary. *Capsule* 1-celled, sometimes dehiscing transversely, sometimes by 3 valves, from apex to base. *Seeds* numerous, affixed to a central placenta. *Albumen* farinose, central. *Embryo* surrounding the albumen. *Radicle* cylindrical, long. — Mostly fleshy herbs. Leaves entire, exstipulate.

I. MONTIA. (L. gen. n. 101., D. C. prod. iii. p. 362.)

Calyx persistent, of 2 (rarely 3) sepals. *Petals* 5, subconnate at the base; 3 being somewhat smaller than the rest. *Stamens* inserted into the claws of the petals; generally 3 opposite the smaller petals. *Ovary* sessile. *Style* very short, 3-partite; the lobes being reflexed and patent. *Capsule* 1-celled, 3-valved, 3-seeded. — Aquatic plants, with opposite leaves, and small axillary flowers.

1. ! *M. fontana*. (L. sp. 129.) *Water Blinks*. Spongy moist ground. Very common. Fl. white. June, July. Annual. E. B. 1206., H. 59., D. C. iii. p. 362.

α. ! *minor*. (D. C.) *Common Water Blinks*. Stem somewhat erect, divaricated. Leaves subconnate.

β. *major*. (D. C.) *Greater Water Blinks*. Stem weak, repent, dichotomous. Leaves sessile. In rivulets, in Scotland and Caernarvonshire.

Order XLVI. PARONYCHIEÆ. (St. Hil., D. C. prod. iii. p. 365.)

Calyx of 5 (rarely 3—4) sepals, which are concreted together in a greater or less degree; and hence the calyx is 5-partite, or 5-fid, or 5-dentate. *Petals* small, squamiform, having the appearance of sterile stamens; generally as many as the sepals, and inserted into the tube between the lobes (rarely none). *Stamens* inserted into the tube of the calyx, exactly opposite the lobes, even in the apetalous genera; equal in number to the sepals, or, by abortion, fewer. *Filaments* distinct. *Anthers* 2-celled. *Ovary* free. *Styles* 2 or 3, distinct, or more or less united. *Fruit* dry, small, generally membranous, sometimes without valves, indehiscent, sometimes 3-valved. *Seeds* numerous, affixed to a central placenta; or solitary, suspended by a long cord, which arises from the bottom of the cell. *Albumen* farinaceous. *Embryo* cylindrical,

lateral, curved, or surrounding the albumen. *Radicle* turned towards the hilum. — Branching herbs or shrubs. Leaves generally opposite, with or without scariose stipules. Flowers sessile, small, entire.

Tribe I. TELEPHIEÆ. (D. C. prod. iii. p. 366.)

Calyx 5-partite. *Petals* and *stamens* 5, inserted into the base of the calyx. *Styles* 3, free, or subconcrete at the base. — Leaves alternate, stipulated.

I. CORRIGIOLA. (L. gen. n. 378., D. C. l. c.)

Calyx 5-partite, persistent. *Petals* 5, about as large as the calyx, and inserted into it. *Stamens* 5, opposite the sepals. *Style* short. *Stigmas* 3. *Capsule* 1-seeded, indehiscent, covered by the calyx. *Seed* suspended by a funiculus, arising from the base of the capsule. — Procumbent herbs. Leaves alternate, stipulate, glaucous.

1. *C. littoralis*. (L. sp. 388.) *Sand Strapwort*. On the coast of Devon (Star Point) and Cornwall (Helston). Rare. Fl. whitish. July, Aug. Annual. E. B. 668., H. 147., D. C. iii. p. 367.

Tribe II. ILLECEBREÆ. (D. C. prod. iii. p. 367.)

Calyx 5-partite. *Petals* 5, or none. *Stamens* 2—5, inserted into the base of the calyx. *Styles* free, or subconcrete. *Capsule* indehiscent, 1-seeded. *Funiculus* long, arising from the bottom of the capsule, and bearing from its apex the suspended seed. — Herbs, rarely shrubs. Leaves sharp, opposite, with scariose stipules.

II. HERNIARIA. (L. gen. n. 308., D. C. l. c.)

Calyx 5-partite, somewhat coloured within. *Squamulæ*, or *petals*, 5, filiform, entire, alternate with the sepals; sometimes none, or very small. *Stamens* 5 (or, by abortion, 2—3), opposite the sepals. *Styles* 2, short, distinct, or subconcrete at the base. *Capsule* 1-seeded, indehiscent, covered by the calyx. — Prostrate herbs.

Leaves and calyx glabrous - - - - - 1. *H. GLABRA*.
Leaves and calyx hairy - - - - - 2. *H. HIRSUTA*.

1. *H. glabra*. (L. sp. 317.) *Glabrous Rupturewort*. Lizard Point, Cornwall. Newmarket. Rare. Fl. green. June, Aug. Perennial. E. B. 206., H. 144., D. C. iii. p. 367.

2. !? *H. hirsuta*. (L. sp. 317.) *Hairy Rupturewort*. Sandy ground, near Barnet, in the time of Hudson. Doubtful native. Fl. greenish. July, Aug. Perennial. E. B. 1379., H. 144., D. C. iii. p. 367.

III. ILLECEBRUM. (L. gen. n. 290., D. C. prod. iii. p. 369.)

Calyx 5-partite, almost 5-sepaled. *Sepals* subcuculate, thickened, terminating at the apex in an awned horn. *Petals* none, or reduced to 5 subulate scales, alternate with the sepals. *Stamens* 2—5, inserted into the base of the sepals. *Style* very short. *Stigma* bicapitate. *Capsule* covered by the calyx, 5-valved, or easily dividing at the 5 striæ. *Seed* (? by abortion) solitary, inserted into the side of the capsule. *Embryo* lateral, scarcely curved, and, hence, placed on the side of the farinaceous albumen.

1. *T. verticillatum*. (L. sp. 298.) *Whorled Knot-grass*. Marshy ground. Devon and Cornwall. Fl. white. July. Perennial. E. B. 895., H. 124., D. C. iii. p. 370.

Tribe III. POLYCARPEÆ. (D. C. prod. iii. p. 373.)

Calyx 5-partite. *Petals* 5, or none. *Stamens* 1—5, inserted into the base of the calyx. *Styles* 2—3, free or concrete at the base. *Capsule* 1-celled, many-seeded. *Seeds* fixed to the central placenta. — Herbs or shrubs; the leaves opposite; the stipules scariose.

IV. POLYCARPON. (L. gen. n. 105., D. C. prod. iii. p. 376.)

Calyx deeply 5-fid, the *sepals* more or less coherent at the base, membranous at the edge, concave, carinate, mucronate at the apex. *Petals* 5, emarginate. *Stamens* 3—5. *Styles* 2—3, very short. *Capsule* 1-celled, 3-valved, many-seeded.

1. *P. tetraphyllum*. (L. sup. 116.) *Four-leaved Allseed*. Southern coasts of England. Fl. greenish. May, Sept. Annual. E. B. 1031., H. 59., D. C. iii. p. 376.

Tribe IV. SCLERANTHÆ. (Link, D. C. prod. iii. p. 377.)

Calyx 4—5-fid; the tube urceolate. *Petals* none. *Stamens* 1—10, inserted into the fauces of the calyx. *Styles* 2 or 1, emarginate at the apex. *Capsule* (utriculus) membranous, 1-seeded, covered by the tube of the indurated calyx. *Seed* pendulous from a long funiculus which arises from the bottom of the cell. — Herbs, with opposite, not stipulate, leaves.

V. SCLERANTHUS. (L. gen. n. 562., D. C. prod. iii. p. 378.)

Calyx 5-fid, persistent, the tube urceolate. *Petals* none. *Stamens* 10 (rarely 5 or 2), inserted into the fauces of the calyx. *Ovary* free, 2-seeded. *Styles* 2. *Capsule* very thin, without valves, covered by the indurated tube of the calyx.

Calyx, in the ripened fruit, with obtuse closed segments - 1. *S. PERENNIS*.

Calyx of the fruit with spreading, taper, acute segments - 2. *S. ANNUUS*.

1. *S. perennis*. (L. sp. 580.) *Perennial Knawel*. Dry sandy places. Norfolk and Suffolk. Fl. greenish. Aug., Oct. Perennial. E. B. 352., H. 194., D. C. iii. p. 378.

2. ! *S. annuus*. (L. sp. 580.) *Annual Knawel*. Corn fields. Common. Fl. greenish. July. Annual. E. B. 351., H. 194., D. C. iii. p. 378.

Order XLVII. CRASSULACEÆ. (D. C. prod. iii. p. 381.)

Sepals numerous, 3—20, more or less concreted at the base; and therefore the calyx is multipartite. *Petals* as many as the sepals, alternate with them, and inserted into the base of the calyx; either free, or concreted into a gamopetalous corolla. *Stamens* inserted with the petals, either equal in number to, and alternate with, them, or double their number; one half alternate with the petals, longer and earlier; the others opposite the petals, shorter and later. *Filaments* distinct, subulate. *Anthers* oval, 2-celled, dehiscing by a double chink. *Nectariferous squamæ* at the base of the carpels solitary. *Carpels* as many as the petals, and opposite to them, verticillated round an imaginary axis; distinct, 1-celled, dehiscing by a longitudinal chink at the inner angle. *Seeds* fixed in a double row to the inner angle of the carpel. *Albumen* thin, carnose. *Embryo* straight. *Radicle* directed towards the hilum. — Herbs, with fleshy, generally alternate, leaves. Flowers generally in a cyme.

Stamens 3—4 - - - - - 1. *TILLÆA*.

Stamens 8—12

corolla gamopetalous (monopetalous) - - - 2. *UMBILICUS*.

corolla polypetalous

calyx 4—7-partite; nectariferous scales entire - 3. *SEDUM*.

calyx 6—12-fid; scales emarginate or lacerated - 4. *SEMPERVIVUM*.

I. *TILLÆA*. (L. gen. n. 177., D. C. prod. l. c.)

Calyx 3—4-partite. *Petals* 3—4, oblong, acuminate. *Stamens* 3—4. *Scales* none, or very small. *Carpels* 3—4, subconstricted, 2-seeded. — Small annual subaquatic herbs.

1. ! *T. muscosa*. (L. sp. 186.) *Mossy Tillæa*. Moist barren heaths in various parts of England. Fl. very small, white, or tipped with rose-colour. May, June. Annual. E. B. 116., H. 80., D. C. iii. p. 381.

II. *UMBILICUS*. (D. C. prod. iii. p. 399.)

Calyx 5-partite. *Corolla* gamopetalous, campanulate, 5-fid; the lobes ovate, acute, erect, about the length of the tube. *Stamens* 10, inserted into the corolla. *Scales* 5, obtuse. *Carpels* 5, attenuated at the apex. *Styles* subulate.

Flowers pendulous - - - - - 1. *U. PENDULINUS*.

Flowers erect - - - - - 2. *U. ERECTUS*.

1. *U. pendulinus*. (D. C.) *Wall Pennywort*. Rocks and walls, especially in subalpine countries. Fl. yellowish green. June, Aug. Perennial. D. C. iii. p. 400. *Cotyledon Umbilicus*. (L. sp. 615., E. B. 322., H. 211.)

2. *U. erectus*. (D. C.) *Yellow erect Pennywort*. Walls and rocks. Rare. West Riding of Yorkshire and Somersetshire. Fl. yellowish or pale green. July. Perennial. D. C. iii. p. 400. Cotyledon lutea. (E. B. 1522., H. 211.)

III. SEDUM. (L. gen. n. 579., D. C. prod. iii. p. 401.)

Calyx 5-partite; the *sepals* ovate, generally turgid and leafy. *Petals* 5, generally patent. *Stamens* double the number of the petals. Nectariferous scales entire. *Carpels* 5. — Sterile shoots, having their leaves crowded.

Leaves flat

- flowers yellow - - - - - 1. *S. RHODIOLA*.
flowers purple - - - - - 2. *S. TELEPHIUM*.

Leaves terete

flowers white or reddish

leaves glabrous

- lower leaves opposite; pedicel and calyx pubescent - - - - - } 5. *S. DASYPHYLLUM*.

leaves alternate or scattered; pedicel and calyx glabrous

- flowers few; cyme 2-branched; leaves ovate, thick - - - - - } 3. *S. ANGLICUM*.

- flowers numerous, crowded; panicle much branched; leaves oblong, cylindrical - - - - - } 6. *S. ALBUM*.

- leaves more or less hairy - - - - - 4. *S. VILLOSUM*.

flowers yellow

- leaves ovate, thick, tumid, obtuse - - - - - 7. *S. ACRE*.

leaves cylindrical, elongated; or semicylindrical

- leaves of the barren shoots ternate-verticillate, in 6 rows - - - - - } 8. *S. SEXANGULARE*.

- lower leaves of the barren shoots closely imbricated, in 5 rows, erect - - - - - } 9. *S. RUPESTRE*.

lower leaves of the barren shoots scattered, spreading, or reflexed

- leaves glaucous, calyx lanceolate - - - - - 10. *S. ALBESCENS*.

leaves not glaucous, calyx blunt

- lower leaves of barren shoots recurved - - - - - 12. *S. REFLEXUM*.

- leaves of barren shoots subrosulate - - - - - 11. *S. FORSTERIANUM*.

1. *S. Rhodiola*. (D. C.) *Rose Root*. Wet rocks on the high mountains of England and Scotland. Fl. yellow. June. Perennial. D. C. iii. p. 401. *Rhodiola rosea*. (L. sp. 1465., E. B. 508., H. 441.)

2. ! *S. Telephium*. (L. sp. 616.) *Orpine, or Live-long*. Borders of fields and stony hedges. Fl. purple. July. Perennial. E. B. 1319., H. 212., D. C. iii. p. 402.

3. *S. anglicum*. (Huds. ang.) *White English Stonecrop*. Sandy and rocky places, especially near the sea. Fl. white. June, July. Annual. E. B. 171., H. 212., D. C. iii. p. 405.

4. *S. villosum*. (L. sp. 620.) *Hairy Stonecrop*. Sides of subalpine rills in the north of England and Scotland. Fl. pale rose-colour. June, July. Perennial. E. B. 394., H. 212., D. C. iii. p. 405.

5. ! *S. dasyphyllum*. (L. sp. 618.) *Thick-leaved Stonecrop*. Walls and rocks in Wales and other parts of England. Fl. white, tinged with pink. June. Perennial. E. B. 656., H. 212., D. C. iii. p. 406.

6. ! *S. album*. (L. sp. 619.) *White Stonecrop*. Rocks in Somersetshire, walls in Middlesex, &c. Fl. white. July. Perennial. E. B. 1578., H. 212., D. C. iii. p. 406.

7. ! *S. acre*. (L. sp. 619.) *Biting Stonecrop; Wall Pepper*. Walls, rocks, and sandy ground. Common. Fl. yellow. June. Perennial. E. B. 839., H. 213., D. C. iii. p. 407.

8. ! *S. sexangulare*. (L. sp. 620.) *Tasteless Yellow Stonecrop*. Old walls in east of England. Rare. Greenwich Park wall. Fl. yellow. July. Perennial. E. B. 1946., H. 213., D. C. iii. p. 407.

9. *S. rupestre*. (L. sp. 618.) *St. Vincent's Rock Stonecrop*. St. Vincent's and Cheddar rocks. Fl. yellow. July. Perennial. E. B. 170., H. 213., D. C. iii. p. 407.

10. *S. albescens*. (Haw.) *Glaucous Yellow Stonecrop*. Near Mildenhall,

Suffolk. Fl. yellow. July, Aug. Perennial. *S. glaucum*. (Sm., E. B. 2477., H. 213., D. C. iii. p. 407.)

11. *S. Forsterianum*. (Smith.) *Welsh Rock Stonecrop*. Rhydoll Fall, Cardiganshire. Fl. yellow. June, July. Perennial. E. B. 1802., H. 214., D. C. iii. p. 408.

12. ! *S. reflexum*. (L. sp. 618.) *Crooked Yellow Stonecrop*. Walls, roofs of houses. Frequent. Fl. yellow. July. Perennial. E. B. 695., H. 213., D. C. iii. p. 408.

Note. De Candolle remarks that the four last species appear to be mere varieties dependent on situation, the leaves being glaucous and densely imbricated in exposed situations; while in the shade they are green and attenuated.

IV. SEMPERVIVUM. (L. gen. n. 612., D. C. prod. iii. p. 411.)

Calyx 6—12-fid. *Petals* and *ovaries* 6—12. *Stamens* twice the number of the petals. *Squamæ* ovate, broad, emarginate or lacerated.

1. ! *S. tectorum*. (L. sp. 664.) *Houseleek*. House tops, and on walls. Fl. red. July. Perennial. E. B. 1320., H. 221., D. C. iii. p. 413.

Order XLVIII. GROSSULARIÆ. (D. C. prod. iii. p. 477.)

Limb of the *calyx* superior, 4—5-partite, regular, coloured. *Petals* 4—5, equal, inserted into the fauces of the calyx, and alternate with its segments. *Stamens* 4—5, rarely 6, inserted between the petals on the calyx, all of the same size; the *filaments* conical, or cylindrical and free. *Anthers* bilocular, dehiscing longitudinally and internally (in some varieties of *R. rubrum*, transversely and laterally). *Ovary* 1-celled. *Placentæ* 2, parietal, opposite. *Ovules* in great abundance. *Style* one, 2—3—4-fid. *Fruit* baccate, subglobose, 1-celled, crowned with the persistent calyx. *Seeds* numerous, with an arillus, suspended by long filiform cords; outer integuments gelatinous or membranaceous; inner one a thin membrane, closely adherent to the albumen. *Albumen* horny. *Embryo* minute, straight, placed in the narrow extremity of the seed. *Radicle* obtuse. — Prickly or unarmed shrubs, with alternate, lobed, and incised leaves.

Plant prickly - - - - - 1. *R. UVA-CRISPA*.

Plant destitute of prickles

bractæas longer than the flowers - - - 2. *R. ALPINUM*.

bractæas shorter than the flowers

fruit black, leaves glandular beneath - - 6. *R. NIGRUM*.

fruit red or white, leaves not glandular

racemes of fruit pendulous, flowers pedicellate

racemes glabrous, pendulous in flower - 4. *R. RUBRUM*.

racemes slightly downy, erect in flower - 5. *R. PETRÆUM*.

racemes of fruit erect, flowers nearly sessile - 3. *R. SPICATUM*.*

1. ! *R. Uva-crispa*. (L. sp. 292.) *Common Gooseberry*. Hedges and thickets. Doubtful native. Fl. pale purple. April, May. Small shrub. D. C. iii. p. 478.

α. *sylvestre*. (D. C.) Leaves small, villous on both sides. Berries glabrous, small. *R. Uva-crispa*. (L. sp. 292., E. B. 2057.)

β. *sativum*. (D. C.) Leaves larger, generally glabrous and shining beneath.

* Within these few years, many species of *Ribes* have been cultivated in England on account of the beauty of their flowers: the most showy of these are:

Stem prickly; flowers bright red or crimson

stamens much exserted - - - - - *R. SPECIOSUM*.

stamens enclosed - - - - - *R. MENZIESII*.

Stem destitute of prickles

flowers red

leaves orbicular, pubescent; berries glabrous - *R. ATROPURPUREUM*.

leaves cordate, glabrous on upper surface; berries } *R. SANGUINEUM*.

hairy - - - - - }

flowers golden yellow - - - - - *R. AUREUM*.

Berries large, glabrous or hairy. Cult. in gardens. Very common. *R. Grosularia*. (L. sp. 291., E. B. 1292., H. 123.)

In Don's syst. gard. iii. p. 179., nearly 200 varieties of cultivated gooseberry are enumerated.

2. *R. alpinum*. (L. sp. 291.) *Tasteless Mountain Currant*. Woods, Yorkshire and Scotland. Fl. yellowish. May. Small shrub. E. B. 704., H. 123., D. C. iii. p. 480.

3. *R. spicatum*. (Robson.) *Acid Mountain Currant*. Woods, near Richmond, Yorkshire. Fl. greenish. May. Small shrub. E. B. 1290. H. 122., D. C. iii. p. 481.

4. *R. rubrum*. (L. sp. 290.) *Red or White Currant*. Alpine woods in north of England and Scotland. Fl. greenish. May. Small shrub. E. B. 1289., H. 122., D. C. iii. p. 481.

β. *hortense*. (D. C.) *Red Currant*.

γ. *album*. (Desf.) *White Currant*.

5. *R. petræum*. (Wulf.) *Rock Currant*. Woods in Durham and Scotland. Fl. greenish. May, June. Small shrub. E. B. 705., H. 122., D. C. iii. p. 481.

6. *R. nigrum*. (L. sp. 291.) *Black Currant*. Woods and river sides, and commonly cultivated. Fl. greenish, tipped with purple externally. May. Small shrub. E. B. 1291., H. 123., D. C. iii. p. 481.

Order XLIX. SAXIFRAGACEÆ. (Juss., D. C. prod. iv. p. 1.)

Sepals generally 5, more or less united at the base; the *tube* free, or more or less adnate to the ovary; the *limb* dentate or lobed, generally persistent. *Petals* as many as the sepals, inserted on the tube of the calyx, and alternate with its lobes, deciduous or persistent, rarely wanting (in *Chrysosplenium*) *Stamens* inserted on the calyx, either equal in number to the petals, and alternate with them, or double their number; 5 being opposite, and 5 alternate with the petals. *Filaments* subulate. *Anthems* ovate, 2-celled. *Ovaries* composed of 2 carpels (rarely more). *Styles* as many as the carpels, therefore generally 2, distinct or more or less concrete; terminated by a capitate or clavate stigma. *Fruit* 2-celled, dehiscing by an opening between the styles, or from the base to the apex. *Seeds* small, generally numerous. *Albumen* fleshy. *Embryo* terete. *Radicle* inferior. *Cotyledons* short, ovate. — Herbs or shrubs.

Herbs

corolla polypetalous	-	-	-	-	-	2. SAXIFRAGA.
corolla none	-	-	-	-	-	3. CHRYSOSPENIUM.
Shrubs	-	-	-	-	-	1. HYDRANGEA, clt.

Tribe I. HYDRANGEEÆ. (D. C. prod. iv. p. 13.)

Shrubs with opposite, exstipulate, simple leaves. *Corolla* of 5 petals. *Stamens* 10. *Styles* 2—5. *Flowers* corymbose, the outer ones (or sometimes all) sterile, large, dilated. *Capsule* 2—5-celled.

1. HYDRANGEA. (L. gen. n. 557., D. C. prod. iv. p. 13.)

Flowers often deformed; some, however, being fertile and hermaphrodite. Tube of the *calyx* hemispherical, with 10 ribs, subtruncated, and adnate to the ovary; the *limb* persistent, 5-dentate. *Petals* 5, regular. *Stamens* 10. *Styles* 2, distinct. *Capsule* 2-celled, with introflexed valves, crowned by the teeth of the calyx and the styles, flat at the top, and dehiscing by an opening between the styles. *Seeds* reticulated, numerous. — *Flowers* corymbose; the marginal ones large; calyx lobes dilated petaloid; the other parts of the flower abortive.

1. *H. Hortensia*. (D. C.) *Hydrangea*. Leaves ovate or oval, acute, dentate, very glabrous on both sides, as are also the branches. Corymbs large. Lobes of the calyx of the numerous sterile flowers obovato-subrotund, entire. Fertile flowers very few, with 2—3 styles. Native of China and Japan. Cult. in parterres. Very common. Fl. pink or blue, varying according to the soil. May, Sept. Small shrub. Bot. mag. 438., D. C. iv. p. 15.

Tribe II. SAXIFRAGEÆ. (D. C. prod. iv. p. 17.)

Herbs, with exstipulate alternate (rarely opposite) leaves. *Flowers* racemose or paniced, seldom solitary; all fertile.

II. SAXIFRAGA. (L. gen. 559., D. C. prod. iv. p. 17.)

Sepals 5, more or less united together, sometimes adherent to the ovary. *Petals* 5, entire, with short claws. *Stamens* 10. *Styles* 2. *Capsule* 2-celled, dehiscent by an orbicular aperture between the styles. *Seeds* numerous, rugose or smooth.

- | | | | | | |
|---|---|---|---|---|-------------------------|
| Corolla irregular | - | - | - | - | 6. S. SARMENTOSA, clt. |
| Corolla regular | | | | | |
| calyx reflexed | | | | | |
| petals yellow | - | - | - | - | 10. S. HIRCULUS. |
| petals white or pinkish | | | | | |
| leaves wedge-shaped, angular, subsessile | - | | | | 5. S. STELLARIS. |
| leaves oval or roundish | | | | | |
| petioles very distinct, longer than the limb; | | | | | |
| terete | | | | | |
| leaves rotundato-reniform | - | - | | | 2. S. GEUM. |
| leaves oval, with sharp cartilaginous | | | | | |
| teeth | - | - | | | 3. S. HIRSUTA. |
| petioles not distinct, compresso-dilated; | | | | | |
| the limb tapering down to the stem | | | | | 4. S. UMBROSA. |
| calyx erect or patent (not reflexed) | | | | | |
| † leaves undivided | | | | | |
| stem naked, leaves radical | - | - | | | 13. S. NIVALIS. |
| stem foliaceous | | | | | |
| flowers purple | | | | | |
| peduncles 1-flowered | - | - | | | 12. S. OPPOSITIFOLIA. |
| peduncles many-flowered, forming a | | | | | |
| crowded thyrus | - | - | | | 1. S. CRASSIFOLIA, clt. |
| flowers a decided yellow, spotted inter- | | | | | |
| nally at the base | | | | | |
| ovary free | - | - | | | 10. S. HIRCULUS. |
| ovary half-adnate to the calyx | - | - | | | 11. S. AIZOÏDES. |
| flowers cream-coloured, not spotted in- | | | | | |
| ternally | - | - | | | 22. S. MUSCOÏDES. |
| †† leaves lobed | | | | | |
| root bulbiferous, stem many-flowered | - | | | | 7. S. GRANULATA. |
| root not bulbiferous, stem 1—3-flowered | | | | | |
| stem bulbiferous in the axilla of the | | | | | |
| leaves, 1-flowered | - | - | | | 8. S. CERNUA. |
| stem not bulbiferous, generally 2—3- | | | | | |
| flowered | | | | | |
| stem glabrous, bractæas 3-lobed | - | | | | 9. S. RIVULARIS. |
| stem glandular, and viscid, bractæas | | | | | |
| entire | - | - | | | 14. S. TRIDACTYLITES. |
| ††† leaves deeply divided into narrow more or | | | | | |
| less linear segments | | | | | |
| annual | - | - | | | 14. S. TRIDACTYLITES. |
| perennial | | | | | |
| leaves covered with long hairs | - | - | | | 19. S. DECIPIENS. |
| leaves subvillous, or covered with soft | | | | | |
| down | | | | | |
| segments of the leaves incurved | - | | | | 17. S. INCURVIFOLIA. |
| segments of the leaves flat, not incurved | | | | | |
| margin of the petals inflexed | - | - | | | 16. S. AFFINIS. |
| margin of the petals not inflexed | | | | | |
| stem many, 8—12-flowered | - | | | | 23. S. PEDATIFIDA. |
| stem few, 1—4-flowered | - | | | | 21. S. CÆSPITOSA. |
| leaves very glabrous before flowering | | | | | |
| leaves of the shoots bristle-pointed | - | | | | 15. S. HYPNOÏDES. |
| leaves sharp, but not bristle-pointed | | | | | |
| petals scarcely longer than the calyx | | | | | 22. S. MUSCOÏDES. |
| petals much longer the calyx | | | | | |
| shoots short and very dense | - | | | | 18. S. DENUDATA. |
| shoots elongated | - | - | | | 20. S. LÆTEVIRENS. |

1. *S. crassifolia*. (L. sp. 573.) *Thick-leaved Saxifrage*. Leaves oval or ob-ovate, very obtuse, glabrous, serrulated. Petals elliptico-oblong. Native of

Siberia. Cult. in gardens. Common. Fl. disposed in thyrsoid panicles, red. March, May. Perennial. Bot. mag. 196., D. C. iv. p. 37.

Note. *S. cordifolia* much resembles *S. crassifolia*, but is distinguished by its cordate leaves and roundish petals.

2. *S. Geum*. (L. sp. 574.) *Kidney-shaped Saxifrage*. Mountains near Killarney, Ireland. Fl. cream-coloured, spotless. June. Perennial. H. 195. *S. hirsuta* var. γ . (D. C. iv. p. 42.) *Robertsonia Geum*. (Lind. 70.)

α . *pilosa*. Leaves hairy on both sides; under surface reticulated with purple.

β . *dentata*. Leaves glabrous on both sides, more sharply toothed. *S. Geum*. (E. B. 1561.)

γ . *polita*. Leaves light green, glabrous, sharply toothed. *Robertsonia polita*. (Haworth.)

δ . *elegans*. Leaves orbicular, dark green, glabrous on both sides. Footstalks short. Fl. spotted with red. *S. elegans*. (Mackay.)

3. *S. hirsuta*. (L. sp. 574.) *Hairy oval-leaved Saxifrage*. Near Killarney. Fl. white, with numerous red and yellowish dots. June. Perennial. E. B. 2322., H. 195., D. C. iv. p. 42. *Robertsonia hirsuta*. (Lind. 71.)

4. *S. umbrosa*. (L. sp. 574.) *London Pride, or None so pretty*. Mountains in the south and west of Ireland. Cult. in gardens. Very common. Fl. white, with red and yellow dots. June. Perennial. E. B. 663., H. 196., D. C. iv. p. 42. *Robertsonia umbrosa*. (Lind. 71.)

β . *punctata*. Leaves roundish, with sharp tooth-like serratures. Fruitstalks elongated. *S. punctata*. (Haworth.)

γ . *serratifolia*. Leaves oblong, ovate, glabrous, light green, with deep, acute serratures. Footstalks oblong, flat. *Robertsonia serrata*. (Haworth.)

5. *S. stellaris*. (L. sp. 572.) *Star Saxifrage*. Sides of rivulets on mountains of England, Scotland, and Ireland. Fl. white, with 2 yellow spots at the base of each petal. June, Aug. Perennial. E. B. 167., H. 196., D. C. iv. p. 40. *Robertsonia stellaris*. (Lind. 71.)

β . *integrifolia*. Leaves quite entire. Ben Nevis.

γ . *dissimilis* (Don.) Leaves with deep broad teeth. Western Highlands. *S. dissimilis*. (G. Don.)

6. *S. sarmentosa*. (L. gen. suppl. 240.) *Creeping Saxifrage*. Stolons hairy. Leaves reniform or orbicularly cordate, doubly dentate, red beneath. Flowers irregular. 2 outer petals large and flaccid. Native of China. Very commonly cult. in suspended flower-pots. Fl. white, the 3 inner petals spotted. June, July. Perennial. Bot. mag. 92., D. C. iv. p. 43.

7. ! *S. granulata*. (L. sp. 576.) *White meadow Saxifrage*. Hedge banks, meadows, &c. Common. Battersea Fields. A double variety is commonly cult. in gardens. Fl. white, large. May, June. Perennial. E. B. 500., H. 197., D. C. iv. p. 35. *Leiogyne granulata*. (Lind. 68.)

8. *S. cernua*. (L. sp. 577.) *Drooping bulbous Saxifrage*. Dry rocks on the summits of the Breadalbane Mountains. Fl. single, white. June, Aug. Perennial. E. B. 664., H. 198., D. C. iv. p. 36. *Leiogyne cernua*. (Lind. 68.)

9. *S. rivularis*. (L. sp. 577.) *Alpine Brook Saxifrage*. Moist alpine rocks in Scotland. Rare. Fl. small, white. Aug., Sept. Perennial. E. B. 2275., H. 189., D. C. iv. p. 36. *Leiogyne rivularis*. (Lind. 68.)

10. *S. Hirculus*. (L. sp. 576.) *Yellow Marsh Saxifrage*. Wet moors in Cheshire and Yorkshire. Rare. Fl. yellow. Aug. Perennial. E. B. 1009., H. 197., D. C. iv. p. 44. *Hirculus ranunculoïdes*. (Lind. 67.)

11. *S. aizoides*. (L. sp. 576.) *Yellow Mountain Saxifrage*. Near alpine rills. Fl. yellow, spotted with orange. July, Sept. Perennial. E. B. 39., H. 197., D. C. iv. p. 47. *Leiogyne aizoides*. (Lind. 68.)

12. *S. oppositifolia*. (L. sp. 575.) *Purple Mountain Saxifrage*. Moist alpine rocks. Wales and Scotland. Fl. purple. April, May. Perennial. E. B. 9., H. 197., D. C. iv. p. 17.

13. *S. nivalis*. (L. sp. 573.) *Clustered Alpine Saxifrage*. Mountains of Wales and Scotland. Fl. white. Aug. Perennial. E. B. 440., H. 196., D. C. iv. p. 38. *Leiogyne nivalis*. (Lind. 68.)

14. ! *S. tridactylites*. (L. sp. 578.) *Three-leaved Saxifrage*. On walls. Common. Fl. white. May, June. Annual. E. B. 501., H. 198., D. C. iv. p. 35.

15. *S. hypnoides*. (L. sp. 579.) *Mossy Saxifrage*. Mountainous rocks in limestone countries. Fl. white. May, July. Perennial. H. 193., D. C. iv. p. 31.

α . *condensata*. Leaves of the trailing shoots undivided, sometimes with axillary buds. *S. condensata*. (Don.) *S. hypnoides*. (E. B. 454.)

β. platypetala. Leaves of the procumbent shoots either undivided or 3-cleft. Petals usually broad, with or without lateral veins. *S. platypetala*. (E. B. 2276.)

γ. Wilsoni. Leaves of the procumbent shoots nearly 3-cleft; the lobes usually broad, the middle one 3-ribbed at the base.

δ. leptophylla. Leaves of the procumbent shoots deeply 3-cleft. Lobes linear, lanceolate, widely spreading. *S. leptophylla*. (Don Lin. trans.)

ε. elongella. Shoots upright, undivided, or 3-fid; bristle-pointed. *S. elongella*. (E. B. 2277., H. 200.)

16. *S. affinis*. (Don.) *Involute Alpine Saxifrage*. Brandon Mountains, Kerry. Fl. white. May, June. Perennial. H. 200.

17. *S. incurvifolia*. (Don.) *Curved-leaved Saxifrage*. Alpine rocks, Ireland. June. Perennial. H. 200., D. C. iv. p. 32.

18. *S. denudata*. (Don.) *Smooth Grampian Saxifrage*. Mountains of Angus-shire. Fl. white. June. Perennial. H. 200., D. C. iv. p. 33.

19. *S. decipiens*. (Don.) *Long-haired Saxifrage*. Very villous. Leaves 5—3-fid; segments ovate oblong, obtuse, abrupt. Segments of the calyx triangular-ovate, obtuse. Petals orbicular. Mountains of Wales. Fl. white. June. Perennial. Don Lin. trans. 13. p. 420. *S. palmata*. (E. B. 455.)

β. hirta. Segments of the leaves and calyx acute. Petals obovate. *S. hirta*. (Don l. c. E. B. 2291.) Mountains of Scotland and Ireland.

20. *S. lætevirens*. (Don.) *Bright Green Alpine Saxifrage*. Mountains of Scotland. Fl. white. June. Perennial. H. 200., D. C. iv. p. 32.

21. *S. cæspitosa*. (L. sp. 578.) *Tufted Alpine Saxifrage*. Mountains of Wales, Scotland, and Ireland. Fl. white. June. Perennial. E. B. 794., H. 201., D. C. iv. p. 27.

22. *S. muscoides*. (Wulf.) *Mossy Alpine Saxifrage*. Mountains of Cumberland and Scotland. Fl. whitish or cream-coloured. May. Perennial. H. 202., D. C. iv. p. 25.

α. Witheringi. Leaves entire and trifid.

β. moschata. Leaves mostly entire, or retuse. *S. moschata*. (E. B. 2314.)

23. *S. pedatifida*. (Ehrh.) *Pedate Saxifrage*. Mountains of Clova. Fl. white. May. Perennial. E. B. 2278., H. 202.

III. CHRYSOSPLENIUM. (L. gen. n. 558., D. C. prod. iv. p. 48.)

Tube of the *calyx* adherent to the ovary; the *limb* 4—5-lobed. *Petals* none. *Stamens* 8—10. *Styles* 2. *Capsule* 2-beaked, 2-valved, becoming 1-celled, many-seeded. *Seeds* very smooth, attached to the bottom of the capsule. — Flowers subcorymbose, yellowish.

Leaves alternate - - - - - 1. *C. ALTERNIFOLIUM*.

Leaves opposite - - - - - 2. *C. OPPOSITIFOLIUM*.

1. *C. alternifolium*. (L. sp. 569.) *Alternate-leaved Golden Saxifrage*. Moist places among rocks in north of England. Fl. yellow. March, April. Perennial. E. B. 54., H. 194., D. C. iv. p. 48.

2. *C. oppositifolium*. (L. sp. 569.) *Common Golden Saxifrage*. Sides of rivulets and springs. Common. Caen Wood, Hampstead. Fl. yellow. May, June. Perennial. E. B. 490., H. 194., D. C. iv. p. 48.

Order L. UMBELLIFERÆ. (Juss., D. C. prod. iv. p. 55.)

Calyx adherent to the ovary; the *limb* 5-dentate, or obsolete. *Petals* 5, inserted into the upper part of the calyx (apparently on the ovary, or glandular surface, covering the ovary); sometimes entire, tapering gradually into a point, or suddenly contracted into an inflexed lacinula; sometimes emarginate or bifid. *Stamens* 5, alternate with the petals, and inserted with them on the calyx; replicate in æstivation. *Styles* 2, generally persistent. *Fruit* consisting of 2 carpels (mericarps), more or less united together, and covered by the calyx; generally separating when ripe, and suspended from the apex of a filiform axis (carpophorus). Each carpel has 2 surfaces, the one convex (dorsal surface); the other, where they are in apposition, flat (commissural surface): the convex or dorsal surface is marked by 5 more or less elevated ridges (jugæ): of these the central one is called the carinal ridge, those nearest the margin lateral ridges, and the other 2 intermediate ridges: collectively, they are named primary ridges, being always at least slightly apparent. Be-

tween the 5 primary ridges are sometimes 4 others (secondary ridges), occupying a part of the intervening furrows (valleculæ.) In the furrows within the pericarp are often certain canals (vittæ), containing coloured aromatic gum-resin. Those carpels with their commissural surface flat are called *Orthospermæ*; those with the surface more or less inflexed, *Campylospermæ*. *Embryo* very small, at the apex of a horny albumen. *Radicle* superior. — Herbs, with alternate sheathing. Leaves generally much divided. Flowers umbellate, or rarely capitate, generally surrounded by an involucre and involucl.

- * Fruit flat, not furrowed in front
 umbels simple or imperfect
 fruit compressed laterally, carpels convex on } 1. HYDROCOTYLE.
 the back - - - - - }
 fruit ovato-globose, terete in the transverse section
 flowers umbellate, fruit prickly - - - 2. SANICULA.
 flowers capitate, fruit covered with scales - 3. ERYNGIUM.
 umbels compound or perfect
 carpels with 5 primary ridges, rarely none
 † fruit laterally compressed
 leaves undivided - - - - 15. BUPLEURUM.
 leaves much divided
 petals entire
 involucl many-leaved
 carpophorus bipartite - - - 6. PETROSELINUM.
 carpophorus entire - - - 8. HELOSCIADIUM.
 involucl of few leaves, or wanting
 flowers hermaphrodite, petals round- } 5. APIUM.
 ish, furrows vittate - - - }
 flowers polygamous, petals lanceolate, } 7. TRINIA.
 vittæ sometimes wanting - - - }
 petals emarginate
 furrows with many vittæ
 margin of calyx 5-dentate - - - 14. SIUM.
 margin of calyx obsolete
 fruit ovate, disk conical, styles re- } 13. PIMPINELLA,
 flexed; root fusiform - - - }
 fruit oblong, disk flat, styles sub- } 12. BUNIUM.
 erect; root tuberous - - - }
 furrows with 1 vitta, or none
 margin of calyx 5-dentate - - - 4. CICUTA.
 margin of calyx obsolete
 furrows without vittæ
 flowers hermaphrodite - - - 10. ÆGOPODIUM.
 flowers polygamous - - - 7. TRINIA.
 furrows with 1 vitta
 fruit oblong; petals obovate - - 11. CARUM.
 fruit ovate
 petals lanceolate or ovate - - 7. TRINIA.
 petals subrotund
 petals very slightly emarginate 6. PETROSELINUM.
 petals deeply emarginate - 9. SISON.
 †† fruit terete
 seed loose, or only attached to the commis- } 23. CRITHMUM.
 sural side of the spongy pericarp - - - }
 seed and pericarp closely united together
 † petals entire
 margin of calyx 5-dentate - - - 19. LIBANOTIS.
 margin of calyx obsolete
 furrows with 1 vitta - - - 18. FENICULUM.
 furrows with many vittæ
 ridges slightly winged; petals obo- } 21. SILAUS.
 vate - - - - - }
 ridges prominent, keeled; petals acute } 22. MEUM.
 at each end - - - }

- †† petals emarginate
 furrows with many vittæ
 petals deeply emarginate, unguiculate; } 20. *LIGUSTICUM*.
 flowers whitish - - - - -
 petals very slightly emarginate, ses- } 21. *SILAUS*.
 sile; flowers yellowish - - - - -
 furrows with 1 vitta
 margin of calyx 5-dentate
 fruit crowned with reflexed styles - 19. *LIBANOTIS*.
 fruit crowned with erect styles - 16. *ÆNANTHE*.
 margin of calyx obsolete - - - - 17. *ÆTHUSA*.
- ††† fruit dorsally compressed
 fruit surrounded by a dilated, thickened, } 30. *TORDYLIUM*.
 knotty, or plicate margin - - - - -
 fruit surrounded by a flattened or convex-
 winged margin
 carpels connected together by the whole
 commissural superficies, and thus the
 fruit is 1-winged on each side -
 margin of calyx, 5-dentate
 furrows 1-vittate; vittæ clubshaped - 29. *HERACLEUM*.
 furrows 1—3-vittate; vittæ elongated, } 26. *PEUCEDANUM*.
 linear - - - - -
 margin of calyx obsolete
 petals subrotund, entire, involute - 28. *PASTINACA*.
 petals obovate, emarginate, or suben- } 27. *IMPERATORIA*.
 tire - - - - -
 carpels connected, only by the centre of
 the commissural surface, and thus
 the fruit is 2-winged on each side
 margin of calyx 5-dentate - - - 25. *ARCHANGELICA*.
 margin of calyx obsolete - - - 24. *ANGELICA*.
 carpels with 5 primary and 4 secondary ridges - 31. *DAUCUS*.
- ** Fruit curved; that is, furrowed or excavated in
 front
 carpels with many ridges
 fruit subterete, bristly or prickly
 secondary ridges prominent, prickly
 leaves pinnate; involucre of 3—5-leaves - 33. *TURGENIA*.
 leaves 2—3-pinnatifid; involucre generally } 32. *CAUCALIS*.
 wanting - - - - -
 secondary ridges obliterated by numerous } 34. *TORILIS*.
 prickles - - - - -
 fruit subglobose, neither bristly or prickly - 43. *CORIANDRUM*.
- carpels with few ridges
 fruit linear, elongated
 fruit solid; i. e., the seed and pericarp closely
 united throughout
 fruit beaked
 carpels subterete, without ridges, or the } 36. *ANTHRISCUS*.
 beak alone 5-ridged - - - - -
 carpels with 5-obtuse equal ridges - 35. *SCANDIX*.
 fruit not beaked - - - - - 37. *CHÆROPHYLLUM*.
 fruit utricular; i. e., the pericarp inflated on } 38. *MYRRHIS*.
 the back, but adnate to the seed in front }
 fruit ovate, or subglobose
 margin of calyx obsolete
 petals emarginate - - - - - 40. *CONIUM*.
 petals entire - - - - - 42. *SMYRNIUM*.
 flowers hermaphrodite, plant not prickly - 41. *PHYSOSPERMUM*.
 flowers monœcious, plant prickly - - 39. *ECHINOPHORA*.

Suborder I. *Orthospermæ*. (D. C. prod. iv. p. 58.)

Albumen flat on the inner side, neither involute nor convolute.

Tribe I. HYDROCOTYLÆ; or imperfectly umbelled, compressed Orthospermæ. (Koch, D. C. l. c.)

Fruit laterally compressed. *Merica*rp convex on the back, or rarely acute; with 5 primary ridges (sometimes obsolete), of which the lateral ones are marginal, or in a plane with the commissure; the intermediate generally more prominent than the lateral or carinal ones. *Secondary ridges* generally wanting. *Albumen* flat. *Petals* patent, entire, acute; straight or inflexed at the apex.

I. HYDROCOTYLE. (L. gen. n. 325., D. C. prod. iv. p. 59.)

Tube of the *calyx* subcompressed, the margin obsolete. *Petals* ovate, entire, acute; straight at the apex. Sides of the *fruit* pressed flat together, and thus the fruit has the appearance of 2 small shields. *Ridges* of the *merica*rp 5, filiform; the central and lateral ones being often obsolete, the 2 intermediate arched, without vittæ. *Seed* carinate, compressed — Herbaceous creeping plants, with peltate or cordate leaves.

1. ! *H. vulgaris*. (L. sp. 338.) *White-rot*; *Marsh Pennywort*. Bogs and marshes. Common. Fl. often tinged with red. May, June. Perennial. E. B. 751., H. 126., D. C. iv. p. 459.

Tribe II. SANICULÆ; or imperfectly umbelled, turgid Orthospermæ. (Koch, D. C. prod. iv. p. 82.)

Fruit subterete in a transverse section. *Merica*rp with 5 primary ridges; and no secondary ones, or the obliterated ridges are covered over with scales. *Vittæ* none. *Seeds* semiterete in the transverse section, flat in front. *Petals* erect, emarginate to the middle. *Umbels* fascicled or capitate, simple, or irregularly subcompound.

II. SANICULA. (L. gen. n. 326., D. C. iv. p. 84.)

Tube of the *calyx* echinated; the lobes foliose persistent. *Petals* erect, connivent, obovate, emarginate with abruptly inflexed segments, which are as long as the petals. *Fruit* subglobose, not spontaneously separable into 2 *mericarps*, destitute of ridges, but with many vittæ, and thickly covered with hooked prickles. *Carpophorus* obsolete. *Seeds* semiglobose. — Involucre and involucrel polyphyllous.

1. ! *S. europæa*. (L. sp. 339.) *Wood Sanicle*. Woods and thickets. Common. Fl. white. May, June. Perennial. E. B. 98., H. 126., D. C. iv. p. 84.

III. ERYNGIUM. (L. gen. n. 324., D. C. prod. iv. p. 87.)

Tube of *calyx* rough with scales and vesicles; the lobes 5, foliose. *Petals* erect, connivent, oblong-obovate, emarginate, with abruptly inflexed segments, which are as long as the petals. *Fruit* subterete, obovate, in a transverse section; covered with scales or tubercles. *Merica*rps semiterete, without ridges or vittæ. *Carpophorus* adnate to the seeds throughout its whole length. — Perennial spiny herbs, with the flowers aggregated into a capitule: the inferior bractæas generally large, and forming an involucre; the rest scattered among the flowers, in the form of paleæ.

Radical leaves deeply divided - - - 1. E. CAMPESTRE.

Radical leaves dentate - - - 2. E. MARITIMUM.

1. *E. campestre*. (L. sp. 337.) *Field Eryngo*. Near Plymouth; near Davenport. Very rare. Fl. blue, or yellowish. July, Aug. Perennial. E. B. 57., H. 127., D. C. iv. p. 88.

2. *E. maritimum*. (L. sp. 337.) *Sea Eryngo*, or *Sea Holly*. Sandy sea shore. Common. Fl. blue. July, Aug. Perennial. E. B. 718., H. 126., D. C. iv. p. 89.

Note. Three species of *Eryngium*, *E. amethystinum*, *E. alpinum*, and *E. planum*, having the heads of flowers, involucre, and upper parts of the stem of a beautiful blue, are occasionally cultivated in gardens.

Tribe III. AMMINEÆ; or contracted, few-ridged Orthospermæ. (Koch, D. C. prod. iv. p. 98.)

Fruit evidently compressed at the sides, and generally didymous. *Merica*rp with 5 filiform ridges, sometimes slightly winged; the lateral ones marginal, all equal. *Seeds* terete or gibbous, flat in front. *Umbels* perfectly compound.

IV. CICUTA. (L. gen. n. 354., D. C. prod. iv. p. 99.)

Margin of the *calyx*, 5-toothed, foliaceous. *Petals* obcordate; the point inflexed. *Fruit* subrotund, laterally contracted, didymous. *Mericarps* with 5 flattened equal ridges; lateral ones marginal. *Furrows* 1-vittate. *Vittæ* quite filling the hollows when dry; the *ridges* somewhat more elevated. *Commissure* 2-vittate; the *vittæ* being under a loose membrane. *Carpophorus* bipartite. *Seeds* in transverse section, terete. — Perennial, glabrous, aquatic, poisonous herbs. Stems terete, fistular. Leaves tripinnate or ternatisect. Involucre none, or few-leaved. Involucels many-leaved. Flowers white.

1. ! *C. virosa*. (L. sp. 368.) *Water Hemlock*, or *Cowbane*. Margins of watery places in various parts of England. Battersea Fields, Hounslow Heath, &c.; but not common. Fl. white. July, Aug. Perennial. E. B. 479., H. 127., D. C. iv. p. 99.

V. APIUM. (L. gen. n. 367., D. C. prod. iv. p. 100.)

Margin of *calyx* obsolete. *Petals* roundish, entire. *Stylopodium* depressed. *Fruit* roundish, contracted laterally, didymous. *Mericarps* with 5 filiform equal ridges; the lateral ones marginal. *Furrows* 1-vittate; the exterior ones 2—3-vittate. *Carpophorus* undivided. *Seed* gibbous, flat in front. — Herbs, with fleshy roots. Involucre and involucel wanting.

1. ! *A. graveolens*. (L. sp. 379.) *Celery*. Marshy places, especially near the sea. Fl. greenish white. Aug. Sept. Perennial. E. B. 1210., H. 127., D. C. iv. p. 101.

VI. PETROSELINUM. (Hoffm., D. C. prod. iv. p. 102.)

Margin of the *calyx* obsolete. *Petals* subrotund, incurved, entire, scarcely emarginate, contracted into an inflexed segment. *Stylopodium* short, conical, subcrenulate. *Styles* divergent. *Fruit* ovate, laterally compressed, subdidymous. *Mericarps* with 5 equal filiform ridges; the lateral ones marginal. *Furrows* 1-vittate. *Commissure* 2-vittate. *Carpophorus* bipartite. *Seed* gibbous, flat in front. — Glabrous branching herbs. Involucre few-leaved. Involucel many-leaved. Flowers of the disk often sterile. Stamens longer than the corolla.

Radical leaves tripinnate; umbels many-rayed - - - 1. *P. SATIVUM*.

Radical leaves pinnate; umbels few-rayed, unequal - - - 2. *P. SEGETUM*.

1. ! *P. sativum*. (Hoffm.) *Common Parsley*. On old walls in south of England. Common. Doubtful native. Cult. in gardens as a pot-herb. Fl. greenish-white. July. Biennial. H. 127., D. C. iv. p. 102. *Apium Petroselinum*. (L. sp. 379., E. B. 2793.)

β. *crispum*. (D. C.) *Curled Parsley*. Lower leaves large, crisp.

γ. *latifolium*. (D. C.) *Broad-leaved*, or *Hamburg Parsley*. Lower leaves trifid, serrated. Petioles very long. *Ap. latif.* (Müll.)

2. ! *P. segetum*. (Koch.) *Corn Honewort*; *Corn Parsley*. Moist fields, on chalky soil. Fl. white, or slightly reddish. Aug. Annual, biennial. H. 127., D. C. iv. p. 102. *Sison segetum*. (L. sp. 362., E. B. 228.)

VII. TRINIA. (Hoffm., D. C. prod. iv. p. 103.)

Margin of *calyx* obsolete. *Flowers* generally (by abortion) diœcious, rarely monœcious. — Male flower. *Petals* lanceolate, contracted into an involute segment. — Female, or hermaphrodite, flower. *Petals* ovate, terminating in a short inflexed point. *Fruit* ovate, laterally compressed. *Mericarps* with 5 filiform, prominent, equal ridges; the lateral ones marginal. *Furrows* 1-vittate, or without vittæ. *Carpophorus* flat, bipartite from the base. *Seeds* gibbous, flat in front. — Umbels generally without an involucre; umbellules generally naked.

1. *T. vulgaris*. (D. C.) *Glabrous Honewort*. Limestone rocks. St. Vincent's Rock; Uphill, Somersetshire. Rare. Fl. white. May, June. Perennial. D. C. iv. p. 103.

β. *Jacquini*. (D. C.) Lobes of the leaves linear, subabbreviated, equal. *T. glaberrima*. (H. 128.) *Pimpinella dioica*. (Lin. mant. 357., E. B. 1209.)

VIII. HELOSCIADIUM. (Koch., D. C. prod. iv. p. 104.)

Margin of *calyx* 5-dentate or obsolete. *Petals* ovate, entire; the apex straight or inflexed. *Styles* short. *Fruit* laterally compressed, ovate or oblong. *Mericarps* with 5 prominent equal filiform ridges; the lateral ones mar-

ginal. *Furrows* 1-vittate. *Carpophorus* entire, free. *Seeds* gibbous or semiterete, flat in front.

Umbels subsessile, or the peduncles supporting the }
 umbels much shorter than the naked portion of the petiole } 1. *H. NODIFLORUM*.

Umbels supported on peduncles as long as the naked portion of the petioles

lower leaves capillary; umbels 2-rayed - 3. *H. INUNDATUM*.

lower leaves not capillary; umbels 4—6-rayed - 2. *H. REPENS*.

1. ! *H. nodiflorum*. (Koch.) *Procumbent Marshwort*. Sides of rivulets, &c. Common. Fl. white. July, Aug. Perennial. H. 128., D. C. iv. p. 104. *Sium nodiflorum*. (L. sp. 361., E. B. 639.)

2. *H. repens*. (Koch.) *Creeping Marshwort*. Watery places in Oxfordshire and Cambridgeshire. Fl. white. July, Aug. Perennial. H. 128., D. C. iv. p. 105. *Sium repens*. (L. sp., E. B. 1431.)

3. ! *H. inundatum*. (Koch.) *Lesser Marshwort*. Pools which are dried up in summer. Common. Fl. white. May, July. Perennial. H. 128. *Sium inundatum*. (E. B. 227.)

IX. SISON. (L. gen. n. 349., D. C. prod. iv. p. 110.)

Margin of *calyx* obsolete. *Petals* subrotund, curved, deeply emarginate, with the apex inflexed. *Styles* very short. *Fruit* laterally compressed, ovate. *Mericarps* with 5 filiform equal ridges; lateral ones marginal. *Furrows* 1-vittate. *Vittæ* short, club-shaped. *Carpophorus* bipartite. *Seed* gibbous, flat in front. — *Involucre* and *involucel* few-leaved. Umbels of 4—6 unequal elongated rays. Umbellules of 4—5 short rays.

1. ! *S. Amomum*. (L. sp. 362.) *Stone Parsley*. Moist ground on a chalky soil. Fl. cream-coloured. Aug. Biennial. E. B. 954., H. 129., D. C. iv. p. 110.

X. ÆGOPODIUM. (L. gen. n. 368., D. C. prod. iv. p. 114.)

Margin of *calyx* obsolete. *Petals* obovate, emarginate, with the apex inflexed. *Stylopodium* distinct, conical, terminated by the long deflexed styles. *Fruit* laterally compressed, ovate. *Mericarps* with 5 filiform ridges; the lateral ones marginal. *Furrows* without vittæ. *Carpophorus* setaceous, forked at the apex. *Seeds* tereti-convex, flat in front. — Umbels compound, many-rayed. *Involucre* and *involucel* wanting.

1. ! *Æ. Podagraria*. (L. sp. 379.) *Gout Weed*; *Herb Gerard*. Gardens and wet places. Common. Fl. white, with purple anthers. May, June. Perennial. E. B. 940., H. 129., D. C. iv. p. 114.

XI. CARUM. (L. gen. n. 365., D. C. prod. iv. p. 114.)

Margin of *calyx* obsolete. *Petals* regular, obovate, emarginate; the apex inflexed. *Stylopodium* depressed. *Styles* deflexed. *Fruit* laterally compressed, contracted, ovate or oblong. *Mericarps* with 5 filiform equal ridges; the lateral ones marginal. *Commissure* flat, 2-vittate. *Furrows* 1-vittate. *Carpophorus* free, forked at the apex. *Seeds* tereti-convex, flat in front. — Glabrous perennial herbs, with tuberous eatable roots. *Involucres* various.

Involucre none; *involucel* of few or no leaves - 1. *C. CARVI*.

Involucre and *involucel* many-leaved, small - 2. *C. VERTICILLATUM*.

1. ! *C. Carvi*. (L. sp. 378.) *Caraway*. Meadows and pastures in England. Fl. white, June. Perennial. E. B. 1503., H. 129., D. C. iv. p. 115.

2. *C. verticillatum*. (Koch.) *Whorled Caraway*. Wales, Scotland, and Ireland. Fl. white. Aug. Perennial. H. 129., D. C. iv. p. 115. *Sison verticillatum*. (L. sp. 363., E. B. 395.)

XII. BUNIU. (L. gen. n. 335., D. C. prod. iv. p. 115.)

Margin of *calyx* obsolete. *Petals* obovate, emarginate, with the apex inflexed. *Fruit* laterally contracted, linear, oblong. *Mericarps* with 5 equal filiform obtuse ridges; the lateral ones marginal. *Furrows* 2—3-vittate. *Commissure* 4-vittate. *Vittæ* all superficial. *Carpophorus* free, bifid. *Seed* tereti-convex, flat in front. — Perennial herbs, with globose tuberous roots.

1. ! *B. denuatum*. (D. C.) *Earth Nut*. Woods and pastures. Common. Fl. white. May, June. Perennial. D. C. iv. p. 117. *B. flexuosum*. (H. 129., E. B. 988.) *Conopodium* (Koch, Lindl.)

XIII. PIMPINELLA. (L. gen. n. 366., D. C. prod. iv. p. 119.)

Margin of *calyx* obsolete. *Petals* obovate, emarginate, with the apex inflexed. *Fruit* laterally contracted, ovate, crowned by a cushion-like stylopodium, and by the reflexed styles, which are subcapitate at their apex. *Mericarps* with 5 filiform equal ridges; the lateral ones marginal. *Furrows* many-vittate. *Carpophorus* free, bifid. *Seed* gibbous, flat in front. — Involucre and involucre wanting.

Cauline leaves bipinnate; leaflets linear - - 1. *P. SAXIFRAGA*.
Cauline leaves pinnate; leaflets broader, dentate - - 2. *P. MAGNA*.

1. ! *P. Saxifraga*. (L. sp. 378.) *Common Burnet Saxifrage*. Dry pastures. Common. Fl. white or slightly reddish. July, Aug. Perennial. E. B. 407., H. 130., D. C. iv. p. 120.

2. ! *P. magna*. (L. mant. 217.) *Greater Burnet Saxifrage*. Shady places, on a chalky soil. Not common. Fl. white or reddish. July, Aug. Perennial. E. B. 408., H. 130., D. C. iv. p. 119.

Note. *P. Anisum*, the Anise, an annual species, is sometimes cultivated, but not common.

XIV. SIUM. (L. gen. n. 348., D. C. prod. iv. p. 124.)

Margin of *calyx* 5-dentate, sometimes obsolete. *Petals* obovate, emarginate, with the apex inflexed. *Stylopodium* in the form of a cushion; depressed at the margin. *Styles* divergent, reflexed; capitate at the apex. *Fruit* laterally compressed or contracted, and subdidymous; crowned by the stylopodium and styles. *Mericarps* with 5 equal, filiform, obtuse ridges. *Furrows* and *commisure* many-vittate. *Carpophorus* bipartite, a branch adnate to each mericarp. *Seed* subterete. — Mostly aquatic herbs. Umbels many-rayed. Involucre many-leaved (rarely 1-leaved). Involucels many-leaved.

Leaflets oblong, lanceolate, equally serrated; umbel } 1. *S. LATIFOLIUM*.
terminal - - - - - }

Leaflets unequally lobed and serrated; umbels la- } 2. *S. ANGUSTIFOLIUM*.
teral and terminal - - - - - }

1. ! *S. latifolium*. (L. sp. 361.) *Broad-leaved Water Parsnep*. Watery places. Fl. white. July, Aug. Perennial. E. B. 204., H. 130., D. C. iv. p. 124.

2. ! *S. angustifolium*. (L. sp. 1672.) *Narrow-leaved Water Parsnep*. Ditches and rivulets. Common. Fl. white. July, Aug. Perennial. E. B. 139., H. 130., D. C. iv. p. 125.

XV. BUPLEURUM. (L. gen. 328., D. C. prod. iv. p. 127.)

Margin of *calyx* obsolete. *Petals* subrotund, entire, closely involute, with a broad retuse segment. *Fruit* laterally compressed or subdidymous, crowned by the depressed stylopodium. *Mericarps* with 5 winged, acute, filiform (sometimes obsolete) ridges; lateral ones marginal. *Furrows* vittate or evittate, smooth or granulated. *Seed* tereti-convex, flat in front. — Very smooth herbs or shrubs. Leaves generally entire; that is to say, the limb of the leaf is abortive, and the petiole is dilated into a very entire phyllodium. Umbels compound. Involucre various. Flowers yellow.

Universal involucre wanting - - - 3. *B. ROTUNDIFOLIUM*.

Universal involucre present

involucels generally longer than the umbellules;

ridges small and depressed

umbels principally axillary, nearly sessile - 1. *B. TENUISSIMUM*.

umbels principally terminal, and pedunculated - 2. *B. ODONTITES*.

involucres generally shorter than the umbellules; } 4. *B. FALCATUM*.
ridges elevated, somewhat winged - - - }

1. ! *B. tenuissimum*. (L. sp. 343.) *Slender Hare's Ear*. Sea banks in the south of England. Common. Near Gravesend. Fl. yellow. Aug. Sept. Annual. E. B. 478., H. 131., D. C. iv. p. 127.

2. *B. Odontites*. (L. sp. 342.) *Narrow-leaved Hare's Ear*. Flag-post Hill, near Torquay. Fl. yellow. Annual. E. B. 2468., H. 130., D. C. iv. p. 129.

3. ! *B. rotundifolium*. (L. sp. 340.) *Common Hare's Ear*; *Thorowwax*. Corn fields, on chalky soil, near Gravesend, &c. Fl. yellow. July. Annual. E. B. 99., H. 130., D. C. iv. p. 129.

4. ! *B. falcatum*. (L. sp. 341.) *Falcate-leaved Hare's Ear*. Norton Heath

near Ongar, Essex. Fl. yellow. Aug. Sept. Perennial. E. B. 2763., H. 131. D. C. iv. p. 132.

Tribe IV. SESELINEÆ; or few-ridged, terete Orthospermæ.

(Koch, D. C. prod. iv. p. 135.)

Fruit more or less terete in the transverse section. *Mericarps* with 5 filiform or winged ridges, equal; or, sometimes the lateral marginal ones are broader. *Seed* subtereti-convex on the back, flat in front. *Raphe* marginal or submarginal.

XVI. CENANTHE. (L. gen. n. 352., D. C. prod. iv. p. 136.)

Margin of *calyx* 5-dentate, persistent; concreted together after flowering. *Petals* obovate, emarginate; the apex inflexed. *Stylopodium* conical. *Fruit* cylindrical-ovate, crowned by the long erect styles. *Mericarps* with 5 rather convex obtuse ridges; the lateral ones larger, and somewhat broader, than the rest. *Furrows* 1-vittate. *Carpophorus* indistinct. — Generally glabrous herbs, growing in or near the water. Umbels compound. General involucre various, often wanting. — Umbellule many-leaved. Flowers in the ray with long pedicels, by abortion sterile; those of the disk nearly sessile, fertile. *Petals* white.

General involucre none, or 1—2-leaved

umbels usually of 3 (rarely of 4 or more) rays; }
petioles fistulous; stem leaves pinnate; } 1. *C. FISTULOSA.*
pinnæ, small, confined to upper part of leaf }

umbels of 6 or more rays; stem leaves generally
bipinnate; pinnæ not confined to the upper
part of the leaf

leaves decomposed; leaflets divaricated; root }
fusiform, with fibrous radicles - - - } 5. *C. PHELLANDRIUM.*

leaflets elliptical, linear, not divaricated; roots }
composed of sessile elliptical tubers - - - } 2. *C. PEUCEDANIFOLIA.*

General involucre of 5 or 6 leaves

lobes of the upper cauline leaves linear, entire } 3. *C. PIMPINELLOIDES.*

lobes of the upper cauline leaves wedge-shaped, }
incised - - - - - } 4. *C. CROCAT.*

1. ! *C. fistulosa.* (L. sp. 365.) *Common Water Dropwort.* Ditches and marshes. Common. Fl. white. June, July. Perennial. E. B. 363, H. 131., D. C. iv. p. 136.

2. *C. peucedanifolia.* (Poll.) *Sulphur Weed; Water Dropwort.* Bogs and ditches of fresh water, in midland counties. Fl. white. June. Perennial. E. B. 348., H. 131., D. C. iv. p. 137.

3. ! *C. pimpinelloides.* (L. sp. 365.) *Parsley Waterdrop.* Salt marshes. Common. Fl. white. July. Perennial. E. B. 347., H. 131., D. C. iv. p. 137.

4. ! *C. crocata.* (L. sp. 365.) *Hemlock Waterdrop.* Watery places. Not uncommon. Fl. white. July. Perennial. E. B. 2313., H. 132., D. C. iv. p. 138.

Cen. apiifolia, according to Hooker, only differs from *C. crocata*, in not having a yellow juice; which, however, is not constant in *C. crocata*.

5. ! *C. Phellandrium.* (Lam., Spreng.) *Fine-leaved Waterdrop.* Ditches and pools. Fl. white. July. Perennial. H. 132., D. C. iv. p. 138. *Phell. aquat.* (L. sp. 366., E. B. 684.)

XVII. ÆTHUSA. (L. gen. n. 141., D. C. prod. iv. p. 141.)

Margin of *calyx* obsolete. *Petals* obovate emarginate; the apex being inflexed; outer ones somewhat radiating. *Fruit* ovato-globose. *Mericarps* with 5 elevated, thick, acute, carinated ridges; lateral ones marginal, rather wider, and surrounded by a slightly winged keel. *Furrows* 1-vittate. *Commisures* with 2 arched vittæ. *Seed* semiglobose. *Carpophorus* bipartite. — Annual, erect, poisonous herbs, with multifid leaves. Involucre none, or 1-leaved. Involucel of 1—5 generally 3 setaceous spreading folioles, situated on the outer side of the umbellule.

1. ! *Æ. Cynapium.* (L. sp. 367.) *Fool's Parsley.* Cultivated ground. Very common. Fl. white. June, Aug. Annual. E. B. 1192., H. 132., D. C. iv. p. 141.

XVIII. FŒNICULUM. (Hoffm., D. C. prod. iv. p. 142.)

Margin of *calyx* tumid, obsolete, not dentate. *Petals* subrotund, entire, involute; the subquadrate segment retuse. *Fruit* subterete, in a transverse section. *Mericarps* with 5 prominent obtusely-keeled ridges; lateral ones marginal, somewhat broader. *Furrows* 1-vittate. *Commissure* bivittate. *Seeds* rather semiterete. — Leaflets linear, setaceous. Involucre and involucrel wanting.

1. ! *F. vulgare*. (Gærtn.) *Common Fennel*. Chalky cliffs, near the sea. Abundant. Cult. in gardens. Common. Fl. yellow. July, Aug. Perennial. H. 132., D. C. iv. p. 142. Aneth. Fœnic. (L. sp. 722., E. B. 1208.)

Note. *F. dulce*, which differs from this by its fewer-rayed umbel and smaller size, is sometimes cultivated, the root being blanched like celery, and called Finocchio.

XIX. LIBANOTIS. (Crantz, D. C. prod. iv. p. 149.)

Margin of *calyx* 5-dentate; lobes slender, subulate, elongated, coloured, deciduous, a portion only remaining at the base. *Petals* obovate, contracted into a narrow inflexed segment, emarginate or nearly entire. *Fruit* oval or oblong, subterete in the transverse section, crowned by the reflexed styles. *Mericarps* with 5 prominent, filiform, or elevated, thick ridges; the lateral ones marginal, and often somewhat broader. *Furrows* 1-vittate; exterior ones rarely 2-vittate. *Commissure* 2-vittate, rarely 4-vittate. — Involucre scarcely any. Involucrel many-leaved. Only to be distinguished from *Seseli* by its calyx.

1. ! *L. vulgaris*. (D. C.) *Mountain Meadow Saxifrage*. Chalky pastures. Rare. Gog Magog Hill, Cambridgeshire; between St. Alban's and Stony Stratford. Fl. white. Aug. Perennial. D. C. iv. p. 150. *Athamanta Libanotis*. (L. sp. 351., E. B. 138.) *Seseli Libanotis*. (H. 132.)

XX. LIGUSTICUM. (L. gen. n. 346., D. C. prod. iv. p. 157.)

Margin of *calyx* 5-dentate or obsolete. *Petals* obovate, with very short claws, acute, emarginate; the apex being inflexed. *Fruit* subterete in the transverse section, or slightly compressed at the sides. *Mericarps* of 5 sharp equal, subwinged ridges; lateral ones marginal. *Furrows* and *commissure* many-vittate. *Seeds* semiterete. — Involucrum various. Involucrel many-leaved.

1. *L. scoticum*. (L. sp. 359.) *Scotch Lovage*. Rocky sea-coast, north of England and Scotland. Common. Fl. greenish white. July. Perennial. E. B. 1207., H. 133., D. C. iv. p. 157.

XXI. SILAUS. (Besser, D. C. prod. iv. p. 161.)

Margin of *calyx* obsolete. *Petals* obovate oblong, contracted at the apex into an inflexed segment; entire or subemarginate, sessile or subunguiculate. *Fruit* subterete in transverse section. *Mericarps* with 5 equal, sharp, slightly winged ridges; lateral ones marginal. *Furrows* many-vittate. *Vittæ* approximated, almost appearing like one broad vitta. — Perennial glabrous, herbs. Involucre of few or no leaves. Involucrel many-leaved. This genus is very nearly allied to *Ligusticum*.

1. ! *S. pratensis*. (Besser.) *Meadow Pepper Saxifrage*. Pastures and meadows. Common. Fl. yellowish. July, Sept. Perennial. H. 133., D. C. iv. p. 161. *Peucedanum Silaus*. (L. sp. 354., E. B. 2142.)

XXII. MEUM. (Tournef., D. C. prod. iv. p. 162.)

Margin of *calyx* obsolete. *Petals* entire, elliptical; sharp at the base and apex. *Fruit* subterete in the transverse section. *Mericarps* with 5 prominent, sharply keeled, equal ridges; lateral ones marginal. *Furrows* many-vittate. *Commissure* 6—8-vittate. *Seeds* nearly semiterete. — Leaves very much divided. Involucrum almost leafless. Involucrel many-leaved.

1. *M. athamanticum*. (Jacq.) *Spignel, Meu, or Bald-money*. Alpine pastures. North of England and Scotland. Fl. yellowish. June, July. Perennial. E. B. 2249., H. 133., D. C. iv. p. 162. *Athamanta Meum*. (L. sp. 353.)

XXIII. CRITHMUM. (L. gen. n. 340., D. C. prod. iv. p. 164.)

Margin of *calyx* obsolete. *Petals* subrotund, entire, involute; the segment obovate. *Fruit* subterete in the transverse section. *Mericarps* with 5 elevated, sharp, slightly winged ridges; the lateral ones being rather broader,

and marginal. *Pericarp* spongy, with large cells. *Seed* semiterete, being a non-adherent kernel, covered over with an abundance of vittæ. — A fleshy glabrous, slightly shrubby herb, with compound umbels; the involucre and involucrel many-leaved.

1. *C. maritimum*. (L. sp. 354.) *Samphire*. Sea shore, among the rubble; also on the rocks. Fl. greenish white. Aug., Sept. Perennial. E. B. 819., H. 133., D. C. iv. p. 164.

Tribe V. ANGELICÆ; or four-winged *Orthospermæ*, with few ridges. (Koch, D. C. prod. iv. p. 164.)

Fruit dorsally compressed, furnished with 2 wings on each side, owing to the raphe being nearly central. *Mericarps* with 5 ridges; the 3 dorsal filiform or winged; the 2 lateral always expanded into wings, which are broader than those of the back. *Seeds* slightly convex on the back, flat in front.

XXIV. ANGELICA. (L. gen. n. 347., D. C. prod. iv. p. 167.)

Margin of *calyx* obsolete. *Petals* lanceolate, entire, acuminate; the apex being straight or incurved. *Fruit* compressed dorsally, 2-winged on each side. *Mericarps* with 3 dorsal, filiform, elevated ridges; and 2 lateral ones broader than the rest. *Furrows* 1-vittate. *Seed* rather semiterete. *Carpophorus* bipartite, free. — Herbs, with bipinnatisect leaves, and terminal umbels. Involucre of few or no leaves. Involucrel many-leaved.

1 ! *A. sylvestris*. (L. sp. 361.) *Wild Angelica*. Moist places in woods, and near rivulets. Common. Fl. white. July. Perennial. E. B. 1128., H. 134., D. C. iv. p. 168.

XXV. ARCHANGELICA. (Hoffm., D. C. prod. iv. p. 167.)

Margin of *calyx* with 5 short teeth. *Petals* elliptical, entire, acuminate; the apex incurved. *Fruit* dorsally subcompressed, 2-winged on both sides. *Mericarps* with 3 dorsal, thick, elevated ridges, and 2 lateral ones expanded into a wing twice as broad as the rest. *Seed* not adhering to the integuments; the kernel being free, and covered thick with vittæ. *Carpophorus* bipartite. — Perennial herbs, with pinnatisect leaves. Involucre almost wanting. Involucrel many-leaved only on the outer side.

1 ! *A. officinalis*. (Hoffm.) *Garden Angelica*. Banks of Thames. Doubtful native. Fl. white. June, Sept. Biennial. D. C. iv. p. 169. *Angelica Archang.* (L. sp. 360., E. B. 2561., H. 134.)

Tribe VI. PEUCEDANÆ; or two-winged *Orthospermæ*, with few ridges. (D. C. prod. iv. p. 170.)

Fruit flat, or lenticularly compressed at the back; surrounded by an entire, smooth, dilated, winged margin, which is flat or convex. *Mericarps* with 5 filiform (rarely winged) ridges; the lateral ones being incorporated with the dilated margin. *Raphe* marginal; and, hence, the seed has but one wing on each side. *Seed* flattened, not convex on the back.

XXVI. PEUCEDANUM. (L. gen. n. 339., D. C. prod. iv. p. 176.)

Margin of *calyx* 5-dentate. *Petals* obovate, contracted into a narrow inflexed segment; emarginate or entire. *Fruit* dorsally compressed, flat or lenticular, surrounded by a dilated and flattened margin. *Mericarps* with subequidistant ridges; the 3 dorsal ones filiform, the lateral ones obsolete, and incorporated with the dilated margin. *Furrows* 1- (rarely 2-) vittate. *Commissure* 2-vittate. *Carpophorus* bipartite. *Seed* flat in front. — Glabrous perennial herbs, with compound terminal umbels. Involucre various. Involucrel many-leaved.

Leaves 5 times tripartite; segments linear; flowers yellow 1. *P. OFFICINALE*.
Leaves bi- or tri-pinnatisect; segments pinnatifid; flowers } 2. *P. SYLVESTRE*.
white - - - - -

1. ! *P. officinale*. (L. sp. 353.) *Sulphur Weed*. Salt marshes in Kent, Essex, and Sussex. Rare. Fl. yellow. July, Sept. Perennial. E. B. 176., H. 134., D. C. iv. p. 177.

2. ! *P. sylvestre*. (D. C.) *Milk Parsley*. Marshy places in Yorkshire and Lancashire. Fl. white. July. Perennial. D. C. iv. p. 179. *Selinum sylvestre*. (Lin.). *Selinum palustre*. (E. B. 229.) *P. palustre*. (H. 134.)

XXVII. IMPERATORIA. (L. gen. n. 359., D. C. prod. iv. p. 183.)

Character as in *Peucedanum*; but the margin of the *calyx* is obsolete. — *Involucre* none. *Involucel* of many leaves.

1. *I. Ostruthium*. (L. sp. 372.) *Masterwort*. Moist pastures on the banks of the Clyde. Doubtful native. Fl. white. E. B. 1380., D. C. iv. p. 183. *Peucedanum Ostruth.* (H. 135.)

XXVIII. PASTINACA. (L. gen. n. 362., D. C. prod. iv. p. 188.)

Margin of *calyx* obsolete, or minutely denticulate. *Petals* subrotund, entire, involute; the segment broad, retuse. *Fruit* dorsally compressed, flattened, surrounded by a flattened dilated margin. *Mericarps* with slender ridges; the 3 dorsal ones equidistant; the 2 lateral contiguous to the dilated margin. *Vittæ* linear, acute, scarcely shorter than the furrows, which are 1-vittate; the *commisure* 2- or many-vittate. *Carpophorus* bipartite. *Seed* flattened. — Herbs, with fusiform, generally fleshy, roots; the leaves pinnatisect. Umbels compound. Both involucre few-leaved.

1. ! *P. sativa*. (L. sp. 376.) *Parsnep*. Borders of fields and pastures, in chalky soil. Gravesend and Croydon. Fl. yellow. July, Aug. Biennial. E. B. 556., H. 135., D. C. iv. p. 189.

α. *sylvestris*. (D. C.) *Wild Parsnep*. Leaves pubescent. Root slender.

β. *edulis*. (D. C.) *Garden Parsnep*. Leaves glabrous, shining above. Root thick, fleshy. *P. sativa*. (Mill.)

XXIX. HERACLEUM. (L. gen. n. 345., D. C. prod. iv. p. 191.)

Calyx 5-dentate. *Petals* obovate, emarginate; the apex being inflexed; outer ones generally radiating, bifid. *Fruit* dorsally compressed, flattened, girded by a dilated margin. *Mericarps* with very slender ridges; the 3 dorsal ones equidistant; the 2 lateral being remote, but contiguous to the dilated margin. *Furrows* 1-vittate. *Commisure* 2-vittate; all the vittæ shorter than the fruit, and generally club-shaped. *Carpophorus* bipartite. *Seed* flattened. — Umbels many-rayed. *Involucre* caducous, generally few-leaved. *Involucel* many-leaved.

1. ! *H. Sphondylium*. (L. sp. 358.) *Cow Parsley*. Meadows and bushy places. Frequent. Fl. white, rayed. July. Biennial. E. B. 939., H. 135., D. C. iv. p. 192.

β. *angustifolium*. (Hook.) Leaves more deeply cut. Lobes narrower. *H. angustifolium*. (Sm.)

Note. A gigantic species (*H. asperum*) has been lately cultivated in plantations, but not common.

Tribe VII. TORDYLINEÆ; or annulated *Orthospermæ*, with few ridges. (Koch, D. C. prod. iv. p. 196.)

Fruit dorsally compressed, lenticular or flat, surrounded by a dilated thickened margin, which is knotty or plicate. *Mericarps* with 5 very slender or obsolete ridges; the lateral ones contiguous, or incorporated with the dilated margin. *Seed* flattened.

XXX. TORDYLIUM. (L. gen. n. 330., D. C. prod. iv. p. 197.)

Margin of *calyx* 5 dentate. *Petals* obovate, emarginate, with the apex inflexed; outer ones radiating and bifid. *Fruit* dorsally compressed, flat, surrounded by a rugose, tuberculated, thick, accessory margin. *Mericarps* with very slight ridges; the 3 dorsal ones equidistant; the 2 lateral contiguous to the thickened margin, or even covered by it. *Furrows* 1-or many-vittate. *Commisure* 2-or many-vittate. *Vittæ* filiform. *Carpophorus* bipartite. *Seed* flattened. — *Involucre* many-leaved.

Furrows with 1 vitta; *commisure* with 2 vittæ; in- }
volucres shorter than the umbels - - - } 1. *T. MAXIMUM*.

Furrows and *commisure* many-vittate; involucre as }
long as the umbels - - - - - } 2. *T. OFFICINALE*.

1. ! *T. maximum*. (L. sp. 345.) *Great Hartwort*. Oxford and Eton. Rare. Fl. rose-coloured. July. Annual. E. B. 1173., H. 136., D. C. iv. p. 198.

2. ! *T. officinale*. (L. sp. 345.) *Small Hartwort*. A doubtful native. Ray and Petiver. Fl. white with large rays. June, July. Annual. E. B. 2440., H. 136., D. C. iv. p. 198. *Condyllocarpus* off. (Hoffm. Lind. syn. 115.)

Tribe VIII. DAUCINÆ; or spinous Orthospermæ, with many ridges. (Koch, D. C. prod. iv. p. 208.)

Fruit dorsally compressed, lenticular; or in a transverse section, subterete. *Mericarps* with 5 filiform, bristly, primary ridges (the lateral ones being in the plane of the commissure); and with 4 secondary, more prominent, prickly ridges; the prickles free, or somewhat connate into a wing. *Seed* flat, or semiterete, flat in front.

XXXI. DAUCUS. (L. gen. n. 333., D. C. prod. iv. p. 209.)

Margin of *calyx* 5-dentate. *Petals* obovate, emarginate; the apex being inflexed; the outer ones often radiating, and deeply bifid. *Fruit* dorsally subcompressed, ovate or oblong. *Mericarps* with 5 filiform bristly ridges; 3 dorsal, and 2 on a plane with the commissure; 4 secondary ridges equal, more prominent, with a single row of prickles. *Furrows* 1-vittate, beneath the secondary ridges. *Seed* flat in front.—Leaves of involucre numerous, pinnatifid; those of the involucre also numerous, entire, or trifid.

Umbels, when in seed, concave; leaves not fleshy - 1. D. CAROTA.

Umbels, when in seed, convex; leaves fleshy - 2. D. MARITIMUS.

1. ! *D. Carota*. (L. sp. 348.) *Common Carrot*. Fields. Very common. Fl. white, with a dark purple abortive floret in the centre. July. Biennial. E. B. 1174., H. 136., D. C. iv. p. 211.

2. *D. maritimus*. (Lamarck.) *Sea-side Carrot*. Sea coast of the south of England. Fl. yellowish white, tipped with red. July, Aug. Biennial. E. B. 2560., H. 136., D. C. iv. p. 211.

Suborder II. Campylospermæ.

Albumen involute, or marked on the inner side by a longitudinal furrow, or canal.

Tribe IX. CAUCALINÆ; or prickly Campylospermæ, with many ridges. (Koch, D. C. prod. iv. p. 216.)

Fruit laterally contracted, or subterete. *Mericarps* with 5 filiform, bristly, or prickly primary ridges; lateral ones in a plane with the commissure; secondary ridges 4, more prominent, prickly, or sometimes obliterated by a number of prickles, covering over every portion of the furrows. *Seed* involute or inflexed at the margin.

XXXII. CAUCALIS. (L. gen. n. 331., D. C. prod. iv. p. 216.)

Teeth of *calyx* 5, ovate, lanceolate. *Petals* obovate, emarginate, with the point inflexed; outer ones radiating, deeply bifid. *Fruit* laterally subcompressed. *Mericarps* with 5 filiform bristly or prickly primary ridges, 3 dorsal, and 2 lateral, in a plane with the commissure; 4 secondary ridges more prominent, with a single row of prickles. *Vittæ* 1 in each furrow under the secondary ridges, and 2 in the commissure. *Carpophorus* rigid, cleft at the apex. *Seed* involute or inflexed at the margin.—Involucre none or few-leaved. Involucre with 3—8 lanceolate spreading leaves.

1. ! *C. daucoides*. (L. mant. 351.) *Small Bur Parsley*. Corn fields on a chalky soil in the east and south of England. Fl. white, tipped with red. June. Annual. E. B. 197., H. 136., D. C. iv. p. 216.

XXXIII. TURGENIA. (Hoffm., D. C. prod. iv. p. 217.)

Teeth of *calyx* 5 setaceous. *Petals* obovate, emarginate, with the apex inflexed; outer ones radiating, bifid. *Fruit* laterally contracted, subdidymous. *Mericarps* with 5 primary and 4 secondary ridges; the primary lateral ones in a plane with the commissure, having a single row of asperities, or prickles; all the others with 2—3 rows of prickles. *Furrows* 1-vittate under the secondary ridges. *Carpophorus* setaceous, bifid. *Seed* involute.—Erect subscabrous herbs. Umbels of few rays. Involucre and involucre 3—5-leaved, with membranous borders.

1. *T. latifolia*. (Hoffm.) *Great Bur Parsley*. In chalky fields. Rare. More common in Cambridgeshire. Fl. rose-coloured. July. Annual. D. C. iv. p. 218. *Caucalis latifolia*. (E. B. 198., H. 136.) *Tordylium latifolium*. (L. sp. 545.)

XXXIV. TORILIS. (Adans., D. C. prod. iv. p. 218.)

Teeth of *calyx* 5, triangulari-lanceolate, sharp, persistent. *Petals* obovate, emarginate; the apex inflexed; outer ones larger, bifid. *Fruit* laterally contracted. *Mericarps* with 5 primary bristly ridges, 3 dorsal, and 2 in the plane of the commissure; secondary ones obliterated by a number of prickles, occupying the whole of the furrows, which are 1-vittate beneath the prickles. *Carpophorus* setaceous, bifid. *Seeds* inflexed at the margin. — Umbels opposite the leaves, or terminal. Involucre 1—5-leaved. Involucel of 5—8 lanceolate ciliate leaflets. Fruit covered with prickles, which are generally hooked at the apex.

Umbels lateral, subsessile - - - 3. *T. NODOSA*.

Umbels with long terminal or lateral peduncles
 general involucre of 4—5 small subulate leaves - 1. *C. ANTHRISCUS*.
 general involucre of 1 leaf, or none - 2. *C. INFESTA*.

1. ! *T. Anthriscus*. (Gmel.) *Upright Hedge Parsley*. Hedges and waste places. Common. Fl. white, with a reddish tinge. July. Annual. H. 137., D. C. iv. p. 218. *Caucalis Anthriscus*. (E. B. 987.) *Tordylium Anthris*. (L. sp. 346.)

2. ! *T. infesta*. (Hoffm.) *Spreading Hedge Parsley*. Field and way sides. Common. Fl. white. July. Annual. H. 137. *T. helvetica*. (D. C. iv. p. 219.) *Caucalis infest*. (E. B. 1314.) *Scandix infest*. (Lin. syst. veg.)

3. ! *T. nodosa*. (Gærtn.) *Knotted Hedge Parsley*. Road sides. Common. Fl. reddish. May, June. Annual. H. 137., D. C. iv. p. 219. *Caucalis nodosa*. (E. B. 199.)

Tribe X. SCANDICINÆ; or elongate Campylospermæ, with few ridges. (Koch, D. C. prod. iv. p. 220.)

Fruit evidently compressed or laterally contracted, generally rostrate. *Mericarps* with 5 filiform ridges, which are sometimes winged; the lateral ones marginal, all equal; sometimes all obliterated at the base, and only perceptible at the apex. *Seed* terete, convex, being deeply grooved in front, or having the margin subinvolute.

XXXV. SCANDIX. (L. gen. n. 357., D. C. prod. iv. p. 220.)

Margin of *calyx* obsolete or sub-5-dentate. *Petals* obovate, truncated, or emarginate; the apex inflexed. *Fruit* laterally subcompressed, with a very long beak. *Mericarps* with 5 obtuse equal ridges; the lateral ones marginal. *Furrows* obsoletely vittate, or evittate. *Carpophorus* undivided or forked at the apex. *Seed* tereticonvex, and deeply furrowed in front. — Annual herbs. Umbels of few rays. Involucre none, or of 1 leaf. Umbellules of few rays. Involucel 5—7-leaved.

1. ! *S. Pecten Veneris*. (L. sp. 368.) *Venus's Comb*. Corn [fields. Very common. Fl. white. May, June. Annual. E. B. 1397., H. 137., D. C. iv. p. 220.

XXXVI. ANTHRISCUS. (Hoffm., D. C. prod. iv. p. 222.)

Margin of *calyx* obsolete. *Petals* obovate, truncate, with a very short inflexed segment. *Fruit* laterally contracted, beaked; the beak shorter than the seed. *Mericarps* subterete, without ridges, or the beak alone 5-ridged. *Carpophorus* bifid at the apex. *Seed* terete, convex, deeply furrowed in front. — Involucre none. Involucel many-leaved.

Fruit smooth

perennial; general umbels stalked, terminal - - 1. *A. SYLVESTRIS*.
 annual; general umbels sessile, lateral, opposite the }
 leaves, - - - - - } 2. *A. CEREFOLIUM*.

Fruit hispid - - - - - 3. *A. VULGARIS*.

1. ! *A. sylvestris*. (Hoffm.) *Wild Chervil*. Hedges, &c. Very common. Fl. white. April, June. Perennial. H. 137., D. C. iv. p. 223. *Chærophylum sylvestre*. (L. sp. 369., E. B. 752.)

2. ! *A. Cerefolium*. (Hoffm.) *Garden Chervil*. About gardens, probably escaped from them, where it has been cultivated as a salad. Fl. white. July. Annual. H. 138., D. C. iv. p. 224. *Scandix Cerefol*. (L. sp. 368., E. B. 1268.)

3. ! *A. vulgaris*. (Pers.) *Common beaked Parsley*. Waste places by road

sides. Common. Fl. white. May, June. Annual. H. 138., D. C. iv. p. 224. *Scandix Anthriscus*. (L. sp. 368., E. B. 818.)

XXXVII. CHÆROPHYLLUM. (L. gen. n. 358., D. C. prod. iv. p. 224.)

Margin of *calyx* obsolete. *Petals* obovate, emarginate; the apex inflexed. *Fruit* not beaked, laterally compressed or contracted. *Mericarps* with 5 obtuse equal ridges; lateral ones marginal. *Commissure* deeply furrowed. *Furrows* 1-vittate. *Carpophorus* bifid. *Seed* terete, convex, semilunar in a transverse section. — Involucre none, or of few leaves. Involucel many-leaved.

Leaves ternatisect subbipinnatisect; leaflets serrate, } 3. C. AROMATICUM.
undivided - - - - - }

Leaflets pinnatifid or inciso-lobate

leaves bipinnate; stem spotted - - - - - 1. C. TEMULUM.

leaves tripinnate; stem not spotted - - - - - 2. C. AUREUM.

1. ! *C. temulum*. (L. sp. 370.) *Rough Chervil*. Hedges and copses. Common. Fl. white. June, July. ? Perennial. ? Biennial. E. B. 1521., H. 138., D. C. iv. p. 226.

2. *C. aureum*. (L. sp. 370.) *Tawny-seeded Chervil*. Near Montrose, Scotland. Fl. cream-coloured. June. Perennial. E. B. 2103., H. 138., D. C. iv. p. 226.

3. *C. aromaticum*. (L. sp. 371.) *Broad-leaved Chervil*. Near Forfar, Scotland. Fl. white. June. Perennial. E. B. 2636., H. 139., D. C. iv. p. 227.

XXXVIII. MYRRHIS. (Scop., D. C. prod. iv. p. 231.)

Margin of *calyx* obsolete. *Petals* obovate, emarginate; the point inflexed. *Fruit* laterally compressed. *Seed* involute, covered by a double membrane; the outer one elevated into 5 equal sharply keeled ridges, which are hollow within; the inner one closely adnate to the seed. *Vittæ* none. *Carpophorus* cleft at the apex. — Herb, with the scent of aniseed. Involucre none. Involucel many-leaved. Central flowers of the umbels male.

1. *M. odorata*. (Scop.) *Sweet Cicely*. Pastures in mountainous parts of England and Scotland. Fl. white. May, June. Perennial. E. B. 697., H. 139., D. C. iv. p. 231.

Tribe XI. SMYRNEÆ; or turgid Campylospermæ, with few ridges.
(Koch, D. C. prod. iv. p. 233.)

Fruit turgid, sometimes laterally compressed or contracted. *Mericarps* with 5 ridges; lateral ones marginal, or before the margin. *Ridges* sometimes subobliterated. *Seed* involute, or furrowed within, semilunar in transverse section.

XXXIX. ECHINOPHORA. (L. gen. n. 329., D. C. prod. iv. p. 234.)

Margin of *calyx* 5-dentate. *Petals* obovate, emarginate, the point inflexed; or the outer ones larger and bifid. *Styles* of the female flowers elongated, filiform, 2 (rarely 3). *Fruit* ovate, subterete, included in a hollow receptacle, with a short emersed beak. *Mericarps* with 5 depressed, undulated, and striated equal ridges. *Furrows* 1-vittate. *Vittæ* covered by an arachnoid membrane. *Albumen* deeply involute. — Male flowers of the ray, after flowering, becoming concreted, and forming a receptacle surrounding the fruit. — Female flower solitary in the centre. Both involucre composed of many leaves.

1. *E. spinosa*. (L. sp. 344.) *Prickly Samphire*. Sandy sea shores. Kent and Lancashire. Not found latterly. Fl. white. July. Perennial. E. B. 2413., H. 139., D. C. iv. p. 235.

XL. CONIUM. (L. gen. n. 469., D. C. prod. iv. p. 242.)

Margin of *calyx* obsolete. *Petals* obcordate, subemarginate, with a short inflexed segment. *Fruit* ovate, laterally compressed. *Mericarps* with 5 prominent, equal, undulato-crenate ridges; lateral ones marginal. *Furrows* with many striæ, but without vittæ. *Carpophorus* bifid at the apex. *Seed* marked with a deep narrow furrow. — Biennial poisonous herbs. Leaves much divided. Both involucre 3–5-leaved; the partial ones dimidiate.

1. ! *C. maculatum*. (L. sp. 349.) *Common Hemlock*. Waste places. Very common. Fl. white. June, July. Biennial. E. B. 1191., H. 139., D. C. iv. p. 242.

XLI. PHYSOPERMUM. (Cusson., D. C. prod. iv. p. 246.)

Margin of *calyx* 5-dentate. *Petals* obovate, subemarginate; the point inflexed. *Fruit* laterally contracted, didymous. *Mericarps* with 5 very slender, filiform, equal ridges; lateral ones before the margin. *Furrows* 1-vittate. *Vittæ* broad. *Seeds* involute, semilunar. — Both involucre of many leaves. Lower leaves ternatisect. Integuments not adhering to the seed while young.

1. *P. cornubiense*. (D. C.) *Cornish Bladder Seed*. Bushy field about Bodmin, Cornwall. Fl. white. July. Perennial. H. 140., D. C. iv. p. 246. Ligust. cornub. (L. sp. 359., E. B. 683.)

XLII. SMYRNIUM. (L. gen. n. 363., D. C. prod. iv. p. 247.)

Margin of *calyx* obsolete. *Petals* lanceolate or elliptic, entire, acuminate; point inflexed. *Fruit* laterally contracted, didymous. *Mericarps* reniform, globose, with 5 ridges; 3 dorsal prominent and sharp; 2 lateral marginal, obliterated. *Furrows* many-vittate. *Carpophorus* bipartite. *Seed* involute. — Glabrous herbs, with fleshy roots. Umbels terminal. Involucre various.

1. ! *S. Olusatrum*. (L. sp. 376.) *Alexanders*. Waste grounds among ruins near the sea. Not unfrequent. Fl. yellowish green. May, June. Biennial. E. B. 230., H. 140., D. C. iv. p. 247.

Suborder III. *Cælospermæ*.

Albumen involute, curved from base to apex.

Tribe XII. CORIANDRÆ. (Koch, D. C. prod. iv. p. 249.)

Fruit globose or didymous, consisting of 2 subglobose *mericarps*, with 5 primary depressed or flexuose ridges, or only an obsolete furrow. Lateral ridges before the accessory margin. Secondary ridges 4, more prominent, all without wings. *Seed* involute or curved from base to apex, and, hence, excavated in front.

XLIH. CORIANDRUM. (L. gen. n. 356., D. C. prod. iv. p. 250.)

Teeth of *calyx* 5, acute, unequal, permanent. *Petals* obovate, emarginate; the apex inflexed; outer ones radiating, and bifid. *Fruit* globose, 10-ribbed, scarcely separable. *Mericarps* with 5 primary, depressed, flexuose ridges; 4 secondary ones more prominent, keeled. *Furrows* not vittate. *Commissure* 2-vittate. *Carpophorus* free in the middle, semibifid, adnate at the base and apex. *Seed* excavated in front, covered by a loose membrane. — Umbels 3—5-rayed. Involucre none. Involucel 3-leaved, dimidiate.

1. ! *C. sativum*. (L. sp. 367.) *Coriander*. About Ipswich, and in Essex, in fields where it has been formerly cultivated. Fl. white. June. Annual. E. B. 67., H. 140., D. C. iv. p. 250.

Order LI. ARALIACEÆ. (Juss., D. C. prod. iv. p. 251.)

Tube of *calyx* adnate to the ovary. *Limb* entire or dentate. *Petals* 5—10, alternate with the teeth of the calyx, valvate in æstivation; very rarely none, and then (in *Adoxa*), perhaps, converted into stamens. *Stamens* as many as the petals, rarely double the number, inserted beneath the margin of the large epigynous disk. *Anthems* 2-celled, peltate. *Ovary* adnate to the calyx, composed of 2 or many 1-seeded cells. *Styles* many, simple, either distinct and divergent, or concentered into a single one (rarely none). *Stigma* simple. *Berry* 2—15-celled, crowned by the entire or dentate limb of the calyx. *Cells* 1-seeded, as many as the styles. *Seeds* angular, erect. *Testa* crustaceous. *Endopleura* membranous. *Embryo* small, inverted, surrounded by a copious fleshy albumen. *Radicle* superior, twice the length of the cotyledons. — Trees, shrubs, or herbs, sometimes climbing or adhering by root-like fibrillæ. Leaves alternate, exstipulate, petiolated; the petiole dilated at the base. Flowers more or less perfectly umbelled.

Herb very slender and small - - - - - 1. ADOXA.
Climbing shrub - - - - - 2. HEDERA.

I. ADOXA. (L. gen. n. 501., D. C. prod. iv. p. 251.)

Tube of *calyx* adnate; lobes 4—5, oval. *Petals* none. *Stamens* 8—10; one-half alternate with the sepals (perhaps metamorphosed petals), the others op-

posite. *Styles* 4—5, thick, distinct longer than the calyx. *Berry* 4-celled, 4-seeded. *Seed* surrounded by a membranaceous margin. — A slender herb, with the odour of musk. Scape bearing a 5-flowered capitule at the apex.

1. ! *A. Moschatellina*. (L. sp. 267.) *Tuberous Moschatel*. Woods and hedge banks, near Edmonton, Enfield, Walthamstow, Charlton, &c.; but not common. Fl. green. April, May. Perennial. E. B. 463., H. 187., D. C. iv. p. 253.

II. HEDERA. (L. gen. n. 283., D. C. prod. iv. p. 261.)

Margin of *calyx* elevated, or dentate. *Petals* 5—10, not cohering like a calyptra, at the apex. *Stamens* 5—10. *Styles* 5—10, connivent, or concreted into one. *Berry* 5—10-celled. — Climbing shrubs. Flowers umbellate or capitate.

1. ! *H. Helix*. (L. sp. 292.) *Common Ivy*. Trees, rocks, and under hedges. Common. Fl. pale green. Oct., Nov. Large shrub. H. 123., D. C. iv. p. 261.

α. *vulgaris*. (D. C.) Pedicels of the umbels pubescent with stellate down. Floral leaves ovate. Fruit black. E. B. 126. With variegated leaves (*H. variegata*); and with large leaves. (*H. hybernica* of gardeners, according to De Candolle and Hooker.)

β. *canariensis*. (D. C.) Pedicels beset with a scaly glistening pubescence. Floral leaves subcordate. Fruit red. Cult. in gardens, under the name of *Irish ivy*, according to G. Don. syst. gard. iii. p. 391.

Order LII. CORNEÆ. (D. C. prod. iv. p. 271.)

Calyx of 4 sepals, more or less united together, and adnate to the ovary. *Limb* 4-lobed. *Petals* 4, oblong; broad at the base, and inserted on the upper part of the tube of the calyx; regular and valvate in æstivation. *Stamens* 4, inserted with the petals, and alternate with them. *Anthers* ovate oblong, 2-celled. *Style* filiform. *Stigma* simple. *Drupe* baccate, crowned by the remains of the calyx, and having a 2-celled nut. *Seed* solitary, and pendulous in the cells. *Albumen* fleshy. *Radicle* superior, shorter than the 2 oblong cotyledons. — Trees, shrubs, or rarely herbs, with opposite leaves. Flowers capitate, umbellate, or corymbose. Differing from *Caprifoliaceæ* in their polypetalous corolla; the parts of the flower being in quaternary proportion; the style exsert; and the fruit a drupe.

Flowers hermaphrodite	-	-	-	-	1. CORNUS.
Flowers diœcious	-	-	-	-	2. AUCUBA, clt.

I. CORNUS. (L. gen. n. 149., D. C. prod. iv. p. 271.)

Tube of *calyx* adnate; *limb* very small, 4-dentate. *Petals* 4, oblong, sessile, valvate in æstivation. *Stamens* 4. *Style* 1. *Drupe* baccate, crowned by the remains of the calyx. *Nut* 2- (rarely 3-) celled. *Seed* solitary, pendulous. *Albumen* fleshy. *Radicle* shorter than the cotyledons.

Trees or shrubs					
flowers white	-	-	-	-	1. C. SANGUINEA.
flowers yellow	-	-	-	-	2. C. MAS, clt.
Herbaceous plant	-	-	-	-	3. C. SUECICA.

1. ! *C. sanguinea*. (L. sp. 171.) *Wild Cornel*, or *Dogwood*. Hedges, &c. Common. Fl. white. June. Large shrub. E. B. 249., H. 72., D. C. iv. p. 272.

2. *C. mas*. (L. sp. 171.) *Male Cornel*, or *Cornelian Cherry*. Branches smooth. Leaves oval, acuminate, with scattered down on both sides. Flowers appearing before the leaves. Umbels as long as the 4-leaved involucre. Fruit ellipsoid. Native of Europe. Cult. in grounds. Fl. yellow, fruit edible. Feb., March. Small tree. D. C. iv. p. 273.

Note. *C. florida*, which is occasionally cultivated, differs from *C. mas*, in the flowers not appearing until after the leaves, and the involucre being whitish with adpressed hairs.

3. *C. suecica*. (L. sp. 172.) *Dwarf Cornel*. Alpine pastures. Northumberland and Scotland. Fl. dark purple. July, Aug. Perennial. E. B. 310., H. 72., D. C. iv. p. 274.

II. AUCUBA. (Thunb., D. C. prod. iv. p. 274.)

Flowers diœcious by abortion. *Calyx* 5-dentate. *Petals* 4, ovato-lanceolate, valvate in æstivation. — Male flower. *Stamens* 4, alternate with the petals. —

Female flower. *Ovary* adnate to the tube of the calyx, 4-sided above. *Stigma* concave. *Fruit* monospermous. *Seed* inverted. — Very glabrous shrub, with opposite, serrated, variegated leaves.

1. *A. japonica*. (Thunb.) *Golden-mottled Laurel*, or *Aucuba*. Native of Japan. Much cult. in gardens. The female plant is alone known in Europe. Fl. dark purple. May, July. Small shrub. Bot. Mag. 1197., D. C. iv. p. 274. Richard and G. Don refer this genus to Loranthaceæ.

Order LIII. LORANTHACEÆ. (Don, D. C. prod. iv. p. 277.)

Flowers hermaphrodite, or of different sexes. Tube of *calyx* surrounded at the base by scales, and adnate to the ovary. *Limb* short, entire, or lobed. *Petals* 4—8, free, or more or less coherent, valvate in æstivation. *Stamens* as many as the petals, and opposite to them. *Filaments* more or less adnate to the corolla, or wanting. *Style* filiform or none. *Stigma* capitate. *Berry* 1-seeded. *Seed* surrounded by a membranous integument. *Albumen* fleshy. *Radicle* superior, thickened or truncated at the apex. — Generally parasitical shrubs, with opposite, more or less fleshy, entire leaves.

I. VISCUM. (L. gen. n. 1105., D. C. prod. iv. p. 277.)

Flowers diœcious or monœcious. Margin of *calyx* entire, obsolete. *Petals* 4, small, slightly concreted by their broad bases. — Male flower. *Anthers* sessile, inserted into the middle of the petals. — Female flower. *Ovary* adnate to calyx, notched at the apex. *Style* very small. *Stigma* capitate. *Berry* umbilicate, 1-seeded.

1. ! *V. album*. (L. sp. 1451.) *Mistletoe*. Parasitic on apple and thorn trees : on the oak, in Hackwood Park, near Basingstoke ; and at Eastnor Castle, near Ledbury, Herefordshire. (Loudon's arb. brit. p. 1831.) Fl. yellowish. May. Small shrub. E. B. 1470., H. 439., D. C. iv. p. 278.

Order LIV. CAPRIFOLIACEÆ. (Juss., D. C. prod. iv. p. 321.)

Sepals 5 (rarely 4), coherent into a tube, and adnate to the ovary. *Limb* 5-lobed. *Corolla* inserted into the calyx, gamopetalous, or of as many petals as there are lobes of the calyx ; more or less united at the base, sometimes irregular ; not valvate in æstivation. *Stamens* inserted into the calyx, adnate to the base of the corolla, equal in number to, and alternate with, the lobes of the corolla. *Style* exsert or none. *Stigmas* 1—3. *Berry* generally crowned by the limb of the calyx, 1- or many-celled. *Cells* 1—many-seeded. *Spermoterm* crustaceous. *Embryo* in the centre of a fleshy albumen. *Radicle* superior. — Shrubs, with opposite or alternate exstipulate leaves. Flowers generally corymbose.

Styles none ; berry 1-celled

corolla rotate - - - - - 1. SAMBUCUS.

corolla campanulate - - - - - 2. VIBURNUM.

Style 1, filiform ; berry 2—4-celled

stamens 5

tube of calyx short, open ; corolla 5-partite, } 3. LONICERA.

irregular - - - - - }

tube of calyx globose ; corolla 4—5-lobed, } 4. SYMPHORICARPOS, clt.

subequal - - - - - }

stamens 4 ; 2 long and 2 short - - - - - 5. LINNEA.

Tribe I. SAMBUCEÆ. (D. C. prod. iv. p. 321.)

Corolla gamopetalous, regular, rotate ; or the 5 equal petals are only united at the base ; rarely tubular. *Style* none. *Stigmas* 3, sessile.

I. SAMBUCUS. (L. gen. n. 372., D. C. prod. l. c.)

Limb of *calyx* small, 5-fid. *Corolla* rotate, 5-fid, with obtuse lobes. *Stamens* 5. *Style* none. *Stigmas* 3, sessile. *Berry* subrotund, scarcely crowned, pulpy, 1-celled, 3—5-seeded. *Funiculus* bearing the oblong seeds in the axis of the berry. — Herbs or shrubs, with impari-pinnatisect leaves.

Stem woody - - - - - 2. S. NIGRA.

Stem herbaceous - - - - - 1. S. EBULUS.

1. ! *S. Ebulus*. (L. sp. 385.) *Dwarf Elder*; *Danewort*. Way sides and waste places. Battersea Fields, &c. Fl. white. July. Perennial. E. B. 475., H. 146., D. C. iv. p. 322.

2. ! *S. nigra*. (L. sp. 385.) *Common Elder*. Coppice and hedges. Frequent. Fl. cream-coloured. June. Small tree. E. B. 476., H. 147., D. C. iv. p. 322.

β. laciniata. (D. C.) Segments of leaves laciniate l. Near Ayr, and cult. Common.

II. VIBURNUM. (L. gen. 370., D. C. prod. iv. p. 323.)

Limb of *calyx* small, persistent, 5-fid. *Corolla* campanulate, 5-lobed. *Stamens* 5, equal. *Stigmas* 3, sessile. *Berry* crowned by the teeth of the calyx, or naked. *Seed* compressed. — Shrubs, with opposite petiolate leaves.

Leaves quite simple, not lobed

leaves entire, smooth on upper surface, evergreen - 1. *V. TINUS*, clt.

leaves serrated, wrinkled on upper surface, caducous - 2. *V. LANTANA*.

Leaves 3-lobed, very glabrous. - - 3. *V. OPULUS*.

1. *V. Tinus*. (L. sp. 383.) *Laurestinus*. Leaves ovato-oblong, very entire, evergreen; ramifications of the veins beneath glanduloso-pilose. Berry ovate. Native of the south of Europe. Cultivated. Very common. Fl. white, tinged with pink. Dec., March. Large shrub. Bot. mag. 38., D. C. iv. p. 324.

2. ! *V. Lantana*. (L. sp. 384.) *Mealy Guelder Rose*, or *Wayfaring Tree*. Woods and hedges. Common on chalky soils. Fl. white. June. Large shrub. E. B. 331., H. 146., D. C. iv. p. 326.

3. ! *V. Opulus*. (L. sp. 384.) *Common Guelder Rose*. Woods and coppices. Common. Fl. white; outer ones abortive, large. June, July. Large shrub. E. B. 332., H. 146., D. C. iv. p. 328.

Tribe II. LONICERÆ. (Brown, D. C. prod. iv. p. 329.)

Corolla gamopetalous, more or less tubular, generally irregular. *Style* filiform. *Stigmas* 3, free or concentered into one.

III. LONICERA. (L. gen. n. 233., D. C. prod. iv. p. 330.)

Tube of *calyx* 5-dentate. *Corolla* tubular, campanulate, or funnel-shaped; limb 5 cleft, generally irregular. *Stamens* 5. *Style* filiform. *Stigma* capitate. *Berry* 3-celled; cells few-seeded. *Seeds* crustaceous. — Erect or climbing shrubs, with opposite leaves. Flower axillary.

Flowers ringent, numerous, in whorled heads

upper leaves connate, perfoliate - - - 1. *L. CAPRIFOLIUM*.

leaves all distinct - - - 2. *L. PERICLYMENUM*.

Peduncle, 2-flowered - - - 3. *L. XYLOSTEUM*.

1. *L. Caprifolium*. (L. sp. 246.) *Pale perfoliate Honeysuckle*. Woods and thickets. Oxfordshire and Cambridgeshire. Rare. Fl. yellowish. June. Climbing shrub. E. B. 799., H. 118., D. C. iv. p. 331. *Caprifolium perfoliatum*. (Lind.)

Note. *L. etrusca*, *Italian honeysuckle*, resembles this species, and is known by each branch being terminated by 3 heads.

2. ! *L. Periclymenum*. ((L. sp. 247.) *Common Honeysuckle*, or *Woodbine*. Woods and hedges. Common. Fl. buff-coloured, externally red. June, Oct. Climbing shrub. E. B. 800., H. 118., D. C. iv. p. 331. *Caprifolium Periclymenum*. (Lind.)

β. serotinum. (Ait. hort. kew.) *Dutch Honeysuckle*. Branches glabrous. Flowers late, reddish. Cultivated on account of its late flowers.

γ. quercifolium. (Ait.) Leaves sinuated.

3. *L. Xylosteum*. (L. sp. 248.) *Upright Fly Honeysuckle*. Thickets near Arundel, Sussex; and in Northumberland. Fl. small, cream-coloured. July. Large shrub. E. B. 916., H. 119., D. C. iv. p. 335.

*. *L. chinensis*. (D. C.), the *L. japonica* of Thunb., *Chinese Honeysuckle*, is sometimes found against the fronts of houses. The stem is climbing. Flowers odorous, red externally, cream-coloured within. Fruit of 2 perfectly distinct berries.

IV. SYMPHORICARPOS. (Dill., D. C. prod. iv. p. 338.)

Tube of *calyx* globose. Limb small, 4—5-dentate. *Corolla* funnel-shaped, nearly equal, 4—5-lobed. *Stamens* 5, shortly exsert. *Stigma* semi-globose. *Ovary* adnate, 4-celled. *Fertile cells* 1-seeded; *sterile* ones with a few ovules. *Berry* crowned by the calyx, 4-celled, 2 empty, and 2 containing 1 seed each.

— Branching erect shrubs with entire oval leaves. Peduncles short, axillary, 1-or many-flowered.

I. *S. racemosus*. (Michx.) *Snowberry*; *St. Peter's Wort*. Flowers disposed in subterminal interrupted racemes. Corolla bearded within. Native of Canada. Very commonly cultivated in shrubberies, on account of its white berries. Fl. rose-coloured. July, Sept. Large shrub. Bot. mag. 221., D. C. iv. p. 339.

V. LINNÆA. (L. gen. n. 774., D. C. prod. iv. p. 340.)

Tube of calyx ovate; limb 5-partite. Lacineæ lanceolate, subulate, deciduous. Corolla turbinate, subcampanulate, 5-lobed. Stamens 4, didynamous, included. Stigma globose. Berry dryish, very small, ovato-globose, 3-celled, 2 with many sterile ovules, the third with 1 fertile seed.—Evergreen creeping herbs. Shoots naked at the apex, 2-flowered. Flowers bibracteate.

1. *L. borealis*. (L. sp. 880.) *Two-flowered Linnæa*. Northumberland. Rare; more common in Scotland, especially in fir woods. Fl. rose-coloured; yellowish within, fragrant. May, June. Perennial. E. B. 433., H. 292., D. C. iv. p. 340.

Order LV. RUBIACEÆ. (Juss., D. C. prod. iv. p. 341.)

Calyx monosepalous, adherent to the ovary, 4—5- rarely 6-lobed. *Corolla* gamopetalous, regular, inserted into the upper part of the tube of the calyx; with as many lobes as the calyx. *Stamens* inserted into the corolla, equal in number to, and alternate with, its lobes. *Ovary* simple. *Style* 1. *Stigmas* equal in number to the cells of the ovary. *Fruit* (in European genera) 2-celled, 2-seeded. *Embryo* straight in a horny albumen. *Radicle* inferior. *Cotyledons* foliaceous.—The European Rubiaceæ are herbs with reddish roots, and apparently, verticillated leaves; 2, however, opposite, from the axillæ of which branches arise, may be considered as true leaves; the rest as various modifications of stipules. Flowers small, rotate, or tubulose.

Corolla campanulate or rotate

corolla campanulato-patent, 4—5-lobed; fruit succulent 3. RUBIA.

corolla rotate or campanulate, 4 fid; fruit dry - 4. GALIUM.

Corolla funnel-shaped

fruit crowned by the concreted teeth of the calyx - 1. SHERARDIA.

fruit not crowned by the calyx - 2. ASPERULA.

Tribe I. STELLATÆ. (D. C. prod. iv. p. 580.)

Flowers hermaphrodite, rarely of different sexes. *Corolla* rotate or funnel-shaped; lobes valvate in æstivation. *Styles* 2, distinct almost from the base, or more or less coherent. *Stigmas* capitate. *Fruit* consisting of 2 indehiscent 1-seeded mericarps. *Seeds* scarcely distinct from the pericarp and calyx.

I. SHERARDIA. (L. gen. n. 120., D. C. prod. iv. p. 581.)

Tube of calyx ovate. Limb 4—6-dentate, persistent. Corolla funnel-shaped, with a terete tube. Limb 4-lobed. Stamens 4. Style 1, bilobed at the apex. Stigma capitate. Fruit dry, crowned by the calyx.

1. ! *S. arvensis*. (L. sp. 149.) *Herb Sherard*. Abundant in cultivated fields. Fl. blue. June, Aug. Annual. E. B. 891., H. 69., D. C. iv. p. 581.

II. ASPERULA. (L. gen. n. 121., D. C. prod. iv. p. 581.)

Corolla funnel-shaped, 3-, or more generally 4-fid. Fruit didymous, not crowned by the calyx; dry or subcarnose.

Flowers blue - - - - - 1. A. ARVENSIS.

Flowers white or lilac

leaves 4 in a whorl - - - - - 2. A. CYNANCHICA.

leaves 8 in a whorl - - - - - 3. A. ODORATA.

1. *A. arvensis*. (L. sp. 150.) *Field Woodruff*. Near Devonport, in corn fields. Fl. blue. July. Annual. H. 69., D. C. iv. p. 581.

2. ! *A. cynanchica*. (L. sp. 151.) *Squinancy Wort*. On chalk downs. Very common near Croydon. Fl. white or blush-coloured. June, Sept. Perennial. E. B. 33., H. 69., D. C. iv. p. 582.

3. ! *A. odorata*. (L. sp. 150.) *Sweet Woodruff*. Woods. Common. Fl. white, odorous. May, June. Perennial. E. B. 755., H. 69., D. C. iv. p. 585.

III. RUBIA. (L. gen. n. 127., D. C. prod. iv. p. 588.)

Tube of *calyx* ovato-globose. *Limb* scarcely perceptible. *Corolla* 4—5-partite, rotate. *Stamens* 4—5. *Styles* 2, short. *Fruit* didymous, subglobose, baccate, juicy.

1. *R. peregrina*. (L. sp. 158.) *Wild Madder*. Stony and sandy ground in the south of England. Isle of Wight. Fl. dusky yellow, pentandrous. June, Aug. Perennial. E. B. 851., H. 69., D. C. iv. p. 589.

Note. *R. tinctorium*, *Dyers' Madder* is very nearly allied to this, but differs by its somewhat softer texture, and smaller, often tetrandrous, flowers.

IV. GALIUM. (L. gen. n. 125., D. C. prod. iv. p. 593.)

Tube of *calyx* ovato-globose or oblong. *Limb* very small. *Corolla* 4-partite, rotate. *Stamens* short. *Styles* 2, short. *Fruit* didymous, subrotund, rarely oblong, dry.

Flowers yellow

leaves 4 in a whorl - - - - - 10. *G. CRUCIATUM*.
leaves 6—8 in a whorl - - - - - 9. *G. VERUM*.

Flowers white

fruit hispid

leaves 4 in a whorl - - - - - 8. *G. BOREALE*.
leaves 6 in a whorl - - - - - { 11. *G. ANGLICUM*.
var. *PARISIENSE*.
leaves 7 or 8 in a whorl - - - - - 15. *G. APARINE*.

fruit tuberculated, but not hispid

marginal prickles of the leaves pointing forward - 12. *G. SACCHARATUM*.
marginal prickles of the leaves reflexed - 13. *G. TRICORNE*.

fruit neither tuberculated nor hispid

leaves 6 (rarely 4—5) in a whorl

stem rough with reflexed prickles

leaves obtuse, 4—5 in a whorl - - - 6. *G. PALUSTRE*.

leaves mucronate, 6 in a whorl

marginal prickles of the leaves pointing } 11. *G. ANGLICUM*.
forward; fruit with slight tubercles - }

marginal prickles reflexed - - - 5. *G. ULIGINOSUM*.

stem not rough with reflexed prickles

leaves obtuse, 4—5 in a whorl - - - { 6. *G. PALUSTRE*.
var. *WITHERINGII*.

leaves acute or mucronate, 6 in a whorl

corolla obtuse; fruit becoming red, and } 7. *G. SAXATILE*.
minutely granulated - - - }

corolla taper-pointed; fruit smooth, not reddish

leaves stalked, lanceolate, reticulated with } 4. *G. MOLLUGO*.
veins; seed reniform; lobes distinct } var. *ARISTATUM*.

leaves linear, sessile, not reticulated; lobes } 2. *G. CINEREUM*.
of the seed not distinct - - - }

leaves 7—8 in a whorl

stem rough with prickles

prickles of the leaves reflexed - - - 14. *G. SPURIUM*.

prickles of the leaves pointing forward - - - 3. *G. ERECTUM*.

stem not rough with reflexed prickles

leaves elliptic-ovate; panicle spreading - 4. *G. MOLLUGO*.

leaves lanceolate; panicle compound, dense 3. *G. ERECTUM*.

leaves linear; panicle forked, not dense

leaves entire, subpilose - - - 1. *G. PUSILLUM*.

leaves with marginal prickles - - - 2. *G. CINEREUM*.

1. *G. pusillum*. (L. sp. 154.) *Smooth Mountain Bedstraw*. Matlock and Kendal. Fl. white. July, Aug. Perennial. E. B. 74., H. 67. *G. læve*. (D. C. iv. p. 594.)

2. *G. cinereum*. (Alli.) *Grey Bedstraw*. Banks of rivers. Leith, near Edinburgh. Fl. white. Aug. Perennial. E. B. 2783., H. 66., D. C. iv. p. 595.

3. *G. erectum*. (Hudson.) *Upright Bedstraw*. Hedges and pastures in the eastern counties. Rare. Fl. white. June, July. Perennial. E. B. 2067., H. 66., D. C. iv. p. 595.

4. ! *G. Mollugo*. (L. sp. 155.) *Great Hedge Bedstraw*. Hedges and thickets. Common. Fl. white. July, Aug. Perennial. E. B. 1673., H. 67., D. C. iv. p. 596.

β. *aristatum*. (Duby.) Lobes of the corolla more mucronate. *G. aristatum*. (L. sp. 152., E. B. 2784.)

γ. *scabrum*. Stem and leaves piloso-scabrous beneath. *G. scabrum*. (With.)

5. ! *G. uliginosum*. (L. sp. 153.) *Rough Marsh Bedstraw*. Sides of ditches. Common. Fl. white. Aug. Perennial. E. B. 1972., H. 66., D. C. iv. p. 597.

β. *Witheringii*. (D. C.) Leaves serrato-aculeate at the margin. Prickles pointing towards the apex. *G. Witheringii*. (Sm., E. B. 2206.)

6. ! *G. palustre*. (L. sp. 153.) *White Water Bedstraw*. Sides of lakes, rivulets, and ditches. Fl. white. July. Perennial. E. B. 1857., H. 65., D. C. iv. p. 597.

Hooker makes *G. Witheringii* a variety of *G. palustre*.

7. ! *G. saxatile*. (L. sp. 154.) *Smooth Heath Bedstraw*. On heathy ground and mountainous pastures. Very common. Fl. white. June, Aug. Perennial. E. B. 815., H. 56. *G. hercynicum*. (D. C. iv. p. 598.)

8. *G. boreale*. (L. sp. 156.) *Cross-leaved Bedstraw*. Moist rocks in mountainous countries. Fl. white. June, July. Perennial. E. B. 105., H. 68. *G. boreale* var. *scabrum*. (D. C. iv. p. 601.)

9. ! *G. verum*. (L. sp. 155.) *Yellow Bedstraw*. Dry banks in a sandy soil. Common. Fl. yellow. July, Aug. Perennial. E. B. 660., H. 65., D. C. iv. p. 603.

10. ! *G. cruciatum*. (Sm.) *Crosswort Bedstraw*. Hedge banks and thickets. Fl. yellow. May, June. Perennial. E. B. 143., H. 65., D. C. iv. p. 606.

11. ! *G. anglicum*. (Huds.) *English Bedstraw*. Walls and dry sandy soil in the east and south of England. Rare. Fl. white. June. Biennial. E. B. 384., D. C. iv. p. 607. *G. parisiense*. (H. 67.)

β. *parisiense*, with hispid fruit. ? *G. litigiosum* of D. C.

12. *G. saccharatum*. (Allion.) *Warty Bedstraw*. Corn fields. Yorkshire. Rare. Fl. white. June, Aug. Perennial. H. 67., D. C. iv. p. 607. *G. verrucosum*. (E. B. 2173.)

13. ! *G. tricornis*. (Wither.) *Rough-fruited Corn Bedstraw*. Chalky fields. Near Gravesend, Isle of Wight, &c. Fl. white. July. Annual. E. B. 1641., H. 68., D. C. iv. p. 608.

14. *G. spurium*. (L. sp. 154.) *Smooth-fruited Bedstraw*. Corn fields. Forfar. Rare. Fl. white. July. Annual. E. B. 1871., H. 68., D. C. iv. p. 608.

15. ! *G. Aparine*. (L. sp. 157.) *Goose-grass, or Cleavers*. Hedges. Very common. Fl. white. June, July. Annual. E. B. 816., H. 68., D. C. iv. p. 608.

Order LVI. VALERIANEÆ. (D. C. prod. iv. p. 623.)

Tube of the *calyx* adherent to the ovary; *limb* either pappiform and involute, or dentate, erect. *Corolla* tubular, infundibuliform, 3-, generally 5-lobed; lobes obtuse; tube equal, or gibbous at the base. *Stamens* adnate by their filaments to the tube of the corolla; free at the apex, alternate with the lobes of the corolla, 5, or, by abortion, 1—3. *Style* filiform. *Stigmas* 1—3. *Fruit* membranous or crustaceous, indehiscent; crowned, at least while young, by the calyx; 1-celled or 3-celled, 2 being empty. *Seed* in fertile cell, solitary, pendulous, exalbuminous. *Embryo* straight. *Radicle* superior. *Cotyledons* flat. — Herbs, with strong-scented roots in the perennial species. Leaves opposite, without stipules; varying much in shape, even in the same individual. Flowers cymoso-corymbose.

Fruit 3-celled, 3-seeded	-	-	-	-	1. VALERIANELLA.
Fruit 1-celled, 1-seeded					
corolla calcarate	-	-	-	-	2. CENTRANTHUS.
corolla not calcarate	-	-	-	-	3. VALERIANA.

I. VALERIANELLA. (Moench., D. C. prod. iv. p. 625.)

Limb of *calyx* dentate, persistent. *Corolla* ecalcarate, regular, 5-lobed. *Stamens* 3. *Stigmas* trifid, or scarcely divided. *Fruit* 3-celled, submem-

branous, indehiscent, crowned by the limb of the calyx; cells 1—2, empty, 1—2, fertile. — Small annual dichotomous herbs.

Fruit longitudinally carinate, and deeply furrowed - 2. *V. CARINATA*.

Fruit not markedly carinate, nor furrowed

capsule glabrous

crown of the fruit obsolete - - - 1. *V. OLITORIA*.

crown of the fruit conspicuous, of 1 or many teeth

capsule oblong, crowned by a single concave tooth 3. *V. AURICULA*.

capsule ovate, crowned by 3—5 teeth, one longer } 4. *V. DENTATA*.

than the others - - -

capsule villous or hairy

limb of calyx forming a tridentate crown; fruit } 6. *V. MIXTA*.

villous - - -

limb forming a 6-dentate crown, 3 longer than the } 5. *V. ERIOCARPA*.

rest; fruit hispid - - -

1. ! *V. olitoria*. (Mœnch.) *Corn Salad; Lamb's Lettuce*. Banks and corn fields. Common. Near Blackheath, in great abundance. Fl. blue. April, June. Annual. D. C. iv. p. 625. *V. Locusta*. (L. sp. 47., E. B. 811.) *Fedia olitoria*. (H. 23.)

2. ! *V. carinata*. (Lois.) *Keel'd Lamb's Lettuce*. Near Ongar, Essex. Fl. blue. May, June. Annual. Lind. suppl. syn. 324., D. C. iv. p. 629.

3. *V. auricula*. (D. C.) *Sharp-fruited Corn Salad*. Lindulph, Cornwall. Fl. pink. June, July. Annual. D. C. iv. p. 627. *Fedia auricula*. (H. 24.)

4. ! *V. dentata*. (D. C.) *Smooth narrow-fruited Corn Salad*. Corn fields and hedge banks. Not common. Essex, Cambridgeshire. Fl. flesh-coloured. June, July. Perennial. D. C. iv. p. 627. *Valeriana dentata*. (Willd. 1370.) *Fedia dentata*. (H. 23.)

5. *V. eriocarpa*. (Desv.) *Downy-seeded Lamb's Lettuce*. Orme's Head, Caernarvonshire. Fl. lilac. May, June. Annual. D. C. iv. p. 626.

6. *V. mixta*. (DuRoi.) *Mixed Lamb's Lettuce*. Hedge banks. Halesworth, Suffolk. Fl. rose-coloured. May, June. Annual. D. C. iv. p. 627.

Note. Sir W. J. Hooker gives *V. eriocarpa* and *V. mixta* as mere varieties of *V. dentata*, on the authority of Mr. W. Wilson.

II. CENTRANTHUS. (D. C. prod. iv. p. 631.)

Limb of *calyx* involute, but, after blossoming, expanded into a plumose deciduous pappus. Tube of *corolla* obconical, spurred at the base; *limb* regular, 5-lobed. *Stamen* 1. *Fruit* indehiscent, 1-celled, 1-seeded.

1. ! *C. ruber*. (D. C.) *Red Valerian*. Chalk pits in Kent, and on walls. Doubtful native. Fl. rose-coloured. June, Sept. Perennial. D. C. iv. p. 632. *Valeriana rubra*. (L. sp. 44., E. B. 1532., H. 22.)

III. VALERIANA. (L. gen. n. 787., D. C. prod. iv. p. 632.)

Limb of *calyx* involute, but, after blossoming, expanded into a plumose deciduous pappus. Tube of *corolla* obconical or cylindrical; equal at the base, or slightly gibbous; *limb* 5-, rarely 3-cleft. *Stamens* 3. *Fruit* indehiscent, 1-celled, 1-seeded at maturity. *Flowers* corymbose, capitate or paniculate.

Radical leaves pinnatifid - - - 3. *V. OFFICINALIS*.

Radical leaves entire

flowers diœcious; radical leaves ovate - - 2. *V. DIOICA*.

flowers hermaphrodite; radical leaves cordate - 1. *V. PYRENAICA*.

1. *V. pyrenaica*. (L. sp. 46.) *Heart-leaved Valerian*. Woods in Scotland. Doubtful native. Fl. pale red. June, July. Perennial. E. B. 1591., H. 23., D. C. iv. p. 636.

2. ! *V. dioica*. (L. sp. 44.) *Small Marsh Valerian*. Marshy meadows. Common. Fl. white, tinged with red. Perennial. E. B. 628., H. 23., D. C. iv. p. 637.

3. ! *V. officinalis*. (L. sp. 45.) *Officinal Valerian*. Ditches, and sides of rivers. Common. Fl. pale flesh-colour. June, July. Perennial. E. B. 698., H. 23., D. C. iv. p. 641.

Order LVII. DIPSACEÆ. (D. C. prod. iv. p. 643.)

Tube of the *calyx* adherent to the ovary; *limb* in the form of a variously divided pappus, often surrounded by a scariose involucre. *Corolla* gamopetalous,

tubular, inserted into the upper part of the calyx; *limb* oblique, 4—5-fid. *Stamens* 4, inserted into the tube of the corolla, alternate with its lobes, and distinct. *Style* filiform. *Ovary* 1-celled, 1-seeded, generally covered by the involucre. *Seed* pendulous. *Albumen* fleshy. *Embryo* straight. *Radicle* superior. *Flowers* in dense heads, very rarely in verticels.

- | | | | |
|---|---|---|--------------|
| Involucre and fruit with 4 pores or excavations | - | - | 2. KNAUTIA. |
| Involucre and fruit with 8 pores | | | |
| limb of (inner) calyx consisting of 5 setæ | - | - | 3. SCABIOSA. |
| limb of (inner) calyx cup-shaped | - | - | 1. DIPSACUS. |

I. DIPSACUS. (L. gen. n. 114., D. C. prod. iv. p. 645.)

Involucre of the *capitulum* many-leaved, longer than the subfoliaceous paleæ of the receptacle. *Involucre* tetrandrous, and 8-furrowed. *Limb of calyx* subcyathiform. *Corolla* 4-cleft. *Stamens* 4. *Stigma* longitudinal. *Fruit* crowned by the limb of the calyx. — Hairy spinous herbs.

Capitulum of flowers elongated or conical; leaves connate

- | | | | | |
|---|---|---|---|-------------------|
| scales of the receptacle (or paleæ) straight at the extremity | - | - | - | 1. D. SYLVESTRIS. |
| scales of the receptacle hooked at the extremity | - | - | - | 2. D. FULLONUM. |
| <i>Capitulum</i> round or hemispherical; leaves petiolate | - | - | - | 3. D. PILOSUS. |

1. ! *D. sylvestris*. (Mill.) *Wild Teasel*. Road sides and ditches. Common. Fl. purple. July. Biennial. E. B. 1032., H. 64., D. C. iv. p. 645.

2. *D. fullonum*. (Mill.) *Fuller's Teasel*. Waste places. Doubtful native. Fl. pale purple. July, Aug. Biennial. E. B. 2080., H. 63., D. C. iv. p. 645.

3. ! *D. pilosus*. (Lin.) *Small Teasel*. Moist hedges. Wanstead, Thames Ditton, Guildford, Arundel, Norfolk, and Suffolk; but not common. Fl. white. Aug., Sept. Biennial. E. B. 877., H. 64., D. C. iv. p. 646.

II. KNAUTIA. (Coulter, D. C. prod. iv. p. 650.)

Involucre of the *capitulum* many-leaved. *Paleæ* none. *Receptacle* hirsute. *Involucre* compressed, 4-foveolate, closely surrounding the fruit; denticulate at the apex; furnished with a short stipes. *Limb of calyx*, entire, neither papose nor awned. *Corolla* 4—5-fid. *Stamens* 4.

1. ! *K. arvensis*. (Coulter.) *Field Scabious*. Pastures and corn fields. Common. Fl. bluish. July. Perennial. H. 64., D. C. iv. p. 651. *Scabiosa arvensis*. (L. sp. 142., E. B. 659.)

III. SCABIOSA. (L. gen. n. 115., D. C. prod. iv. p. 654.)

Involucre of the *capitulum* many-leaved. *Receptacle* chaffy. *Involucres* 8-foveolate, generally subcylindrical. *Limb of calyx* tapering into a narrow neck below; the apex terminated by 5 (rarely, by abortion, 1—4) awned bristles. *Corolla* 4—5-fid. *Stamens* 4.

- | | | | | |
|---|---|---|---|--------------------------|
| Base of the involucre rounded, plicate; limb of calyx pedicellate; with 5 exserted bristles | - | - | - | 1. S. ATROPURPUREA, clt. |
| Base of involucre not distinguishable from the tube; limb of the calyx sessile; setæ partially or entirely abortive | | | | |
| upper leaves pinnatifid | - | - | - | 2. S. COLUMBARIA. |
| upper leaves simple | - | - | - | 3. S. SUCCISA. |

1. *S. atropurpurea*. (L. sp. 144.) *Sweet Scabious*. Stem branched. Radical leaves lanceolate-ovate, lyrate, coarsely dentate; cauline ones pinnatifid, with oblong dentate or incised lobes. Fruit bearing capitules ovate. Corolla radiating, somewhat longer than the involucre. Native of Asia. Cult. in gardens. Very common. Fl. dark purplish red. July, Aug. Annual. Bot. mag. 247., D. C. iv. p. 657.

2. ! *S. columbaria*. (L. sp. 143.) *Small Scabious*. Pastures on chalky soil. Common. Fl. purplish blue. July, Aug. Perennial. E. B. 1311., H. 65., D. C. iv. p. 658.

3. ! *S. succisa*. (L. sp. 142.) *Devil's-bit Scabious*. Meadows and Pastures. Common. Fl. violet, or dark blue. July, Aug. Perennial. E. B. 878., H. 64., D. C. iv. p. 660.

Order LVIII. COMPOSITÆ. (Lin. ord. nat. n. 21., D. C. prod. v. p. 4.)

Calyx gamosepalous; the *tube* adherent to the ovary; the *limb* generally degenerated into a pappus, or sometimes into a scaly corona; or entirely abortive. *Pappus* simple, pilose, ramose, or plumose; stipitate by the prolongation of the tube beyond the ovary, or sessile. *Corolla* inserted into the upper part of the tube of the calyx, gamopetalous; the nerves in the tube being directed towards the sinuses; in appearance 5, but really 10; which then proceed from the sinuses, along the margins of the lobes, to the apex, where they inosculate. *Tube* various in length; in the regular corolla, often funnel-shaped. *Lobes* generally 5, valvate in æstivation. *Corolla* regular or irregular: the regular of 5 equal lobes (tubular corolla); the irregular either 2-lipped (bilabiate corolla), or strap-shaped, 5-dentate (ligulate corolla). *Stamens* generally 5; in the female florets wanting, or rudimentary. *Filaments* adnate to the tube of the corolla; distinct or monadelphous; articulated near the apex, the upper portion acting as a connective. *Anthers* erect; concreted into a tube, which is perforated by the style (syngenesious or synantherous). *Pollen* rough or smooth, globose or elliptical. *Ovary* adherent to the calyx, 1-seeded. *Style* generally terete and bifid at the apex; the branches (commonly called stigmas) more or less free; flat above, convex beneath. *Stigmatic glands* (true stigmas) ranged in a double row along the upper margin of the branches of the style, more or less prominent; the upper portion of the style, in hermaphrodite flowers, provided with hairs, which collect the pollen.

Fruit consisting of an achene and calyx, closely connected, and enclosing the embryo; the *achene* 1-celled, articulated on the receptacle, generally sessile; rostrate or not rostrate at the apex. *Seed* attached to the base of the fruit by a very short funiculus. Inner portion of the *spermoderm* (endopleura of D. C., albumen of Lessing) diaphanous, pierced by the bifid funiculus. *Embryo* erect, with a short, straight, inferior radicle, and an inconspicuous plumula.

Florets collected into dense heads (capitules); either all hermaphrodite (homogamous), or the outer ones female or neuter, the inner being hermaphrodite or male (heterogamous); or the capitules are entirely composed of florets of distinct sexes (monœcious, diœcious, heterocephalous). *Capitules* with the florets sometimes all tubular (discoid or flosculous); sometimes all ligulate (ligulate or semiflosculous); sometimes the central florets are tubular, while those of the ray are ligulate (radiate). *Involucre* of one or many rows of more or less united scales, surrounding the receptacle, which is formed by the concretion of the extremities of the peduncles; either covered with chaffy scales (paleaceous), or naked (epaleaceous): sometimes the receptacle is indented with pentagonal hollows (areolated); or the margins of these are slightly raised (alveolated), or fringed (fimbriated). — Herbs or shrubs (rarely trees), forming almost a tenth part of the vegetable kingdom. Leaves simple, alternate, or opposite.

* Capitules with the florets ligulate in the ray, tubular in the disk

† fruit crowned with hairs (pappus)

florets of the ray of a different colour from those of the disk

ligulæ in 2 rows, linear, almost filiform - 8. ERIGERON.

ligulæ in 1 row, oblong-lanceolate

pappus in 2 rows; outer one coroniform - 7. CALLISTEPHUS, clt.

pappus in many rows, all pilose

plant fleshy - - - 6. TRIPOLIUM.

plant not fleshy - - - 5. ASTER, clt.

florets of the ray of the same colour as those of the disk

scales of the involucre in 1—2 rows

involucre simple, in 1 row

scape leafless, scaly

flowers yellow; capitules solitary - 4. TUSSILAGO.

flowers white or purplish; capitules numerous - } 2. NARDOSMIA, clt.

- stem leafy - - - 38. CINERARIA.
 involucre calicled (i. e., with an outer row of } 40. SENEIO.
 short bracteas) - - - }
 involucre double - - - 39. DORONICUM.
 scales of the involucre imbricated
 anthers appendiculated, with 2 bristles at the
 base; fruit not ribbed
 pappus in a single row - - - 13. INULA.
 pappus in a double row; the outer one } 14. PULICARIA.
 short, coroniform - - - }
 anthers not appendiculated; fruit many- } 10. SOLIDAGO.
 ribbed - - - }
 †† fruit naked, or crowned either with a membranous
 margin, or with 2—5 teeth
 † leaves alternate or radical
 receptacle naked, or slightly pilose
 fruit of the disk crowned with a pappus - 39. DORONICUM.
 fruit all naked, or crowned with a membra-
 nous margin
 fruit curved, membranous, irregular - 41. CALENDULA, clt.
 fruit straight, regular -
 involucre simple; scape naked or sub- } 9. BELLIS.
 foliose - - - }
 involucre imbricated; stem foliose
 receptacle conical
 scales of the involucre scariose at } 29. CHRYSANTHEMUM.
 the margin - - - }
 scales of the involucre not scariose 30. MATRICARIA.
 receptacle nearly flat; scales membra- } 31. PYRETHRUM.
 nous - - - }
 receptacle paleaceous
 receptacle flat
 fruit naked; capitules small - - - 27. ACHILLEA.
 fruit with soft caducous awns; capitules } 22. HELIANTHUS, clt.
 large - - - }
 receptacle conical
 involucre of 3 rows of ciliated scales; florets } 18. ECHINACEA, clt.
 of the ray purple; of the disk, yellow - }
 involucre in 2 rows; the scales spreading; } 19. RUDBECKIA, clt.
 florets of the ray yellow; of the disk, }
 dusky purple - - - }
 involucre imbricated with scariose scales;
 florets of the ray white; of the disk,
 yellow
 fruit with a membranous crown - - - 25. ANTHEMIS.
 fruit not crowned - - - 26. MARUTA.
 †† leaves opposite
 scales of the involucre united; leaves with } 24. TAGETES, clt.
 pellucid glands - - - }
 scales of the involucre free; leaves not glandular
 ray persistent - - - 17. ZINNIA, clt.
 ray deciduous
 fruit crowned with 2—5 retrosely hispid } 23. BIDENS.
 awns - - - }
 fruit naked, or crowned with short smooth
 teeth
 branches of the style with a brush or
 pencil of hairs at the apex; stem
 slender, divaricated
 fruit crowned with 2 short awns - 21. COREOPSIS, clt.
 fruit without awns - - - 20. CALLIOPSIS, clt.
 branches of the style not penicillate; }
 stem and branches thickish, suberect, } 15. DAHLIA, clt.
 not divaricated - - - }
 **Capitules with the florets uniform, either tubular or
 ligulate

- † florets all tubular
 capitules monœcious; perigone of the female }
 flower none; involucre monophyllous - } 16. XANTHIUM.
 capitules diœcious - - - - - } 37. ANTENNARIA.
 capitules heterogamous, or homogamous; all the
 flowers with a perigone; involucre many-
 leaved
- ‡ fruit crowned with a simple or ciliated pappus
 receptacle alveolate; leaves spinous - - - 47. ONOPORDUM.
 § receptacle paleaceous; the paleæ long
 florets of the disk hermaphrodite; of the }
 ray, neuter and larger - - - } 45. CENTAUREA.
 florets all hermaphrodite and equal
 scales of the involucre hooked at the apex 51. LAPPA.
 scales not hooked
 outer scales of the involucre leafy; }
 leaves with broad white veins - } 46. SILYBUM.
 outer scales simple; leaves without
 white veins
 scales spinous - - - - - 49. CARDUUS.
 scales not spinous - - - - - 52. SERRATULA.
- §§ receptacle naked; leaves not spinous
 involucre simple (i. e., of 1 row of scales)
 subfemale capitules tubular - - - 3. PETASITES.
 subfemale capitules ligulate - - - 2. NARDOSMIA, clt.
 involucre calicled - - - - - 40. SENECIO.
 involucre imbricated
 florets all hermaphrodite (the outer
 rarely male)
 scales of the involucre white or yellow [34. HELICHRYSUM, clt.
 scales of the involucre green
 flowers yellow - - - - - 11. LINOSYRIS.
 flowers not yellow - - - - - 1. EUPATORIUM.
 florets in the disk hermaphrodite; in the
 ray, female or neuter
 shrubs - - - - - 12. BACCHARIS, clt.
 herbs
 outer florets 3-dentate - - - 13. INULA.
 outer florets 5-dentate - - - 25. GNAPHALIUM.
- ‡‡ fruit crowned with a ramose or plumose pappus
 receptacle naked - - - - - 34. HELICHRYSUM, clt.
 receptacle paleaceous
 inner scales of the involucre coloured, resem- }
 bling a ray; much longer than the outer ones } 44. CARLINA.
 inner scales not radiant, nor longer than the
 outer ones
 pappus in 2 rows; the outer short, the inner }
 long and plumose - - - - - } 43. SAUSSUREA.
 pappus in 1 row
 receptacle large, very fleshy - - - 48. CYNARA, clt.
 receptacle slightly, if at all, fleshy - 50. CIRSIUM.
- ‡‡‡ fruit crowned with 2—5 awns
 inner scales longest, resembling a ray - - - 42. XERANTHEMUM, clt.
 outer scales longest, spreading - - - 23. BIDENS.
- ‡‡‡‡ fruit naked, or with a membranous crown
 receptacle paleaceous
 florets contracted in the middle, dilated at the }
 base into 2 auricular appendages - - } 28. DIOTIS.
 florets not appendiculated at the base - - 36. FILAGO.
 receptacle hairy or naked
 fruit with a membranous crown - - - 33. TANACETUM.
 fruit not crowned - - - - - 32. ARTEMISIA.
- †† florets all ligulate
 † fruit without either scales or pappus - - - 53. LAPSANA.
 ‡ fruit with coroniform scales

- scales united into an entire coriaceous crown; } 54. ARNOSERIS.
 leaves all radical - - - - - }
 scales or paleæ in 2 rows; stem leafy - - - - - } 55. CICHORIUM.
 ††† fruit crowned with scales in the ray, with a pap- } 59. THRINCIA.
 pus in the disk - - - - - }
 †††† fruit crowned with a pilose pappus
 pappus sessile
 involucre calicled; pappus white - - - - - 69. CREPIS.
 involucre imbricated
 receptacle alveolate - - - - - 56. TOLPIS, clt.
 receptacle smooth
 involucre tumid, or ovate at the base; } 70. SONCHUS.
 pappus soft, not becoming brown - - - - - }
 involucre not tumid at the base; pappus } 71. HIERACIUM.
 rigid, often becoming brown - - - - - }
 pappus stipitate
 margin of the scales of the involucre mem- } 66. LACTUCA.
 branous - - - - - }
 margin of the scales not membranous
 involucre double; scape 1-flowered, aphyll- } 67. TARAXACUM.
 lous - - - - - }
 involucre calicled, many-flowered; stem } 68. BARKHAUSIA.
 leafy - - - - - }
 ††††† fruit crowned with a plumose pappus
 pappus stipitate
 outer scales of the involucre 5, foliaceous, lax 65. HELMINTHIA.
 outer scales not foliaceous
 receptacle naked; pappus in many rows
 involucre imbricated - - - - - 63. SCORZONERA, clt.
 involucre simple, 3—10-leaved - - - - - 62. TRAGOPOGON.
 receptacle paleaceous; pappus in 2 rows
 pappus of the ray subsessile - - - - - 57. HYPOCHERIS.
 pappus of both ray and disk stipitate - - - - - 58. ACHYROPHORUS.
 pappus sessile
 pappus in 2 rows
 fruit wrinkled; receptacle naked - - - - - 64. PICRIS.
 fruit smooth; receptacle alveolate - - - - - 60. APARGIA.
 pappus in 1 row - - - - - 61. OPORINA.

* *Tubulifloræ*. (D. C. prod. v. p. 8.)

Hermaphrodite florets tubular, and regularly 5-(rarely 4-) dentate.

Tribe I. EUPATORIACEÆ. (Less., D. C. prod. v. p. 103.)

Style of the hermaphrodite florets cylindrical, with long terete or clavate branches, which are exserted, and papillar or downy above. *Style* of the male flower entire, club-shaped, or slightly bifid. Rows of *stigmas* narrow, slightly prominent, terminating before the middle of the branches; seldom reaching the apex, and very rarely confluent. *Staminiferous corolla*, regular, 5-dentate, with generally erect teeth. *Anthers* without appendages. *Pollen* globose, prickly. *Capitules* few- or many-flowered, never 1-flowered; homogamous with tubular flowers; rarely hetrogamous with the flowers of the ray tubular or ligulate. — Herbs or shrubs, generally with opposite leaves.

Subtribe I. EUPATORIÆ. (D. C. prod. v. p. 104.)

Capitules homogamous. Flowers never decidedly yellow.

I. EUPATORIUM. (L. gen. n. 935., D. C. prod. v. p. 141.)

Capitules many-(3—100-) flowered. *Receptacle* flat, naked. *Scales* of the involucre, in 1—2, or many rows; equal or unequal, loosely or closely imbricated. Throat of the *corolla* scarcely dilated. *Anthers* included. Branches of the *styles* exserted, cylindrical, obtuse. *Achenes* angular or striated. *Pappus* in

1 row, pilose, rough. — Herbs or shrubs, with opposite or verticillated leaves. Capitules generally corymbose or paniculated. Flowers never yellow.

1. ! *E. cannabinum*. (L. sp. 1173.) *Hemp Agrimony*. Banks of rivers. Common. Fl. pale reddish purple. July, Aug. Perennial. E. B. 428., H. 358., D. C. v. p. 180.

Subtribe II. TUSSILAGINÆ. (Less., D. C. prod. v. p. 204.)

Capitules heterogamous or subdiœcious.

Division I. PETASITÆ. (D. C. l. c.)

Capitules heterogamous or subdiœcious. *Female corollas* also tubular. Flowers white or purple (never yellow).

II. NARDOSMIA. (Cass. D. C. prod. v. p. 205.)

Capitules many-flowered, subdiœcious. — Submale flower. *Ray* in 1 row, female, ligulate. *Disk* bisexual; and, by abortion male, sterile. *Corolla* tubular, 5-dentate. — Subfemale flower. *Ray* of many rows, female, minutely ligulate. *Disk* few-(1—5-) flowered. *Corolla* tubular, 5-dentate. *Receptacle* naked, flat. Scales of the *involucre* in 1 row, equal to, or shorter than, the flowers. *Achenes* terete, glabrous. *Pappus* pilose, shorter and less abundant than in the female. — Herbs; the leaves appearing with or after the flowers. Scape scaly, thyrsoïd. Flowers purple or white.

1. *N. fragrans*. (Reichenb.) *Sweet-scented Coltsfoot*. Leaves appearing with the flower, cordate at the base, orbicular, dentate; the teeth cartilaginous; glabrous above, pubescent on the nerves beneath. Scales of the involucre acute, about the length of the flowers.

* *Submale flower*. Ligulæ oval-oblong, generally longer than the involucre.

** *Subfemale flower*. Not known.

Native of the south of Europe. Cult. in gardens. Very common. Fl. white, or light purple. Jan., Feb. Perennial. Bot. mag. 1388., D. C. v. p. 205.

III. PETASITES. (Tourn., D. C. prod. v. p. 206.)

Capitules many-flowered, subdiœcious. — Submale flower. *Ray* in 1 row, few (1—5-) flowered, female. *Corolla* tubular, slender. *Ovary* ovulate. *Disk* hermaphrodite; but the ovary exovulate. *Corolla* tubular; the throat dilated regularly, 5-dentate. — Subfemale flower. *Ray* in many rows, female, fertile. *Corolla* filiform, subtruncate. *Style* exsert. *Disk* few-(1—5-) flowered, male. Throat of the *corolla* dilated regularly, 5-dentate. *Receptacle* naked, flat. Scales of the *involucre* in a single row, shorter than the florets, often surrounded by bractæ at the base. *Achenes* cylindrical, glabrous. *Pappus* pilose; much less abundant in the males than the females. — Herbs, with the leaves appearing after the flowers, which are in a dense terminal thyrus.

1. ! *P. vulgaris*. (Desfont.) *Common Butter-bur*. Wet meadows and river sides. Common on the banks of the Thames. Fl. pale flesh-colour. April, May. Perennial. H. 362., D. C. v. p. 206.

* *Submale*. Pedicels of the ovate thyrus simple. *Tussilago Petasites*. (L. sp. 1215., E. B. 431.)

** *Subfemineus*. Pedicels of the elongated thyrus generally ramose. *Tussilago hybrida*. (L. sp. 1214., E. B. 430.)

Note. *P. albus* is often cultivated on account of its dense thyrus, of early white flowers.

Division II. EUTUSSILAGINÆ. (D. C. prod. v. p. 207.)

Capitules heterogamous, radiate. Ligulæ female. Florets of the disk, hermaphrodite. Flower always yellow.

IV. TUSSILAGO. (L. gen. n. 952., D. C. prod. v. p. 208.)

Capitules many-flowered, heterogamous. Florets of the ray female, with very narrow ligulæ, in many rows; those of the disk few, male, tubular, with 5-dentate campanulate limbs. *Receptacle* naked. *Involucre* of 1 row of oblong obtuse scales. *Anthers* without appendages. *Styles* of the disk, abortive, in-

cluded; those of the ray bifid, with terete branches. *Achenes* of the ray oblongo-cylindrical, glabrous; of the disk, abortive. *Pappus* of the ray in many rows; of the disk, in 1 row, with very fine setæ. — Perennial herb, with a thick rhizome. — Leaves appearing after the flowers. Scape with 1 capitule, leafless, but covered with scales.

1. ! *T. Farfara*. (L. sp. 1214.) *Coltsfoot*. Moist clay soils. Abundant. Fl. yellow. March, April. Perennial. E. B. 429., H. 362., D. C. v. p. 208.

Tribe II. ASTEROIDEÆ. (Less., D. C. prod. v. p. 211.)

Capitules generally heterogamous, rarely homogamous or diœcious. *Style* of the hermaphrodite flowers cylindrical, bifid at the apex, with rather long linear branches, which are flat on the outer surface, generally subacuminate, rarely obtuse; covered with a minute equal down, and having a narrow row of stigmas throughout their whole length. *Corollas* pellucid; staminiferous ones tubular, regularly dentate. *Pollen* globose, prickly.

Subtribe I. ASTERINÆ. (Nees, D. C. prod. v. p. 213.)

Capitules never diœcious, generally radiate. *Receptacle* generally without paleæ. *Anthers* without appendages. — Leaves alternate.

Division I. ASTERÆ. (D. C. prod. v. p. 217.)

Receptacle without paleæ, naked, alveolate or fringed. *Capitule* heterogamous. *Florets* of the disk yellow; of the ray, white, purple, or blue.

Subdivision I. EUASTERÆ. (D. C. l. c.)

Ligulæ in 1 row. *Pappus* uniform, pilose, in one or many rows. *Achenes* compressed, flat.

V. ASTER. (Nees, D. C. prod. v. p. 226.)

Capitules rayed. *Florets* of the ray ligulate, fertile, in one row; of the disk, hermaphrodite, 5-dentate. *Receptacle* flat, alveolate; *margins* of the alveolæ more or less dentate. *Scales* of the involucre in many rows, loose or imbricated; somewhat herbaceous, or even foliaceous, at the apex. *Achenes* compressed. *Pappus* pilose, persistent, in many rows, with scabrous setæ. — Perennial herbs, with simple leaves.

Branches hairy - - - - - 1. *A. NOVI BELGII*, clt.
Branches subglabrous - - - - - 2. *A. TRADESCANTI*, clt.

1. *A. Novi Belgii*. (Nees von Esen.) *Michaelmas Daisy*. Stem corymbose, with rigid hairy branches. Leaves lanceolate, embracing, acute; rough at the margin; lower one serrated in the middle. Inner scales of the loose involucre acuminate. Native of North America. Commonly cult. in gardens. Fl. generally with a purple ray. Sept., Oct. Perennial. D. C. v. p. 238.

2. *A. Tradescanti*. (L. sp. 1230.) *Small Michaelmas Daisy*. Stem racemose, subglabrous. Branches virgate; branchlets subsecund. Leaves linear, acuminate; ciliated on the margin. Native of North America. Long cultivated in gardens as the Michaelmas daisy; which term is also applied to many other species of this extensive genus (Loudon enumerating upwards of 150 as cultivated in England); but, according to my friend Professor Don, the two here cited are the most common. Fl. with a whitish ray, becoming violet. Capitules much smaller than in *A. Novi Belgii*. (D. C. v. p. 241.)

VI. TRIPOLIUM. (Nees, D. C. prod. v. p. 253.)

Capitules radiate. *Ligulæ* female, in 1, rarely 2 rows. *Florets* of the disk hermaphrodite. *Scales* of the involucre imbricated, or in 2 rows; a few scattered ones covering the peduncle. *Receptacle* alveolate; *alveolæ* dentate. *Branches* of the style of the hermaphrodite florets, subulate. *Achenes* oblong, compressed, glabrous, or with a few scattered hairs, and surrounded by bristles at the base. *Pappus* simple, in many rows. *Setæ* remotely denticulate. — Fleshy, perennial, glabrous herbs, generally growing in salt marshes.

1. ! *T. vulgare*. (Nees.) *Sea Starwort*. Salt marshes. Common. Fl. yellow in the disk, purple in the ray, which is sometimes wanting. July, Sept. Perennial. D. C. v. p. 253. *Aster Tripodium*. (L. sp. 1226., E. B. 87., H. 365.)

Subdivision II. DIPLOPAPPÆ. (D. C. prod. v. p. 271.)

Ray of 1 row. Pappus of the disk and ray uniform, double; the outer squamose, the inner pilose.

VII. CALLISTEPHUS. (Cass., D. C. prod. v. p. 274.)

Capitules many flowered, heterogamous. Florets of the ray ligulate, female, in 1 row, when in a natural state. Florets of the disk hermaphrodite, tubular, 5-dentate. Receptacle broad, subconvex, with shallow alveoles. Involucre in 3—4 rows of patent, obtuse, ciliated scales, surrounded by foliaceous bracteas, which are shorter than the involucre. Stigma of the disk ovate at the apex. Achenes obovate, cuneiform, compressed, roughish. Pappus double; each of 1 row; the outer very short, paleaceo-setaceous, the setæ being concreted into a crown; the inner one with long, filiform, scabrous, deciduous setæ.

1. *C. chinensis*. (Nees.) *China Aster*. Lower leaves spatulate, petiolate; middle ones rhombo-lanceolate; upper ones oblong; all coarsely dentate, more or less ciliated. Branches 1-headed, elongated. Scales of the involucre foliaceous, subsquarrose, with long ciliæ. Native of China and Japan. Cult. in gardens. Common. Fl. with yellow disk, purple, white, or red rays. Sometimes all tubular, or all ligulate, by cultivation. July, Sept. Annual. D. C. v. p. 274.

Subdivision III. ERIGERÆ. (D. C. prod. v. p. 279.)

Ligulæ in many rows. Pappus pilose, in many (1—20) rows; outer row equal, or shorter than the rest.

VIII. ERIGERON. (L. gen. n. 951., D. C. prod. v. p. 283.)

Capitules rayed, many-flowered. Ligulæ female, linear, in many rows. Florets of the disk tubular, generally hermaphrodite. Receptacle naked, foveolate. Achenes compressed, not rostrate. Pappus pilose, rough. — Flowers with yellow disk, and purple, blue, or white rays.

Florets of the ray white or yellowish, not purple - 1. *E. CANADENSE*.

Florets of the ray purple

stem erect, with many flowers in a panicle - 2. *E. ACRE*.

stem subcæspitose, generally 1-, rarely 2—3-flowered 3. *E. ALPINUM*.

1. ! *E. canadense*. (L. sp. 1211.) *Canadian Fleabane*. Waste grounds and walls. Common. Fl. yellowish white. Aug., Sept. Annual. E. B. 2019., H. 362., D. C. v. p. 289.

2. ! *E. acre*. (L. sp. 1211.) *Blue Fleabane*. Gravelly and chalky pastures, and walls. Fl. yellow in the disk; purple in the ray. Aug., Sept. Perennial. E. B. 1158., H. 362., D. C. v. p. 290.

3. *E. alpinum*. (Lam.) *Alpine Fleabane*. Highland mountains. Fl. large, yellow in the disk; purple in the ray. July. Perennial. H. 362., D. C. v. p. 291.

α. *biflorus*. Stem 1—3-flowered. Involucre hairy. *E. alpinum*. (L. sp. 1211., E. B. 464.)

β. *uniflorum*. Stem 1-flowered. Involucre woolly. *E. uniflorum*. (L. sp. 1212., E. B. 2416.)

Subdivision IV. BELLIDÆ. (D. C. prod. v. p. 304.)

Ray of 1, rarely 2, rows. Pappus none, or coroniform.

IX. BELLIS. (L. gen. n. 962., D. C. l. c.)

Capitules many-flowered, heterogamous. Florets of the ray ligulate, female, in 1 row; of the disk, tubular, hermaphrodite, 4—5-dentate. Receptacle conical. Involucre campanulate in 1—2 rows, with obtuse, foliaceous, equal scales. Achenes compressed, obovate, hispid, without pappus. — Stemless herbs, with 1-flowered peduncles.

1. ! *B. perennis*. (L. sp. 1248.) *Daisy*. Pastures. Common. Double varieties are much cultivated in borders. Fl. with a white ray; in cultivated varieties, red or variegated, and all semiligulate. April, Oct. Perennial. E. B. 424., H. 366., D. C. v. p. 304.

Note. A variety with proliferous capitules, the hen and chicken daisy, is occasionally found wild.

Division III. CHRYSOCOMEÆ. (D. C. prod. v. p. 310.)

Receptacle without paleæ, naked, alveolate, or fimbriated. *Capitules* sometimes homogamous; all the flowers being tubular and hermaphrodite: sometimes rayed; the ligulæ being female, and generally of the same colour as the disk.

Subdivision I. SOLIDAGINEÆ. (D. C. prod. v. p. 328.)

Ligulæ in 1 row, or wanting. *Pappus* of the disk and ray uniform, pilose, in 1 row. *Achenes* angular or terete, not compressed.

X. SOLIDAGO. (L. gen. n. 955., D. C. prod. v. p. 330.)

Ligulæ 5—15, oblong, female, in 1 row. *Florets* of the disk hermaphrodite, 5-dentate. *Receptacle* without paleæ, naked, alveolate, or fimbriated. *Involucre* closely imbricated, many-leaved, oblong, scabrous. *Achenes* terete, many-ribbed. *Pappus* in 1 row, pilose, rough. — Herbs, with yellow florets in the ray and disk; generally natives of America.

Racemes secund, subscorpoid

leaves triple-nerved - - - - - 1. *S. CANADENSIS*, clt.

leaves penninerved - - - - - 2. *S. ALTISSIMA*, clt.

Racemes erect, not secund - - - - - 3. *S. VIRGA AUREA*.

1. *S. canadensis*. (L. sp. 1233.) *Canadian Golden Rod*. Stem villous, erect. Leaves lanceolate, serrated, triple-nerved, scabrous. Racemes paniculated, secund, recurved. Ligulæ abbreviated. Native of North America. Cult. in gardens. Fl. yellow. July, Sept. Perennial. D. C. v. p. 330.

2. *S. altissima*. (L. sp. 1233.) *Tall Golden Rod*. Stem erect, rough. Leaves lanceolate, penninerved, deeply serrated, rough, wrinkled. Panicles secund. Ligulæ 7—10, linear, oblong, scarcely longer than the disk. Native of North America. Cult. in gardens. Fl. yellow. July, Sept. Perennial. D. C. v. p. 533.

3. ! *S. Virga aurea*. (L. sp. 1235.) *Common Golden Rod*. Heath and woods. Common. Fl. yellow. July, Sept. Perennial. E. B. 301., H. 365., D. C. v. p. 338.

β. cambrica. Small, with broader radical leaves. In Wales. *S. cambrica*. (Huds.)

XI. LINOSYRIS. (Lobel, D. C. prod. v. p. 351.)

Capitules many-flowered, homogamous, discoid. *Receptacle* flat, alveolate; the *alveoles* with fleshy dentate margins. *Involucre* in 1 row of foliaceous scales. Limb of *corolla* deeply 5-fid. *Anthers* and *stigma* exsert. *Achenes* oblong, compressed, silky, not rostrate. *Pappus* pilose, in 2 rows, with scabrous setæ. — Erect perennial herbs, with yellow flowers.

1. *L. vulgaris*. (Cass.) *Goldlocks*. Rocky clefts. Devon and Somersetshire; Sussex, between Brighton and Shoreham. Fl. yellow. Aug., Sept. Perennial. D. C. v. p. 352. *Chrysocoma Linosyris*. (L. sp. 1178., E. B. 2505., H. 358.)

Subtribe II. BACCHARIDEÆ. (Less., D. C. prod. v. p. 368.)

Capitules heterogamous, or diœcious, never radiate. *Corollas* all tubular; the female ones filiform, generally in many rows in the circumference. *Anthers* ecaudate. *Receptacle* epaleaceous. — Leaves alternate.

Division I. BACCHAREÆ. (D. C. prod. v. p. 398.)

Capitules diœcious.

XII. BACCHARIS. (L. gen. n. 949., D. C. l. c.)

Capitules many-flowered, diœcious. *Corolla* homogamous, tubular. *Receptacle* generally naked. *Involucre* subhemispherical, or oblong, in many rows, imbricated. — Male flower. *Corolla* dilated at the fauces, 5-fid. *Anthers* exsert, ecaudate. *Style* more or less abortive. — Female flower. *Corolla* filiform, subtruncate. *Style* bifid, exsert. *Anthers* entirely wanting. *Achenes* generally furrowed. *Pappus* pilose, in 1 row in the male flower; in many rows in the female flower; about the length of the involucre.

The numerous (225) species of this genus are generally shrubs, natives of America. Many are cultivated, but the most common in our shrubberies is

1. *B. halimifolia*. (L. sp. 1204.) *Virginian Groundsel Tree*. Arboreous, glabrous, glaucous, slightly scaly; the branches angular. Leaves obovate, coarsely angulato-dentate, wedge-shaped at the base, subattenuated into a petiole; upper ones lanceolate, very entire. Male capitules subglobose, pedicellated. Scales ovate. Female capitules ovato-oblong, fasciculated. Inner scales elongated. Native of the sea coast from Maryland to the Floridas. Cult. in pleasure-grounds. Common, especially about London, St. James's Park, &c. Fl. white. Oct., Nov. Tall shrub. D. C. v. p. 412.

Subtribe III. INULEÆ. (Cass., D. C. prod. v. p. 462.)

Capitules never diœcious, rarely homogamous, discoid; generally heterogamous, rayed. Female flower almost always ligulate. *Receptacle* without paleæ. *Anthers* caudate. — Leaves alternate. Capitules not aggregated into a glomerule. Ligulæ, when present, of the same colour as the disk.

Division I. EUINULEÆ. (D. C. prod. v. p. 463.)

Capitules many-flowered, not concreted into a glomerule.

XIII. INULA. (L. gen. n. 956., D. C. l. c.)

Capitules many-flowered, heterogamous. *Florets* of the ray female, or sterile by abortion, generally ligulate. *Florets* of the disk hermaphrodite, tubular, 5-dentate. *Involucre* imbricate, in many rows. *Receptacle* flat or subconvex, naked. *Anthers* with 2 setæ at the base. *Achenes* ovate, rostrate, terete, or tetragonal. *Pappus* uniform, in 1 row. *Setæ* capillary, subscabrous. — Herbs, with alternate, often amplexicaule, leaves.

Outer scales of involucre obovate; achenes tetragonal 1. I. HELENIUM. Scales all linear; achenes terete

scales with a leafy appendage at the apex; leaves	} 2. I. CONYZA.
oval, lanceolate, pubescent	
scales not appendiculated; leaves linear, lanceolate,	} 3. I. CRITHMOIDES.
fleshy	

1. ! *I. helenium*. (L. sp. 1236.) *Elecampane*. Moist pastures in England, Scotland, and Ireland; but not abundant. Fl. yellow. July, Aug. Perennial. E. B. 1546., H. 365., D. C. v. p. 463.

2. ! *I. Conyza*. (D. C.) *Ploughman's Spikenard*. Chalky and clayey soil. Common. Fl. yellow. Aug., Oct. Perennial. D. C. v. p. 464. *Conyza squarrosa*. (L. sp. 1205., E. B. 1195., H. 361.)

3. ! *I. crithmoides*. (L. sp. 1240.) *Golden Samphire*. South coast of England. Common along the borders of creeks. Fl. yellow. Aug., Sept. Perennial. E. B. 68., D. C. v. p. 470. *Limbardia crithmoides*. (H. 365.)

XIV. PULICARIA. (Gærtn., D. C. prod. v. p. 477.)

Capitules many-flowered, heterogamous. *Florets* of the ray female, in 1 row, generally ligulate. *Florets* of the disk tubular, 5-dentate, hermaphrodite. *Receptacle* flattish, naked, areolated. *Involucre* loosely imbricated, with a few rows of linear scales. *Achenes* not rostrate, downy, terete, not compressed. *Pappus* in a double row; the outer row coroniform, very short; the inner of 10—20 rough hairs. — Odorous herbs, with cordato-sagittate cauline leaves, and yellow flowers.

Peduncles opposite the leaves; florets of the ray scarcely } 1. P. VULGARIS.
longer than those of the disk

Peduncles axillary, or terminal; florets of the ray 2 or 3 } 2. P. DYSENTERICA.
times longer than those of the disk

1. ! *P. vulgaris*. (Gærtn.) *Small Fleabane*. Sandy hollows, inundated in the winter. Not common. Fl. yellow. Sept. Annual. H. 366., D. C. v. p. 478. *Inula Pulicaria*. (L. sp. 1238., E. B. 1196.)

2. ! *P. dysenterica*. (Gærtn.) *Common Fleabane*. Moist places. Common. Fl. yellow. Aug. Perennial. H. 365., D. C. v. p. 479. *Inula dysenterica*. (L. sp. 1237., E. B. 1115.)

Subtribe IV. ECLIPTEÆ. (Less., D. C. prod. v. p. 488.)

Capitule many-flowered, heterogamous. *Florets* of the ray ligulate, female; of the disk, hermaphrodite. *Anthers* ecaudate. *Receptacle* paleaceous. *Pappus* none, or aristate; never setose. — Leaves opposite.

XV. DAHLIA. (Cav., D. C. prod. v. p. 494.)

Capitules rayed. *Florets* of the ray ligulate, female or neuter; of the disk, tubular, 5-dentate. *Involucre* double; the outer of 1 row of about 5 spreading, reflexed, foliaceous scales; the inner of about 2 rows of 12—16 long scales, united at the base. *Receptacle* flat, paleaceous. *Paleæ* membranous, oblong, undivided. *Branches* of the styles thick, hairy externally. *Achenes* oblong-ovate, obcompressed, obsoletely 2-horned at the apex, without pappus. — Large herbs, with opposite divided leaves, and fasciculated tuberculated roots.

Stem not pruinose; ligulæ with fertile or sterile styles 1. *D. VARIABILIS*, clt.
Stem pruinose, hollow; ligulæ absolutely neuter - 2. *D. COCCINEA*, clt.

1. *D. variabilis*. (Desf.) *Dahlia*. Native of Mexico. Introduced into Europe in 1790, and now very commonly cult. Fl. of every colour and form of doubling. D. C. l. c.

β. *nana*. Not above 2 feet high.

2. *D. coccinea*. (Cav.) *Dahlia*. Habitat, &c., as above. Fl. with red or yellow ligulæ, never purple or white. Upwards of 1500 varieties and hybrids of these species are enumerated.

Tribe III. SENECTIONIDÆ. (Less., D. C. prod. v. p. 497.)

Style cylindrical at the apex, bifid in the hermaphrodite flowers, with long linear branches, which are terminated by a small brush of hairs: sometimes the branch protrudes beyond the brush into a cone of various lengths. *Stigmas* in a broad row, reaching to the brush. *Florets* of the disk pellucid, regular. *Pollen* globose, echinulate.

Subtribe I. MELANOPODINÆ. (D. C. prod. v. p. 500.)

Flowers all unisexual, either diœcious, monœcious, or heterocephalous. *Anthers* not caudate. *Receptacle* generally paleaceous. *Pappus* never setose.

XVI. XANTHIUM. (L. gen. n. 1056., D. C. prod. v. p. 522.)

Capitules monœcious, homogamous. — Male flower. *Involucre* subglobose, many-flowered, with 1 row of free scales. *Receptacle* cylindrical paleaceous. *Corolla* clavate, rather pilose, with 5 short lobes. *Filaments* of stamens scarcely adnate to the corolla. *Anthers* free, not caudate. *Stigmas* 2, concrete. — Female flowers 2 enclosed within the hooked involucre, which is surmounted by a beak. *Corolla* filiform. *Stamens* 0. *Stigmas* 2, linear, divergent, bearing papillæ on the sides. *Achenes* compressed, each occupying a cell in the involucre, which eventually becomes hardened and bilocular. *Embryo* oblong. — Annual herbs, with alternate variously incised leaves. *Capitules* irregularly glomerated into a terminal short spike, which is male above and female beneath. A very abnormal genus of the Compositæ.

1. ! *X. strumarium*. (L. sp. 1400.) *Broad-leaved Burweed*. Waste ground. Many places, as Peckham, Staines, &c.; but rare. Fl. green. Aug., Sept. Annual. E. B. 2544., H. 408., D. C. v. p. 523.

Subtribe II. HELIANTHÆ. (Less., D. C. prod. v. p. 534.)

Capitules generally heterogamous and rayed, or homogamous and discoid. *Receptacle* entirely paleaceous, or merely on the margin. *Corolla* of the hermaphrodite flowers with thickened lobes. *Pappus* coroniform, aristate, or wanting. *Anthers* ecaudate. — Leaves generally opposite, becoming blackish.

Division I. HELIOPSIDÆ. (Less., D. C. l. c.)

Capitules heterogamous. *Florets* of the ray female, or rarely homogamous, discoid. *Achenes* large, generally surrounded by an adherent thick bark; not obcompressed. *Pappus* as in subtribe.

XVII. ZINNIA. (L. gen. n. 974., D. C. l. c.)

Capitules rayed. *Florets* of the ray female, ligulate; of the disk, tubular, 5-dentate, hermaphrodite. *Involucre* imbricated. *Scales* ovato-rotund, black at the margins. *Receptacle* conical or cylindrical, with long paleæ, which surround the florets of the disk. *Ligulæ* coriaceous, continuous with the apex of

the achenes, and persistent. *Corolla* of the disk articulated on the ovary, covered with corolline hairs. *Achenes* surrounded with a winged membranaceous bark; subtrigonal, 1—2-awned, or dentate. — Annual herbs, with 3—5-nerved, entire, opposite leaves, and conspicuous terminal capitules.

1. *Z. elegans*. (Jacq.) *Common Garden Zinnia*. Stem erect, rough. Leaves cordato-ovate, sessile, amplexicaule. Peduncles solitary, longer than the leaves. Involucre with ovate obtuse scales. Achenes of the disk scarcely subdentate. Native of Mexico. Much cult. in gardens. There are many varieties dependent on the smoothness or roughness of the involucre, and the colour of the corolla, which is principally white, red, purple, or violet; constituting the vars. α . violacea, β . alba, γ . purpurascens, δ . coccinea. July, Sept. Annual. D. C. v. p. 536.

Note. Many other species of *Zinnia* are cultivated by florists, as, 2. *Z. multiflora*, with its vars. α . rubra and β . flava; 3. *Z. verticillata*.

Division II. RUDBECKIÆ. (Less., D. C. prod. v. p. 554.)

Capitules heterogamous. *Florets* of the ray ligulate, neuter, or styliferous and sterile. *Achenes* not rostrate, with or without coroniform pappus.

XVIII. ECHINACEA. (Mœnch., D. C. prod. v. p. 554.)

Capitules many-flowered, heterogamous. *Florets* of the ray ligulate, neuter, in 1 row; of the disk, hermaphrodite, regularly 5-fid. *Tube* very short. *Fauces* naked. *Teeth* of the limb erect. *Involucre* in 3 rows; the *scales* lanceolate, ciliated. *Receptacle* ovate, thickly covered with rigid paleæ, which are longer than the florets of the disk. *Filaments* of the stamens arising from the base of the corolla. *Branches* of the style surmounted with semilanceolate appendages. *Achenes* tetragonal, obpyramidal, thick, crowned irregularly with a lacerated, subcoroniform, deciduous pappus. — Perennial herbs, with petiolated radical leaves; the cauline ones alternate, sessile. *Capitules* large; the ligulæ purple, 2—3-dentate, very long. *Florets* of the disk greenish.

1. *E. purpurea*. (Mœnch.) *Purple Rudbeckia*. Stem very smooth. Leaves glabrous; the lower ovate, decurrent; the upper lanceolate. Native of Virginia and Florida. Cult. in gardens. Common. Fl. purple in the ray, greenish in the disk. July, Oct. Perennial. D. C. v. p. 554. *Rudbeckia purpurea*. (L. sp. 1280., Bot. mag. 2.)

XIX. RUDBECKIA. (L. gen. n. 980., D. C. prod. v. p. 555.)

Capitules many-flowered, heterogamous. *Florets* of the ray neuter, ligulate; of the disk, hermaphrodite, 5-dentate. *Involucre* in 2 rows; the *scales* foliaceous, patent. *Receptacle* conical, covered with acute, flat, or navicular paleæ. *Corolla* of the disk with a short tube; of the ray, without any vestige of style or stamens. *Branches* of the style crowned with a short cone. *Achenes* tetragonal, obpyramidal, with a lateral areole, and a large epigynous disk, crowned with a very short unequal pappus; or bald. — Perennial herbs, with alternate leaves; the flowers with yellow ligulæ, and dusky violet disk.

1. *R. laciniata*. (L. sp. 1279.) *Broad jagged-leaved Rudbeckia*. Stem glabrous. Lower leaves pinnatisect; the segments ovate, acute, trilobed, or coarsely incised; upper ones ovate, undivided. Pappus unequally dentate. Native of North America. Cult. in gardens. Fl. yellow in the ray, dusky in the disk. Sept., Oct. Perennial. D. C. v. p. 555.

* * * *R. digitata* is also sometimes cultivated, and may be distinguished by its upper leaves being trifid. *R. fulgida* has the stem rough, and the florets of the disk of a dark purple; those of the ray deep yellow.

XX. CALLIOPSIS. (Reich., D. C. prod. v. p. 568.)

Capitules many-flowered, heterogamous. *Florets* of the ray neuter, in 1 row, ligulate, coarsely 3—5-dentate; of the disk, hermaphrodite, tubular, 5-dentate. *Involucre* in 2 rows: the outer short, squarrose; the inner larger, erect, coherent. *Receptacle* flat, with linear paleæ. *Style* of the disk with truncated branches, penicillated only at the apex. *Achenes* obcompressed, incurved, truncate, without pappus. — Glabrous herbs, with 1—2-pinnate opposite leaves, and variegated terminal flowers.

1. *C. tinctoria*. (D. C.) *Dyers' Coreopsis*. Radical leaves 1—2-pinnatipartite, with entire lobes; upper ones tripartite, multifid, with linear lobes.

Ligulæ trifid, twice the length of the inner involucre. Achenes oblong, minutely tuberculated. Native of North America. Commonly cult. in gardens. Fl. ligulæ reddish brown. July, Sept. Annual. D. C. v. p. 568. *Coreopsis tinctoria*. (Nutt.)

C. Atkinsonia (Hook.) is a tall perennial species, much resembling *C. tinctoria*.

Division III. COREOPSIDEÆ. (Less., D. C. prod. v. p. 569.)

Capitules heterogamous. *Florets* of the ray neuter. *Achenes* not rostrate. *Pappus* consisting of 2 or 4 awns, or of awns and scales intermixed.

XXI. COREOPSIS. (L. gen. n. 981., D. C. prod. v. p. 569.)

Capitules many-flowered, heterogamous. *Florets* of the ray about 8, neuter, ligulate; of the disk, hermaphrodite, 5-dentate. *Involucre* double; each row of about 8 leaves, united at the base; outer scales foliaceous, narrow, somewhat spreading; inner ones broader, submembranous. *Receptacle* flat, paleaceous; the *paleæ* persistent. *Branches* of the style hispid at the apex, surmounted with a cone. *Achenes* obcompressed, flat, rarely incurved; the margin more or less winged; bidentate or biaristate at the apex. — Herbs, with opposite leaves. Disk of the flowers yellow; the ray generally of the same colour.

1. *C. tenuifolia*. (Ehrh.) *Slender-leaved Coreopsis*. Glabrous. Leaves opposite, sessile, trisected; the segments multipartite; the lobes linear, entire. Capitule pedicellated. Scales of the involucre linear, oblong, obtuse. Ligulæ subentire, acute, of the same colour as the disk. Achenes obovato-wedge-shaped, slightly winged, and bidentate. Native of Virginia. Cult. in gardens. Common. Fl. yellow. July, Sept. Perennial. D. C. v. p. 572. *C. verticillata*. L. sp. 1281. Bot. mag. 156.)

XXII. HELIANTHUS. (L. gen. n. 979., D. C. prod. v. p. 585.)

Capitules many-flowered, heterogamous. *Florets* of the ray ligulate, neuter, in 1 row; of the disk, tubular, hermaphrodite. *Involucre* irregularly imbricate; outer scales foliaceous, appendiculated; the inner ones smaller, and like paleæ. *Receptacle* flat or convex, with oblong, acute, semiembracing paleæ. Tube of the corolla of the disk short, with a wide throat, 5-dentate. *Branches* of the style appendiculated. *Achenes* laterally compressed or subtrigonal, slightly villose or glabrous, with 2, rarely 4, awns arising from the angles. — Rough herbs, with large yellow flowers.

Root fibrous; annual	-	-	-	-	1. H. ANNUUS, clt.
Root tuberculated; perennial	-	-	-	-	2. H. TUBEROSUS, clt.

1. *H. annuus*. (L. sp. 1276.) *Common Sunflower*. Root fibrous. Stem subsimple, erect. Leaves alternate, petiolate, cordate, or broad ovate; 3-nerved, coarsely serrated. Paleæ undivided. Achenes of the disk biaristate. Native of Peru. Cult. in every garden. Fl. very large, yellow. Aug., Sept. Annual. D. C. v. p. 585.

2. *H. tuberosus*. (L. sp. 1277.) *Jerusalem Artichoke*. Root repent with oblong tubers. Stem erect, scabrous. Leaves alternate, petiolate, triple-nerved, rough, serrate; lower ones cordato-ovate; upper ones ovato-acuminate. Petioles ciliated at the base. Involucre with linear, lanceolate, ciliated scales. Native of the Brazils. Cultivated for culinary purposes. Very common. Fl. yellow. Aug., Sept. Perennial. D. C. v. p. 590.

*** *H. multiflorus* (L. sp. 1277.), *Perennial Sunflower*, with single and double flowers, is often cultivated. It has a raceme of many capitules, and an inflexed rhizomatous root.

Division IV. BIDENTIDÆ. (Less., D. C. prod. v. p. 593.)

Capitules heterogamous, with neutral ligulæ, very rarely discoid. *Achenes* rostrate, rarely bald, generally surmounted by 1—4 rough awns.

XXIII. BIDENS. (L. gen. n. 932., D. C. l. c.)

Capitules homogamous, discoid, sometimes rayed; the *florets* of the ray ligulate, neuter. *Involucre* with 2 rows of similar or dissimilar scales. *Receptacle* flat, paleaceous. *Branches* of the style surmounted by short cones.

Achenes more or less obcompressed, aculeate, surmounted by a beak scarcely different from the achene, terminating in 2—5 stiff retorsely hispid awns.

Leaves 3—5-partite - - - - - 1. *B. TRIPARTITA*.
Leaves undivided, dentate - - - - - 2. *B. CERNUA*.

1. ! *B. tripartita*. (L. sp. 1165.) *Trifid Bur Marigold*. Wet places. Common. Fl. yellowish. July. Annual. E. B. 113., H. 358., D. C. v. p. 594.

2. ! *B. cernua*. (L. sp. 1165.) *Nodding Bur Marigold*. Sides of rivulets, &c., near Woodford, and common in chalky soils. Fl. greenish yellow. July, Sept. Annual. E. B. 1114., H. 358. *B. cernua* α . discoidea. (D. C. v. p. 594.)

Subtribe III. TAGETINÆ. (Cass., D. C. prod. v. p. 638.)

Capitules heterogamous. *Florets* of the ray female or homogamous, discoid. *Involucre* generally in 1 row, or gamophyllous. *Receptacle* epaleaceous. *Achenes* erostrate, attenuated at the base. *Pappus* awned, rarely setose. — Leaves and involucre with large pellucid glands.

XXIV. TAGETES. (L. gen. n. 964., D. C. prod. v. p. 642.)

Capitules rayed, rarely subdiscoid. *Scales* of involucre in 1 row, concreted into a campanulate or cylindrical cup, which is dentate at the apex. *Receptacle* subalveolate. *Achenes* elongated, attenuated at the base, compresso-tetragonal. *Seed* pedicellated in the achene. *Crown* simple; the *paleæ* unequal. — Annual herbs, generally fœtid.

Branches spreading; peduncles subcylindrical - - - 1. *T. PATULA*, clt.
Branches erect; peduncles swollen near the apex - - - 2. *T. ERECTA*, clt.

1. *T. patula*. (L. sp. 1294.) *French Marigold*. Stem erect. Branches spreading. Leaves pinnatisect, with linear, lanceolate, serrated segments; serratures, especially the upper ones, awned. Peduncles 1-headed, elongated, subcylindrical. Involucre smooth. Native of Mexico; but commonly cult. in gardens. Fl. dark yellow, or orange brown. July, Sept. Annual. Bot. mag. 150., D. C. v. p. 643.

2. *T. erecta*. (L. sp. 1249.) *African Marigold*. Stem and branches erect. Leaves pinnatisect. Segments lanceolate, serrulate; the serratures awned. Peduncles 1-headed, ventricose near the top. Involucre subangular. Native of Mexico; but commonly cult. in gardens. Fl. as above, and often double. July, Sept. Annual. D. C. v. p. 643.

Note. *T. lucida* and *T. florida*, with undivided leaves and cylindrical involucre, are also cultivated, but not so common.

Subtribe IV. ANTHEMIDÆ. (D. C. prod. v. (Consp. Trib.) p. 499.)

Capitules most commonly heterogamous. *Ligulæ* female or neuter. *Antthers* ecaudate. *Branches* of the style truncate, bearded, very rarely surmounted by a cone. *Achenes* angular, terete; or, in the ray, obcompressed. *Pappus* coroniform, rarely consisting of scales or capillary hairs; often wanting. — Leaves generally alternate.

Division I. EUANTHEMIDÆ. (D. C. prod. v. p. 499.)

Receptacle paleaceous. *Capitules* rayed, rarely discoid.

XXV. ANTHEMIS. (L. gen. n. 970., D. C. prod. vi. ined., and Lind. syst. 259.)

Capitules heterogamous, rayed. *Florets* of the ray ligulate, female; of the disk, tubular, hermaphrodite, 5-dentate. *Involucre* hemispherical or campanulate, imbricate with subequal scales, which are scariose at the margin. *Receptacle* convex or conical, paleaceous. *Branches* of the styles of the disk not appendiculated. *Achenes* not winged, glabrous, angular, with a terminal areola. *Pappus* scaly, or membranaceous, or wanting. — Herbs, with much divided alternate leaves, and terminal capitules.

Florets of ray white, or slightly tinged with rose-colour

achenes destitute of a membranous pappus - - - 1. *A. NOBILIS*.
achenes crowned with a small membrane
stem prostrate; leaves fleshy, dotted, with a few scatered hairs - - - } 3. *A. MARITIMA*.

- stem erect, downy, as well as the leaves; segments }
 parallel - - - - - } 2. *A. ARVENSIS*.
 Florets of the ray yellow - - - - - 4. *A. TINCTORIA*.
 1. ! *A. nobilis*. (L. sp. 1260.) *Common Chamomile*. Dry heaths. Common.
 Fl. disk yellow; ray white. Aug. Perennial. E. B. 980., H. 368.
 2. ! *A. arvensis*. (L. sp. 1261.) *Corn Chamomile*. Corn fields. Fl. disk
 yellow; ray white. July. Biennial. E. B. 602., H. 368.
 3. ! *A. maritima*. (L. sp. 1259.) *Sea Chamomile*. Sea 'coast. Sunderland.
 Fl. disk yellow; ray white. July. Annual. E. B. 2370., H. 368.
 4. ! *A. tinctoria*. (L. sp. 1263.) *Ox-eye Chamomile*. Banks of Tees, Dur-
 ham; Essex. Fl. yellow. July, Aug. Perennial. E. B. 1472., H. 368.

XXVI. MARUTA. (Cass., D. C. in Lind. l. c.)

Capitules heterogamous. *Florets* of the ray neuter, destitute of stamens or pistil; of the disk, tubular, hermaphrodite. Tube of the *corolla* obcompressed, flat; *wing* at the sides with appendages. *Involucre* campanulate, imbricated with scariose subequal scales. *Receptacle* convex, naked at the margin, paleaceous near the centre. *Branches* of the styles not appendiculated. *Achenes* terete, ribbed, glabrous, without pappus. *Epigynous disk* small, with a terminal areole. — Branching herbs, with alternate tripinnatisect leaves. *Capitules* solitary, terminal.

1. ! *M. fœtida*. (Cass.) *Stinking Chamomile*. Waste places. Common.
 Fl. disk yellow; ray white. July, Aug. Annual. D. C., Lind. syn. 150.,
 Anth. Cotula. (L. sp. 1261., E. B. 1772., H. 368.)

XXVII. ACHILLEA. (L. gen. n. 971.)

Capitules heterogamous. *Florets* of the ray female; of the disk, tubular, hermaphrodite, ligulate; the *ligulæ* short, few. *Corolla* 2-winged, 5-dentate, with a plano-obcompressed tube. *Involucre* ovate, imbricated. *Receptacle* flat, narrow, paleaceous. *Achenes* naked. — Herbs, with alternate, variously pinnatisect, or dentate leaves. *Capitules* corymbose, 5—10-flowered.

Leaves linear, lanceolate, serrated

leaves sharply serrated, smooth; flowers white - 1. *A. PTARMICA*.

leaves deeply serrated, downy, lacinated at the base; }
 flowers buff-coloured - - - - - } 2. *A. SERRATA*.

Leaves 2—3-pinnatifid

flowers yellow - - - - - 3. *A. TOMENTOSA*.

flowers white or rose-coloured - - - - - 4. *A. MILLEFOLIUM*.

1. ! *A. Ptarmica*. (L. sp. 1266.) *Sneezewort*. Moist meadows. Fl. white.
 July, Aug. Perennial. E. B. 757., H. 368., D. C. bot. gal. 275.
 2. ! ? *A. serrata*. (Retz.) *Serrated Yarrow*. Near Matlock. Fl. buff-
 coloured. Aug. Perennial. E. B. 2531., H. 369.
 3. *A. tomentosa*. (L. sp. 1264.) *Woolly yellow Millefoil*. Dry hilly pastures.
 Scotland. Fl. yellow. Aug. Perennial. E. B. 2532., H. 369., D. C. bot.
 gal. 275.
 4. ! *A. Millefolium*. (L. sp. 1267.) *Yarrow, or Millefoil*. Pastures and road
 sides. Common. Fl. white, or sometimes rose-coloured. June, Sept. Per-
 ennial. E. B. 758., H. 369., D. C. bot. gal. 276.

XXVIII. DIOTIS. (Desf., D. C. in Lind. 259.)

Capitules homogamous, discoid. *Flowers* hermaphrodite, tubular, 5-den-
 tate; the *tube* obcompressed, winged, with 2 auricles at the base. *Involucre*
 campanulate, imbricated with equal scariose scales. *Receptacle* convex, pa-
 leaceous, or bracteolated with fringed scales. *Pappus* none. *Achenes* crowned
 with the persistent auricled tube of the corolla. — Snow-white tomentose
 herb, with oblong semiamplexicaule leaves. *Capitules* yellow, arranged in
 corymbs.

D. maritima. (Cass.) *Sea-side Cotton Weed*. Sandy sea-shores. South of
 England. Fl. yellow. Aug., Sept. Perennial. H. 358. *Santolina mari-*
tima. (L., E. B. 141.) *Athanasia maritima*. (L. sp. 1182.)

Division II. CHRYSANTHEMEÆ. (D. C. prod. v. p. 499.)

Receptacle without paleæ. *Capitules* radiate.

XXIX. CHRYSANTHEMUM. (L. gen. n. 966.)

Capitules heterogamous, radiate. *Florets* of the ray ligulate, female; of the disk, tubular, hermaphrodite, 5-dentate, with a plano-obcompressed, slightly 2-winged, fleshy tube. *Involucre* hemispherical, campanulate, imbricated with equal scarioso margined scales. *Receptacle* subconvex, naked. *Branches* of the styles of the disk not appendiculated. *Achenes* terete, not winged; having a large epigynous disk (sometimes slightly winged, and surmounted by a tridentate crown). *Pappus* none.

- | | | | | |
|---|---|---|---|------------------------|
| Stem frutescent | - | - | - | 1. C. SINENSE, clt. |
| Stem herbaceous | | | | |
| leaves bipinnatifid | - | - | - | 2. C. CORONARIUM, clt. |
| leaves lanceolate, serrated, or subpinnatifid | | | | |
| florets of the ray white | - | - | - | 3. C. LEUCANTHEMUM. |
| florets all yellow | - | - | - | 4. C. SEGETUM. |

1. *C. sinense*. (Sabine.) *Chinese Chrysanthemum*. Leaves coriaceous, petiolated, sinuato-pinnatifid, dentate, glaucescent. Ray very long. Stem fruticose. Native of China. Cult. Very common; flowers much distorted by cultivation, and of every hue. Sept., Nov. Perennial.

2. *C. coronarium*. (L. sp. 1259.) *Crown Chrysanthemum*. Leaves bipinnatifid, acute, broader at the outer part. Seeds naked, winged, surmounted by a tridentate crown. Native of Crete. Cult. in gardens. Common. Fl. yellow, cream-coloured, white, &c. July, Sept. Annual. Bot. gal. 273.

3. ! *C. leucanthemum*. (L. sp. 1251.) *Great White Ox Eye*. Dry pastures. Common. Fl. of the disk yellow; of the ray, white. June, July. Perennial. E. B. 601., H. 367., Bot. gal. 272.

4. ! *C. segetum*. (L. sp. 1254.) *Common Marigold; Yellow Ox Eye*. Corn fields. Common. Fl. yellow. June, Aug. Annual. E. B. 540., H. 367., Bot. gal. 273.

XXX. MATRICARIA (L. gen. n. 967., D. C. in Lind. 259.)

Capitules heterogamous. *Florets* of the ray female, ligulate, obtuse, truncated, dentate; of the disk, hermaphrodite, tubular, 5-fid; the tube terete. *Involucre* campanulate, imbricated with obtuse, not scarioso, scales. *Receptacle* conical, naked. *Branches* of the styles not appendiculated. *Achenes* not winged, angular, with a large epigynous disk. *Pappus* none, or reduced to a coroniform scale. — Herbs, with pinnatifid, generally alternate, leaves.

1. ! *M. chamomila*. (L. sp. 1256.) *Wild Chamomile*. Corn fields and waste ground. Fl. disk yellow; ray, white. Aug. Annual. E. B. 1232., H. 367.

XXXI. PYRETHRUM. (Sm., D. C. l. c.)

Capitules heterogamous, radiate. *Florets* of the ray ligulate, female; the ligulæ oblong; of the disk, tubular, hermaphrodite, 5-dentate; tube thick, generally compressed, 2-winged, sometimes terete. *Involucre* campanulate, imbricated with scales, which are membranaceous at the margin. *Receptacle* rather flat, naked. *Branches* of the styles of the disk exappendiculated. *Achenes* not winged, uniform, angular, crowned by a coroniform pappus. — Herbs, with variously pinnatifid, generally alternate, leaves. *Capitules* solitary or corymbose.

- | | |
|---|-------------------|
| Stem erect; achenes quadrangular; leaves petiolated | 1. P. PARTHENIUM. |
| Stem spreading; achenes triangular; leaves sessile | |
| pappus entire; leaves not fleshy, annual | 2. P. INODORUM. |
| pappus 4-dentate or lobed; leaves fleshy, perennial | 3. P. MARITIMUM. |

1. ! *P. parthenium*. (Sm.) *Common Feverfew*. Waste places. Frequent. Fl. of the disk yellow; of the ray, white. July. Perennial. E. B. 1231., H. 367. Matric. Parth. (L. sp. 1255.)

2. ! *P. inodorum*. (Sm.) *Corn Feverfew, or Scentless Mayweed*. Fields and rubbish. Common. Fl. disk yellow; ray, white. Aug., Oct. Annual. E. B. 676., H. 367. Chrys. inod. (L. sp. 1253.)

3. ! *P. maritimum*. (Sm.) *Sea-side Feverfew*. Sea coast. Common. Fl. as in *P. inod.*, but smaller. July. Perennial. E. B. 971., H. 367. Mat. marit. (L. sp. 1256.)

Division III. ARTEMISIÆ. (D. C. prod. v. p. 499.)

Receptacle without paleæ. *Capitules* discoid, homogamous, or heterogamous. Corolla of the disk terete, having a bifid style.

XXXII. ARTEMISIA. (L. gen. n. 945., D. C. in Lind. 260.)

Capitules few-flowered, homogamous, or heterogamous. *Florets* all flosculous and tubular; of the ray, slender, in 1 row, female; of the disk, hermaphrodite, 5-dentate, fertile. *Involucre* ovate or round, imbricated with dry scales, which are scariose at the margin. *Receptacle* naked or pilose, convex, tuberculated. *Achenes* obovate, without pappus; with a small epigynous disk.—Herbs or small shrubs, with alternate divided leaves. *Capitules* in panicles or racemes.

<i>Receptacle</i> pilose	-	-	-	-	1. A. ABSINTHIUM.
<i>Receptacle</i> naked					
leaves glabrous, at least on the upper surface					
leaves bipinnatifid, with linear segments				-	3. A. CAMPESTRIS.
leaves pinnate, downy beneath	-	-		-	5. A. VULGARIS.
leaves covered with down on both surfaces					
florets generally 10, or more, in a capitule					
involucre glabrous	-	-	-	-	3. A. CAMPESTRIS.
involucre pubescent; stem shrubby	-			-	6. A. ABROTANUM, clt.
florets generally less than 8 in a capitule					
leaves multifid or pinnatifid	-	-		-	2. A. MARITIMA.
leaves lanceolate, entire, or 2-3-lobed	-			-	4. A. CÆRULESCENS.

1. ! *A. Absinthium*. (L. sp. 1188.) *Common Wormwood*. Waste places. Common on a chalky soil. Fl. dingy yellow. Aug. Perennial. E. B. 1230., H. 359.

2. ! *A. maritima*. (L. sp. 1186.) *Sea Wormwood*. Sea shores; especially along the banks of creeks. Fl. yellow. Sept. Perennial. H. 359.

α. ! *pendula*. Racemes drooping. *A. maritima*. (E. B. 1706.)

β. ! *erecta*. Racemes erect. *A. gallica*. (Willd., E. B. 1001., Lind. syn.)

Hooker remarks, that both these varieties may be seen growing from the same root.

3. *A. campestris*. (L. sp. 1185.) *Field Southernwood*. Dry sandy heaths. Norfolk and Suffolk. Rare. Fl. dusky yellow. Aug. Perennial. E. B. 338., H. 359. *Oligosporus campestris*. (Cass.)

4. *A. cærulescens*. (L. sp. 1189.) *Lavender-leaved Mugwort*. Near Boston, Lincolnshire, and Isle of Wight. Sea-shore. Very rare. Fl. yellow. Aug., Sept. Perennial. E. B. 2426., H. 359.

5. ! *A. vulgaris*. (L. sp. 1188.) *Mugwort*. Hedges. Common. Fl. whitish yellow. Aug. Perennial. E. B. 978., H. 359.

6. *A. Abrotanum*. (L. sp. 1185.) *Southernwood*; *Old Man*. Stem shrubby, erect, with compact branches; lower leaves bipinnate; upper ones pinnate, capillaceous. Involucre pubescent, hemispherical. Native of the south of Europe. Commonly cultivated in gardens. Fl. yellowish. Sept. Small shrub. Bot. gal. i. p. 277.

Note. *A. Dracunculus* (L. sp. 1189.), *Tarragon*, with lanceolate glabrous leaves, is cultivated for culinary purposes, but not common.

XXXIII. TANACETUM. (L. gen. n. 944., D. C. in Lind. l. c.)

Capitules heterogamous, flosculous. *Florets* of the ray in 1 row, tubular female, 3-lobed; of the disk, hermaphrodite, fertile, 5-lobed. *Involucre* campanulate, imbricated with linear close-pressed scales, which are membranous at the apex. *Receptacle* more or less convex, naked. *Achenes* angular, with a large epigynous disk. *Pappus* coroniform, minute, equal, or rather more marked on the outer side; sometimes almost wanting.—Herbs, with much divided alternate leaves. *Capitules* in a corymb, or panicle.

1. ! *T. vulgare*. (L. sp. 1148.) *Tansy*. Borders of fields and roads. Not uncommon. Fl. yellow. Aug. Perennial. E. B. 1229., H. 359.

Subtribe V. GNAPHALIÆ. (Less., D. C. prod. v. p. 500.)

Capitules homogamous or heterogamous, discoid; very rarely radiate; sometimes 1-flowered. *Anthers* caudate. *Achenes* crowned with a pilose or setaceous pappus; rarely bald.—Leaves generally alternate.

Division I. HELICHRYSÆ. (D. C. l. c.)

Capitules not glomerate. *Receptacle* epaleaceous.

XXXIV. HELICHRYSUM. (Gærtn., D. C. in Lind. l. c.)

Capitules homogamous or heterogamous, many-flowered. *Florets* all flosculous, tubular; outer ones female, in 1 row; central ones hermaphrodite; or all hermaphrodite. *Involucre* imbricated with unequal, obtuse, scariose, often coloured scales; radiant. *Receptacle* naked. *Achenes* not rostrate; with a terminal areole. *Pappus* in 1 row, uniform.

Stem few-flowered; flowers large - - - 1. *H. BRACTEATUM*, clt.
Corymb compound, many-flowered; flowers small 2. *H. ARENARIUM*, clt.

1. *H. bracteatum*. (D. Don.) *Large Yellow Everlasting, or Helichrysum*. Leaves lanceolate, repand, rather rough. Scales of the involucre rounded, spreading. Native of New South Wales. Cult. Common. Fl. large, yellow, everlasting. July, Oct. Annual. *H. Chrysanthemum*. (Pers. ii. 414.)

2. *H. arenarium*. (D. C.) *Sand Helichrysum*. Herbaceous. Leaves hoary, tomentose, obtuse; radical ones spathulato-lanceolate; cauline ones linear, lanceolate. Corymb compound. Native of the south of Europe. Cult. Common. Fl. yellow. July, Sept. Perennial. Bot. gal. 270. *Gnap. aren.* (L. sp. 1195.)

XXXV. GNAPHALIUM. (L. gen. n. 946., D. C. in Lind. l. c.)

Capitules many-flowered, discoid; the outer rows female; the central ones hermaphrodite; all tubular. *Involucre* cylindrical, imbricated with shining linear scales, which are generally coloured at the margin, and as long as the florets. *Receptacle* naked, foveolate. *Branches* of the styles of the hermaphrodite flower penicellated only at the apex. *Achenes* not rostrate. *Pappus* sessile, pilose, deciduous.

Flowers yellow, conspicuous - - - 1. *G. LUTEO-ALBUM*.
Flowers white, inconspicuous
stem very much branched - - - 4. *G. ULIGINOSUM*.
stem simple, or only branched at the base
stem erect; flowers axillary, in a leafy spike - 2. *G. SYLVATICUM*.
stem decumbent; flowers solitary or racemose - 3. *G. SUPINUM*.

1. *G. luteo-album*. (L. sp. 1196.) *Jersey Cudweed*. Jersey; Cambridgeshire and Norfolk. Fl. yellow. July, Aug. Annual. E. B. 1002., H. 360.

2. *G. sylvaticum*. (L. sp. 1200.) *Highland Cudweed*. Thickets and pastures. Scotland. Fl. scales shining, with broad brown border. Aug. Perennial. H. 360.

α. tomentosum. Leaves woolly on both sides. *G. sylvat.* (E. B. 913.)

β. ! rectum. Leaves nearly glabrous above. Spike long, more interrupted. *G. rectum*. (E. B. 124.)

3. *G. supinum*. (L. syst. 623.) *Dwarf Cudweed*. Summits of Highland Mountains. Fl. as in *G. sylvat.* July, Aug. Perennial. E. B. 1193., H. 360.

4. ! *G. uliginosum*. (L. sp. 1201.) *Marsh Cudweed*. Sandy places; occasionally inundated. Common. Fl. scales shining, yellowish. Aug., Sept. Annual. E. B. 1194., H. 360.

XXXVI. FILAGO. (L. gen. n. 995., D. C. in Lind. l. c.)

Capitules discoid, tubular; outer rows female. Central *florets* few, hermaphrodite. *Involucre* subconical, imbricated with a few lanceolate scariose scales, which are longer than the few-flowered capitules. *Receptacle* conical, naked in the disk; paleaceous in the ray. *Palææ* linear, enclosing the achenes. *Branches* of the styles of hermaphrodite flowers downy. *Achenes* terete, ovoid, not stipitate nor rostrate. *Pappus* capillari-pilose, caducous, more developed in the centre than in the circumference.—Branching, slender, tomentose, white herbs; with lineari-lanceolate crowded leaves, and clustered capitules.

Capitules composed of few (3—4) florets
clusters of flowers longer than the leaves - - - 1. *F. MINIMA*.
clusters shorter than the leaves - - - 2. *F. GALLICA*.
Capitules composed of many (8—10) florets - - - 3. *F. GERMANICA*.

1. ! *F. minima*. (Gray. nat. arr.) *Least Cudweed*. Dry heaths. Very common. Fl. yellowish. July, Aug. Annual. Gray. nat. arr. ii. p. 461. *Gnap. min.* (E. B. 1157., H. 361.) *Gnap. mont.* (? L. sp. 1311.)

2. ! *F. gallica*. (L. sp. 1312.) *Narrow-leaved Cudweed*. Gravelly fields in Essex, Kent, &c., but rare. Fl. as in *F. minima*. July, Aug. Annual. Gnap. gal. (E. B. 2369., H. 361.)

3. ! *F. germanica*. (L. sp. 1311.) *Common Cudweed*. Sandy and clayey pastures. Common. Fl. scales yellowish, shining. July, Aug. Annual. Gnap. germ. (E. B. 946., H. 361.)

Division II. ANTENNARIÆ. (D. C. prod. v. p. 500.)

Capitules diœcious or subdiœcious, not glomerate. *Styles* of the male flowers simple. *Receptacle* epaleaceous, or only paleaceous at the margin.

XXXVII. ANTENNARIA. (R. Brown, D. C. in Lind. l. c.)

Capitules diœcious or subdiœcious. *Florets* all tubular, male. *Anthers* with 2 bristles at the base. *Style* very simple, or slightly bifid. *Pappus* penicellated at the apex. Female *florets* filiform. *Limb* small. *Pappus* pilose, capillary. *Involucre* turbinate, imbricated with scariose coloured scales. *Receptacle* naked, pitted. — Perennial tomentose herbs, with the capitules in corymbs.

Stem branched above; leaves lanceolate, pointed 1. *A. MARGARITACEA*.
Stem procumbent, not branched; radical leaves spatulate 2. *A. DIOICA*.

1. *A. margaritacea*. (Gærtn.) *Pearly Everlasting*. Moist meadows, near Bocking, Essex; South and North Wales. Doubtful native. Fl. white. Aug. Perennial. Gray, ii. p. 459. Gnap. margarit. (L. sp. 1198., E. B. 2018., H. 360.)

2. *A. dioica*. (Gærtn.) *Mountain Cudweed*. Mountain heaths. Common. Fl. scales often rose-coloured. June, July. Perennial. Lind. syn. 144. Gnap. dioic. (L. sp. 1199., E. B. 267., H. 360.)

β. hyperborea. Leaves woolly on both sides. *Antennaria hyperb.* (Don E. B. 2640.) Isle of Skye.

Subtribe VI. SENECTIONEÆ. (Less., D. C. prod. v. p. 500.)

Capitules homogamous or heterogamous, discoid or radiate. *Anthers* ecaudate. *Achenes* crowned by a pilose or setaceous pappus; outer ones very rarely bald. Leaves alternate.

XXXVIII. CINERARIA. (L. gen. n. 957., D. C. in Lind. l. c.)

Capitules rayed. *Florets* of the ray ligulate; of the disk, hermaphrodite: all fertile. *Involucre* in 1 row of many scales, which are equal and scariose at the margin. *Receptacle* slightly convex or flat, dotted, naked. *Branches* of the style of the disk surmounted by a very short cone, beset with ascending pubescence. *Achenes* erostrate, plano-obcompressed; the outer ones 2-4-winged; wings ciliated. *Pappus* pilose, longer than the achene. — Herbs, with entire or divided leaves. Capitules corymbose.

Florets of the ray purple - - 1. *C. CRUENTA*, clt.
Florets of the ray yellow
stem much branched; flowers corymbose - - 2. *C. PALUSTRIS*.
stem simple; flowers umbellate - - 3. *C. CAMPESTRIS*.

1. *C. cruenta*. (Willd.) *Purple Cineraria*. Flowers corymbose. Leaves cordate, angulato-dentate; purplish beneath. Petioles winged, auriculated at the base. Native of the Canary Islands. Much cultivated as a green-house plant for the London market. Fl. purple. March, April. Perennial. Pers. ii. p. 439.

2. *C. palustris*. (L. sp. 1243.) *Marsh Fleawort*. Margins of pools and ditches. Norfolk and Cambridgeshire. Fl. yellow. June, July. Perennial. E. B. 151., H. 366., Bot. gal. 261.

3. ! *C. campestris*. (Retz.) *Field Fleawort*. Middle and south of England, on the chalk downs. Fl. yellow. May, June. Perennial. E. B. 152., H. 366., Bot. gal. 261.

β. integrifolia. (D. C.) few-flowered. Upper leaves entire at the base. *C. integrifolia*. (Jacq.) Rocks about Holyhead.

XXXIX. DORONICUM. (L. gen. n. 959., D. C. in Lind. l. c.)

Capitules rayed. *Florets* of the ray ligulate, female; of the disk, hermaphrodite. *Involucre* in a double row of subequal linear scales. *Receptacle* conical, naked, or alveolate. *Branches* of the styles of the disk truncated, penicellated only at the apex. *Achenes* erostrate, not winged; turbinate and

furrowed. *Pappus* of the disk setose, in many rows; of the ray, none. — Perennial herbs, with pilose leaves; the lower ones petiolated, the upper semi-amplexicaule.

- | | | | | |
|------------------------|---|---|---|----------------------|
| Radical leaves cordate | - | - | - | 1. D. PARDALIANCHES. |
| Radical leaves ovate | - | - | - | 2. D. PLANTAGINEUM. |

1. *D. Pardalianches*. (L. sp. 1247.) *Great Leopard's Bane*. Gatton, near Norwich; mountains of Northumberland and Scotland. Fl. yellow. June, July. Perennial. E. B. 2654., H. 366.

2. *D. plantagineum*. (L. sp. 1247.) *Plantain-leaved Leopard's Bane*. Road sides. Salinghall, Essex. June, July. Perennial. H. 366. *D. Pardalianches*. (E. B. 630.)

XL. SENECIO. (L. gen. n. 953., D. C. in Lind. l. c.)

Capitules generally heterogamous, sometimes homogamous; discoid or radiate. *Florets* of the ray female, ligulate; of the disk, tubular, hermaphrodite. *Involucre* in 1 row of linear equal scales, having unequal bracts, closely pressed to its base before flowering; afterwards reflexed, and sphacellated at the tip. *Receptacle* flat, naked, or paleaceously fringed. *Branches* of the styles of hermaphrodite flowers truncated, and penicellated only at the apex. *Achenes* erostrate, not winged; terete, glabrous or roughish. — Polymorphous herbs, with alternate, entire, or pinnatifid leaves. *Capitules* solitary, or variously aggregated; with yellow, white, or purple flowers.

- | | | | |
|--|---|---|----------------------|
| Flowers discoid | | | |
| stem viscous above | - | - | 8. S. VISCOSUS. |
| stem not viscous | | | |
| stem weak, 6—8 inches high | - | - | 9. S. VULGARIS. |
| stem firm, 2—3 feet high | - | - | 3. S. JACOBÆA. |
| Flowers radiate | | | |
| ray revolute | | | |
| stem viscous above | - | - | 8. S. VISCOSUS. |
| stem not viscous | | | |
| upper leaves pinnatifid, sessile; bracteoles | - | - | 6. S. SYLVATICUS. |
| with blunt discoloured tips | - | - | |
| leaves sinuated, amplexicaule; bracteoles | - | - | 7. S. LIVIDUS. |
| with sharp, not discoloured, tips | - | - | |
| ray patent, not revolute | | | |
| leaves pinnatifid | | | |
| capitules purple | - | - | 1. S. ELEGANS, clt. |
| capitules yellow | | | |
| segments of leaves somewhat revolute, | - | - | 2. S. TENUIFOLIUS. |
| pale and downy beneath | - | - | |
| segments of leaves not revolute, glabrous | | | |
| segments of leaves narrow and distant | - | - | 5. S. SQUALIDUS. |
| leaves more or less lyrate | | | |
| root leaves undivided; achenes gla- | - | - | 4. S. AQUATICUS. |
| brous | - | - | |
| leaves all divided; achenes of the | - | - | 3. S. JACOBÆA. |
| disk pilose | - | - | |
| leaves undivided | | | |
| stem hollow; leaves semiamplexicaule, | - | - | 10. S. PALUDOSUS. |
| tomentose beneath | - | - | |
| stem solid; leaves sessile, minutely downy | - | - | 11. S. SARRACENICUS. |
| or glabrous | - | - | |

1. *S. elegans*. (Ait.) *Purple Ragwort*. Leaves piloso-viscid, pinnatifid, equal, much spreading. Involucre rough. Native of the Cape of Good Hope. Cult. in gardens. Fl. purple. July, Sept. Annual. Bot. mag. 238.

2. ! *S. tenuifolius*. (Jacq.) *Hoary Ragwort*. Road sides and hedges, on a chalky soil. Fl. yellow. July, Aug. Perennial. E. B. 574., H. 364.

3. ! *S. Jacobea*. (L. sp. 1219.) *Common Ragwort*. Way sides and pastures. Common. Fl. yellow. July, Aug. Perennial. E. B. 1130., H. 365.

4. ! *S. aquaticus*. (Huds. angl.) *Marsh Ragwort*. Wet places. Fl. yellow. July, Aug. Perennial. E. B. 1131. H. 364.

5. *S. squalidus*. (L. sp. 1218.) *Squalid Ragwort*. Walls about Oxford; also near Biddeford, Devonshire. Fl. yellow. June, Oct. Annual. E. B. 600., H. 363.

6. † *S. sylvaticus*. (L. sp. 1217.) *Mountain Groundsel*. Dry upland soils. Fl. yellow. July. Annual. E. B. 748., H. 363.
7. *S. lividus*. (L. sp. 1216.) *Livid Groundsel*. On newly enclosed moors. Angushshire. Fl. yellow. Sept., Oct. Annual. E. B., 2515. *S. sylv. β.*, H. 363.
8. † *S. viscosus*. (L. sp. 1217.) *Stinking Groundsel*. Waste grounds on a gravelly or chalky soil. Fl. yellow. July, Aug. Annual. E. B. 32., H. 363.
9. † *S. vulgaris*. (L. sp. 1216.) *Common Groundsel*. Waste grounds and fields under cultivation. Very common. Fl. yellow, whole year. Annual. E. B. 747., H. 363.
10. *S. paludosus*. (L. sp. 1220.) *Great Fen Ragwort*. Ditches and fens in the eastern counties. Fl. yellow. June, July. Perennial. E. B. 650., H. 364.
11. *S. Sarracenicus*. (L. sp. 1221.) *Broad-leaved Ragwort*. Westmoreland, Cumberland, in moist pastures. Fl. yellow. July, Aug. Perennial. E. B. 2211., H. 364.

Tribe IV. CYNAREÆ. (Less., D. C. prod. v. p. 9.)

Style of the hermaphrodite flowers nodosely thickened above, and often penicellate at the knot. *Branches* of the style united or free, pubescent externally. Rows of *stigmas* not prominent, reaching to the apex of the branches, where they become confluent.

Subtribe I. CALENDULACEÆ. (D. C. in Lind. l. c.)

Capitules many-flowered. *Achenes* bald, rostrate. — Unarmed plants.

XLII. CALENDULA. (L. gen. n. 990., D. C. l. c.)

Capitules many-flowered, radiate. *Florets* of the ray female, fertile; of the disk, male. *Involucre* in 1 or few rows of lanceolato-linear leaflets. *Receptacle* flat, naked, pitted. *Achenes* arched inwards, rostrate, and variously appendiculated. *Pappus* none. — Herbs, with semiamplexicaule, entire, rough leaves, and terminal, solitary, yellow capitule.

Achenes muricated, all boat-shaped; leaves dentate 1. *C. OFFICINALIS*, clt. Outer *achenes* muricated, upright; leaves not dentate 2. *C. ARVENSIS*, clt.

1. *C. officinalis*. (L. sp. 1304.) *Common Marigold*. Native of the south of Europe. Very commonly cultivated. Fl. yellow. Annual.

2. *C. arvensis*. (L. sp. 1303.) *Field Marigold*. Native of the south of Europe. Cultivated, and found in corn fields and on rubbish. Indigenous, according to Gray. Fl. yellow. Annual. Gray, ii. p. 446.

Note. The *Calendula pluvialis*, with a white ray, remarkable for the manner in which it closes on the approach of rain, is removed by Lessing to *Dimorphotheca*, a genus nearly allied to *Leucanthemum*.

Subtribe II. XERANTHEMEÆ. (Less., D. C. in Lind. 261.)

Capitules many-flowered, heterogamous, discoid. Outer row of *florets* female; the rest hermaphrodite. *Achenes* erostrate, turbinate; in the hermaphrodite flowers, villous; in the female flowers, glabrous and bald. *Epigynous disk* large. *Arcole* terminal. *Pappus* not surrounded at the base by a prominent margin, paleaceous, long; the *paleæ* semilanceolate, few, entire. *Involucre* scarioso, radiating in many rows; the leaflets distinct.

XLIII. XERANTHEMUM. (L. gen. n. 947., D. C. bot. gal. 294.)

Capitules many-flowered, discoid. *Florets* of the centre hermaphrodite; outer *florets* bilabiate, 5-fid, female. *Involucre* imbricated with unarmed scarioso scales; the inner ones longest, coloured, and resembling a ray. *Receptacle* paleaceous. Central *achenes* not winged, crowned with a 5-awned pappus; marginal ones bald. — Unarmed herbs, with the leaves tomentose beneath.

1. *X. annuum*. (L. sp. 1201.) *Annual Xeranthemum, or Everlasting*. Outer scales of the involucre scarioso, glabrous; inner ones lanceolate, obtuse, patent. Native of the south of Europe. Cult. in gardens. Fl. purple or rose-coloured. July, Sept. Annual. Bot. gal. 294.

Subtribe III. CARLINEÆ. (D. C. l. c.)

Capitules many-flowered, never diœcious. *Filaments* of stamens smooth, distinct. *Achenes* erostrate, generally villous. *Pappus* paleaceo-setaceous, generally in 1 row, sometimes many rows; not surrounded by a prominent

margin. *Involucre* of many rows of distinct, generally spinous, leaflets. *Receptacle* alveolate, or paleaceous and fringed.

XLIII. SAUSSUREA. (D. C. mém. comp. p. 22.)

Capitules homogamous. *Florets* all hermaphrodite, tubular. *Anthers* nearly entire, without appendages at the base. *Involucre* generally cylindrical, imbricated with unarmed scales. *Receptacle* paleaceous. *Pappus* in 2 rows; the outer row short, filiform, denticulate; the inner, long, plumose. — Unarmed plants, with more or less aggregated capitules.

1. *S. alpina*. (D. C.) *Alpine Saussurea*. Moist alpine rocks in Scotland, and on Snowdon. Fl. purple. Aug. Perennial. E. B. 599., H. 354.

XLIV. CARLINA. (L. gen. n. 410., D. C. l. c. in Mém. comp.)

Capitules homogamous. *Florets* all hermaphrodite, tubular, regular, 5-fid. *Anthers* caudate at the base. *Involucre* of many spinous scales; the outer ones sinuato-spinous, divaricating at the apex; the inner ones very long, scariose, liguliform, coloured, and much resembling a ray. *Receptacle* covered with paleæ, which are cleft into setiform laciniae. *Achenes* villous. *Pappus* in 1 row, ramose. — Spiny herbs.

1. ! *C. vulgaris*. (L. sp. 1161.) *Carlina Thistle*. Dry hilly pastures. Common on the chalk. Fl. purplish, with a yellow ray of scales. June. Biennial. E. B. 1144., H. 357.

Subtribe IV. CENTAUREÆ. (Less., D. C. l. c.)

Capitules many-flowered, generally heterogamous. External *florets* in 1 row, neuter, rarely homogamous. *Involucre* in many rows of distinct leaflets. *Receptacle* paleaceo-fimbriate. *Achenes* erostate. *Pappus* setaceo-pilose, in many rows of different lengths (very rarely wanting); placed within the margin which surrounds the epigynous disk.

XLV. CENTAUREA. (L. gen. n. 984., D. C. l. c.)

Capitules as above. *Filaments* papillose. Neutral *florets* large, 5-partite. *Involucre* imbricated with foliaceous or scariose scales, spinous or unarmed. *Paleæ* of receptacle laciniate. *Achenes* attached to the receptacle by a lateral hilum; compressed. *Pappus* in many rows, pilose.

Scales of involucre not spinous

upper leaves linear, lanceolate or ovate, not pinnatifid

outer scales of involucre deeply pinnatifid - - 1. *C. JACEA*.

scales ciliated or plumose, not pinnatifid

scales black; ray none, or purple - - 2. *C. NIGRA*.

scales green, with brown margin; ray large, blue

stem simple, 1—2-flowered; leaves decurrent 3. *C. MONTANA*, clt.

stem branched, many-flowered; leaves sessile 4. *C. CYANUS*.

leaves all pinnatifid - - - 5. *C. SCABIOSA*.

Scales of involucre spinous

flowers purple or rose-coloured; leaves spinulose

capitules terminal; stem rather glabrous; scales } 6. *C. ISNARDI*.

palmato-spinose - - - } 7. *C. CALCITRAPA*.

capitules lateral; stem pilose; scales doubly spinous - - - } 8. *C. SOLSTITIALIS*.

flowers yellow; leaves unarmed - - -

1. *C. Jacea*. (L. sp. 1293.) *Brown Radiant Knapweed*. Waste places. Sussex. Fl. purple. Aug., Sept. Perennial. E. B. 1678., H. 369.

2. ! *C. nigra*. (L. sp. 1288.) *Black Knapweed*. Meadows and pastures. Common. Fl. purple. June, Aug. Perennial. E. B. 278., H. 370.

β. *nigrescens*. (Hook.) Flowers radiant.

3. *C. montana*. (L. sp. 1289.) *Mountain Knapweed*. Scales of the involucre ovate, ciliated at the margin. Leaves lanceolato-acuminate, decurrent, tomentose, very entire, or sinuato-dentate at the base. Native of the Alps. Cult. Common in gardens. Fl. of the disk purple; of the ray, blue. June, Aug. Perennial. Bot. mag. 77.

4. ! *C. Cyanus*. (L. sp. 1289.) *Corn Bluebottle*. Corn fields. Common. Fl. of the disk purple; of the ray, blue; or, when cultivated, varying to pink or white. July, Sept. Annual. E. B. 277., H. 370.

5. ! *C. scabiosa*. (L. sp. 1291.) *Great Knapweed*. Barren pastures; especially on a chalky soil. Fl. purple. July, Aug. Perennial. E. B. 56., H. 370.

6. *C. Isnardi*. (L. sp. 1295.) *Jersey Star-thistle*. Pastures in Jersey and Guernsey. Fl. light purple. July, Aug. Perennial. E. B. 2256., H. 370.

7. ! *C. Calcitrapa*. (L. sp. 1297.) *Common Star-thistle*. Gravelly and sandy places. Not frequent. Fl. rose-coloured. July, Sept. Perennial. E. B. 125., H. 370.

8. ! *C. solstitialis*. (L. sp. 1297.) *Yellow Star-thistle*. Borders of fields which have been sown with lucerne or saintfoin, introduced with the seed. Dartford, &c. Fl. yellow. July, Sept. Annual. E. B. 243., H. 371.

* * *C. moschata* (*Purple Sweet Sultan*) and *C. suaveolens* (*Yellow Sweet Sultan*) are often cultivated as annuals. They may be easily distinguished from the foregoing species by the scales of the involucre being neither ciliated nor spinous.

Subtribe V. SILYBEÆ. (Less., D. C. in Lind. p. 262.)

Filaments monadelphous. *Pappus* in many rows. *Achenes* glabrous, compressed.

XLVI. SILYBUM. (Gærtn., Vail., D. C. in Lind. l. c.)

Capitules homogamous. *Florets* all tubular, hermaphrodite. *Involucre* ventricose, imbricated. *Scales* foliaceous at the base; closely pressed together, appendiculated, spreading, and spinous; pointed at the apex. *Receptacle* paleaceous; the *paleæ* linear, setaceous. *Pappus* piloso-setaceous, long, in many rows; coherent at the base into a ring; deciduous. *Achenes* with a papilliform nectary. — Herbs, with very spinous leaves and capitules.

1. ! *S. marianum*. (Gærtn.) *Milk Thistle*. Waste places. Not unfrequent. Wimbledon Common. Near Leatherhead; Gravesend. Fl. purple. July. Biennial. E. B. 976., H. 355.

Subtribe VI. CARDUINEÆ. (Less., D. C. in Lind. l. c.)

Capitules many-flowered. *Filaments* distinct, papillose. *Involucre* in many rows of distinct spinous leaflets. *Receptacle* alveolate or paleaceo-fimbriated. *Achenes* glabrous, erostrate. *Pappus* paleaceo-setaceous, in many rows; never surrounded at the base by a prominent margin; generally long and caducous.

XLVII. ONOPORDON. (L. gen. n. 927., D. C. l. c.)

Capitules homogamous. *Florets* all tubular, hermaphrodite. *Involucre* ventricose, imbricated with long pungent scales. *Receptacle* deeply alveolate. *Achenes* compressed, 4-ribbed, with a papilliform nectary. *Pappus* long, in many rows, and coherent together into a ring at the base. — Tomentose herbs, with large spinous leaves, and solitary purple capitules.

1. ! *O. Acanthium*. (L. sp. 1158.) *Cotton Thistle*. Waste grounds and road sides, in a gravelly soil; about Richmond, Croydon, &c. Fl. purple. Aug. Biennial. E. B. 977., H. 357.

XLVIII. CYNARA. (L. gen. n. 928., D. C. l. c.)

Capitules homogamous. *Florets* all tubular, hermaphrodite. *Involucre* large, ventricose, imbricated with numerous scales, which are fleshy at the base, and rather spinous and entire at the apex. *Receptacle* large, fleshy; the *paleæ* dissected into setiform laciniae. *Achenes* not ribbed, oblong, compressed. *Pappus* long, plumose.

1. *C. Scolymus*. (L. sp. 1159.) *Artichoke*. Leaves subspinous; some pinnatifid; others undivided. Scales of the involucre ovate. Native of the south of Europe. Cult. Common. Fl. purplish-blue. Aug., Sept. Perennial.

The *C. Cardunculus*, the *Cardoon*, is probably a variety of *C. Scolymus*, with the leaves more spinous, and all pinnatifid.

XLIX. CARDUUS. (L. gen. n. 925., D. C. l. c.)

Capitules homogamous. *Florets* all tubular, hermaphrodite. *Involucre* ovate, ventricose, imbricated with linear simple scales, which are spinous at the apex. *Receptacle* paleaceous; the *paleæ* fimbriated. *Achenes* not ribbed, compressed, oblong. *Pappus* pilose, long, united together into a ring at the base. — Spinous herbs.

Capitules solitary, drooping - - - 1. *C. NUTANS*.

Capitules subaggregate, drooping - - - 2. *C. CRISPUS*.

Capitules more or less aggregate, rather erect

capitules somewhat stalked; involucre globose - 3. *C. ACANTHOIDES*.
 capitules sessile; involucre cylindrical - 4. *C. TENUIFLORUS*.

1. ! *C. nutans*. (L. sp. 1150.) *Musk Thistle*. Waste ground in dry soils; especially on chalk. Fl. purple. July, Aug. Biennial. E. B. 1112., H. 355.

2. *C. crispus*. (L. sp. 1150.) *Jagged Thistle*. Reigate Hill, Surrey. Fl. purple. June, July. Biennial. Lind. syn. 325.

3. ! *C. acanthoides*. (L. sp. 1150.) *Wetted Thistle*. Way sides and waste places. Fl. purple or white. June, July. Annual. E. B. 973., H. 355.

4. ! *C. tenuiflorus*. (Curtis.) *Slender-flowered Thistle*. Waste places. Common. Fl. light purple. June, July. Annual. E. B. 412., H. 355.

L. CIRSIUM. (Tournef., D. C. l. c.)

Capitules homogamous. *Florets* hermaphrodite; sometimes diœcious, equal. *Involucre* obovate, imbricated with spinous pointed scales. *Receptacle* paleaceous; the *paleæ* fimbriated. *Achenes* not ribbed, compressed. *Pappus* long, plumose, united into a ring at the base. — Spinous, or rarely unarmed, herbs.

Leaves decurrent; stem winged

capitules in clusters; leaves dark green - 1. *C. PALUSTRE*.

capitules not clustered, large; leaves downy beneath - 2. *C. LANCEOLATUM*.

Leaves sessile, or partially decurrent; stem not winged

leaves downy beneath

stem many-headed; involucre spinous

stem paniced; involucre ovate, rather cottony - 4. *C. FORSTERI*.

stem much-branched; involucre globular, arachnoideo-tomentose - 5. *C. ERIOPHORUM*.

stem 1—2-headed; involucre slightly spinous, or unarmed; leaves semiamplexicaule

involucre dark green; root repent - 6. *C. HETEROPHYLLUM*.

involucre cottony; root fibrous - 7. *C. PRATENSE*.

leaves glabrous, or slightly villous

stem many-headed - 3. *C. ARVENSE*.

stem 1- or few-headed

stem none, or very short; root ligneous - 8. *C. ACAULE*.

stem fully developed; root tuberculated - 9. *C. BULBOSUM*.

1. ! *C. palustre*. (Scop.) *Marsh Plume-thistle*. Moist meadows. Common. Fl. purple or white. July. Biennial. *Cnicus palustris*. (H. 356.) *Carduus palustris*. (L. sp. 1151., E. B. 974.)

2. ! *C. lanceolatum*. (Scop.) *Spear Plume-thistle*. Pastures. Common. Fl. purple. July, Aug. Biennial. *Carduus lanceolatus*. (L. sp. 1149., E. B. 107.) *Cnicus lanceolatus*. (H. 356.)

3. ! *C. arvense*. (Lam.) *Creeping Plume-thistle*. Fields and road sides. Very common. Fl. purple or white. July. Perennial. *Carduus arvensis*. (E. B. 975.) *Cnicus arvensis*. (H. 356.) *Serratula arvensis*. (L. sp. 1149.)

4. ! *C. Forsteri*. *Branching Bog Plume-thistle*. St. George's Hill; Weybridge. In boggy places. Fl. purple. July, Aug. Perennial. *Cnicus Forsteri*. (H. 356.)

5. ! *C. eriophorum*. (Scop.) *Woolly-headed Plume-thistle*. Waste grounds, in chalky and limestone soils. Fl. purple. July, Sept. Biennial. *Carduus eriophorus*. (L. sp. 1153., E. B. 386.) *Cnicus eriophorus*. (H. 356.)

6. ! *C. heterophyllum*. (D. C., Fl. fr.) *Melancholy Plume-thistle*. Moist mountain pastures. Fl. purple. July. Perennial. *Carduus heterophyllus*. (L. sp. 1154., E. B. 675.) *Cnicus heterophyllus*. (H. 357.)

7. ! *C. pratense*. (D. C., Fl. fr.) *Meadow Plume-thistle*. Moist pastures and shady places. Fl. pale purple. July. Perennial. *Carduus pratensis*. (E. B. 177.) *Cnicus pratensis*. (H. 357.)

8. ! *C. acaule*. (All.) *Dwarf Plume-thistle*. Dry gravelly and chalky pastures. Common. Fl. purple. July. Perennial. *Carduus acaulis*. (L. sp. 1156., E. B. 161.) *Cnicus acaulis*. (H. 357.)

9. *C. bulbosum*. (D. C., Fl. fr.) *Bulbous Plume-thistle*. Near Fonthill, Wiltshire. Fl. purple. Aug. Perennial. Bot. gal. 287. *Cnicus tuberosus*. (E. B. 2562., H. 357.)

LI. LAPPULA. (Tourn., D. C. l. c.)

Capitules homogamous. *Florets* hermaphrodite. *Involucre* globose, imbricated.

cated with scales, which terminate in hooked spines. *Receptacle* flat, paleaceous. *Paleæ* setaceous. *Achenes* compressed, 4-sided. *Pappus* in many rows of short caducous hairs; not united at the base. — Branching herbs, with petiolated rough leaves.

Involucre arachnoideo-tomentose - - - 1. *L. TOMENTOSA*.
Involucre glabrous - - - 2. *L. GLABRA*.

1. ! *L. tomentosa*. (Lam.) *Downy-headed Burdock*. Way sides. Common. Fl. purple. July, Aug. Biennial. *Arctium Bardana*. (E. B. 2478.) *Arctium Lappa* β. (H. 354.)

2. ! *L. glabra*. (Lam.) *Smooth-headed Burdock*. Way sides, and in woods. Fl. purple. July. Biennial. Bot. gal. 282. *Arctium Lappa*. (L. sp. 1143., E. B. 1228.) *Arctium Lappa* α. (H. 354.)

Subtribe VII. SERRATULÆ. (Less., D. C. in Lind. l. c.)

Capitules many-flowered, homogamous. *Involucre* in many rows of distinct scales. *Paleæ* of receptacle fimbriated. *Achenes* erostrate. *Pappus* in many (rarely 1) rows; surrounded by a prominent margin at the base.

LII. SERRATULA. (L. gen. n. 924., D. C. l. c.)

Capitules diœcious, homogamous; bisexual from the abortion of one sex in some of the florets. *Involucre* imbricated with sharp unarmed scales. *Paleæ* divided longitudinally into linear setæ. *Achenes* compressed, with a lateral areole. *Pappus* in many rows. — Glabrous herbs, with sharply serrated, entire, or pinnatifid leaves.

1. ! *S. tinctoria*. (L. sp. 1144.) *Sawwort*. Thickets. Very common. Fl. purple. July, Aug. Perennial. E. B. 38., H. 354.

** *Ligulifloræ*. (D. C. prod. v. p. 9.)

All the *florets* hermaphrodite, ligulate.

Tribe V. CICHORACEÆ. (D. C. l. c.)

Capitules radiatiform, homogamous, never diœcious. *Florets* equal. *Style* cylindrical above, with long obtuse branches, equally hirsute-pubescent. *Stigmatoid* rows, prominent, narrow, terminating before the middle of the branches, and never confluent. *Corolla* ligulate, 5-dentate. *Pollen* rough, generally dodecahedral. — Lactescent plants, with alternate leaves.

Subtribe I. LAPSANÆ. (Less., D. C. in Lind. p. 263.)

Receptacle ebracteolate. *Achenes* bald.

LIII. LAPSANA. (L. gen. n. 919., D. C. l. c.)

Capitules homogamous. *Florets* ligulate, hermaphrodite. *Involucre* in a single row of upright connivent scales with 4—5 short bractæas at the base. *Receptacle* flat, naked. *Achenes* caducous, not enveloped in the scales of the involucre. *Pappus* none.

1. ! *L. communis*. (L. sp. 1141.) *Common Nipplewort*. Sides of ditches and cultivated ground. Common. Fl. yellow. July, Aug. Annual. E. B. 844., H. 353.

Subtribe II. HYOSERIDÆ. (Less., D. C. in Lindl. p. 263.)

Receptacle ebracteolate. *Pappus* coroniform, or consisting of many entire, broad, and generally short, *paleæ*.

LIV. ARNOSERIS. (Gærtn. D. C. l. c.)

Capitules homogamous. *Florets* ligulate, hermaphrodite. *Involucre* becoming globose; of 1 row of equal acutely keeled scales; with a few small bractæas at the base; glabrous. *Achenes* obpyramidal, surmounted by an entire, coriaceous, coroniform pappus. — Herbs, with radical leaves. Scape thickened above.

1. ! *A. pusilla*. (Gærtn.) *Dwarf Nipplewort*. Corn fields; gravelly soils. Fl. yellow. June, July. Annual. *Hyoseris minima*. (L. sp. 1138., E. B. 95.) *Lapsana pusilla*. (H. 354.)

LV. CICHORIUM. (L. gen. n. 921., D. C. l. c.)

Florets ligulate, hermaphrodite. *Involucre* cylindrical; of 8 scales, connate at the base, becoming reflexed; and having at their base 5 short oblong bractæas, forming a second, or external, involucre. *Receptacle* naked or subpilose.

Achenes erostrate, turbinate, compressed, striated. *Pappus* short, equal, in 2 rows. *Paleæ* elliptical, obtuse. — Herbs, with axillary capitules. Flowers blue or yellow.

Capitules sessile, in pairs - - - - - 1. *C. INTYBUS*.

Peduncles in pairs; one long, 1-flowered; the other } 2. *C. ENDIVIA*, clt.
short, 3—4-flowered - - - - - }

1. ! *C. Intybus*. (L. sp. 1142.) *Wild Succory*. Waste places, and borders of fields. In gravelly and chalky soils. Fl. blue. July, Aug. Perennial. E. B. 539., H. 354.

2. *C. Endivia*. (L. sp. 1142.) *Garden Endive*. Native of India. Cult. in gardens. Common. Fl. blue. Aug., Sept. Annual. Bot. gal. 310.

LVI. TOLPIS. (Adans., D. C. l. c.)

Florets ligulate, hermaphrodite. *Involucre* in many rows; the inner scales erect; the outer ones very narrow, linear, numerous, becoming divergent. *Receptacle* alveolate. *Achenes* turbinate, striated, erostrate, uniform. *Pappus* of the outer achenes sessile, pilose, very short, in 1 row; of the central ones, a membranaceous border, crowned by 2—10 very long awns.

1. *T. barbata*. (Gærtn.) *Bearded, Purple-eyed, or Spanish, Hawkweed*. Annual herb. Leaves lanceolate, the lower ones dentate. Capitules large, with the centre black, the margin yellow. Native of the borders of the Mediterranean. Much cultivated in flower-gardens. July, Sept. Annual. *Drepania barb.* (Bot. gal. 305.) *Crepis barb.* (L. sp. 1131.)

Subtribe III. HYPOCHÆRIDÆ. (Less., D. C. in Lindl. l. c.)

Receptacle bracteolate. *Pappus* paleaceous, very narrow, semilanceolate; of the inner achenes, pinnatisect.

LVIII. HYPOCHÆRIS. (L. gen. n. 928., D. C. l. c.)

Capitules homogamous. *Florets* ligulate, hermaphrodite. *Involucre* long conical; the *scales* numerous, imbricated, glabrous, flat; coloured at the apex. *Receptacle* flat, paleaceous; the *paleæ* lanceolate, long. *Achenes* striated, rostrate; *beak* in the outer ones very short; in the inner, elongated. *Pappus* in a double row; the inner row plumose, stipitate; the outer subsetaceous, short, sessile. — Smooth annual herbs. Leaves radical.

1. ! *H. glabra*. (L. sp. 1141.) *Smooth Cat's-ear*. Fields, in a gravelly soil. Fl. yellow. July, Aug. Annual. E. B. 575., H. 353.

LVIII. ACHYROPHORUS. (Gærtn., D. C. l. c.)

Capitules homogamous. *Florets* ligulate, hermaphrodite. *Involucre* oblong, imbricated; the *scales* numerous, carinated, rough. *Receptacle* rather convex, paleaceous; the *paleæ* linear, long, deciduous. *Achenes* rostrate, uniform. *Pappus* in a double row; the inner plumose, the outer subsetaceous, short; all stipitate. — Perennial herbs. Leaves radical.

Stem solitary; leaves oblong, dentate, spotted; involucre } 1. *A. MACULATUS*.
glabrous - - - - - }

Stems numerous, branched; leaves runcinate; involucre } 2. *A. RADICATUS*.
hispid - - - - - }

1. ! *A. maculatus*. (Scop.) *Spotted Cat's-ear*. Open, chalky, and limestone pastures. Fl. deep yellow. July. Perennial. Gray, ii. p. 427. *Hypochæris macul.* (L. sp. 1140., E. B. 225., H. 353.)

2. ! *A. radicans*. (Scop.) *Long-rooted Cat's-ear*. Meadows and pastures. Common. Fl. yellow. July. Perennial. Gray, ii. p. 427. *Hypoch. radic.* (L. sp. 1140., B. E. 831., H. 353.)

Subtribe IV. SCORZONERÆ. (Less., D. C. in Lindl. l. c.)

Receptacle ebracteolate. *Pappus* paleaceous; the *paleæ* very narrow, semilanceolate; of the disk, plumose; very rarely all scabrous.

LIX. THRINCIA. (Roth. D. C. l. c.)

Florets all ligulate, hermaphrodite. *Involucre* angular, imbricated. *Scales* dilated at the base. *Receptacle* alveolate. *Achenes* uniform, rostrate, with a short continuous beak. *Pappus* of the outer achenes in 1 row, coroniform, dentate; of the inner ones in many rows, plumose. — Herbs, with entire radical leaves. Capitules solitary.

- Leaves sinuately dentate; hairs simple - - - 1. *T. HIRTA*.
 Leaves dentate; hairs furcate - - - 2. *T. HISPIDA*.

1. ! *T. hirta*. (Roth.) *Hairy Thrincia*. Gravelly pastures and moors. Fl. yellow. July, Aug. Perennial. H. 348. *Leontod. hirtum*. (L. sp. 1123.) *Hedypnois hirta*. (E. B. 555.)

2. ! *T. hispida*. (Roth.) *Hispid Thrincia*. Stony and sandy places. Gray's nat. arrang. ii. p. 428. Fl. yellow. July, Aug. Perennial. *Aparg. hispid.* (H. 347.) *Hedypnois hispid.* (E. B. 554.) *Leon. hispid.* (Lind.)

LX. APARGIA. (Schreb. D. C. l. c.)

Florets ligulate, hermaphrodite. *Involucre* unequally imbricated with hirsute black scales. *Receptacle* alveolate. *Achenes* uniform, tapering into a beak. *Pappus* in a double row, uniform, plumose, or denticulated; with narrow, linear, uniform paleæ. — Perennial herbs, with runcinate radical leaves, and large capitules. Flowers yellow.

1. *A. Taraxaci*. (Willd.) *Dandelion Hawkbit*. Mountains of Wales and Scotland. Fl. yellow. Aug. Perennial. H. 347. *Hedypn. Tarax.* (E. B. 1109.) *Hierac. Tarax.* (L. sp. 1125.)

LXI. OPORINA. (Don, D. C. l. c.)

Florets all ligulate, hermaphrodite. *Involucre* imbricated. *Receptacle* naked. *Achenes* terete, transversely rugose, tapering into a short beak. *Pappus* in 1 row, plumose, scarioso, and dilated at the base. — Perennial herbs. Leaves radical.

1. ! *O. autumnalis*. (Don.) *Autumnal Hawkbit*. Meadows and pastures. Common. Fl. yellow. Aug. Perennial. Lind. syn. 162. *Leont. autumn.* (L. sp. 1123.) *Hedypn. aut.* (E. B. 830.) *Aparg. aut.* (H. 348.)

LXII. TRAGOPOGON. (L. gen. n. 905., D. C. l. c.)

Florets ligulate, hermaphrodite. *Involucre* simple. *Scales* 8—10, united. *Receptacle* naked, dotted. *Achenes* longitudinally striated, rostrate, with a lateral areole. *Pappus* in many rows, plumose, uniform. *Paleæ* subcorneous, prolonged into 5 naked points. — Herbs, with foliose stems, and entire semi-amplexicaule leaves.

Flowers yellow

involucre about as long as the florets; peduncles } 1. *T. PRATENSIS*.
 cylindrical - - - - - }

involucre much longer than the corolla; peduncles } 2. *T. MAJOR*.
 thickened upwards - - - - - }

Flowers purple - - - - - 3. *T. PORRIFOLIUS*.

1. ! *T. pratensis*. (L. sp. 1109.) *Yellow Goat's Beard*. Meadows and pastures. Common. Fl. yellow. June. Biennial. E. B. 434., H. 344.

2. *T. major*. (Jacq.) *Greater Goat's Beard*. Banks of the Tweed. Fl. yellow. June, July. Biennial. H. 344.

3. ! *T. porrifolius*. (L. sp. 1110.) *Purple Goats' Beard, or Salsify*. Moist meadows; but not common. Fl. purple. May, June. Perennial. E. B. 638., H. 345.

LXIII. SCORZONERA. (L. gen. n. 906., D. C. l. c.)

Florets ligulate, hermaphrodite. *Involucre* imbricated; the margin of the scales membranous. *Receptacle* naked. *Achenes* erostrate, not stipitate, having a lateral areola. *Pappus* in many rows, uniform, substipitate, scabrous or plumose.

1. *S. hispanica*. (L. sp. 1112.) *Garden Salsify*. Stem ramose, 5—6 flowered. Leaves amplexicaule, entire, dentate at the base. Native of the south of Spain. Cult. in gardens. Bot. gal. 309.

LXIV. PICRIS. (L. gen. n. 907., D. C. l. c.)

Florets ligulate, hermaphrodite. *Involucre* hispid, in 1 row of numerous equal scales, having many unequal linear bractees at their base. *Receptacle* naked, flat. *Achenes* terete, transversely striated, with a terminal areole; not stipitate, tapering into a very short beak. *Pappus* in a double row, sessile; the outer subcapillary, the inner plumose. — Hispid ramose herbs.

1. ! *P. hieracioides*. (L. sp. 1115.) *Hawkweed Picris*. Road sides and borders of fields. Common. Fl. yellow. July, Aug. Biennial. E. B. 196., H. 345.

LXV. HELMINTHIA. (Juss., D. C. l. c.)

Florets ligulate, hermaphrodite. *Involucre* of 2 rows, the inner scales 8, equal; the outer ones 5, foliaceous, loose. *Receptacle* flat, naked. *Achenes* plano-obcompressed, transversely striated. *Pappus* in many rows, plumose, pedicellated on the tapering apex of the achene. — Hispid herbs.

1. ! *H. echinoides*. (Gærtn.) *Bristly Ox-tongue*. Road sides, in a clayey soil. Fl. yellow. June, July. Annual. H. 345. *Picris* echinoid. (L. sp. 1114., E. B. 972.)

Subtribe V. LACTUCEÆ. (Less., D. C. in Lind. l. c.)

Receptacle ebracteolate, or rarely bracteolate. *Pappus* filiform, generally unequal; silvery, very soft, fugacious, never plumose. *Hairs* linear, not flattened nor broader at the base.

Division I. LACTUCEÆ. (Less.)

Achenes rostrate.

LXVI. LACTUCA. (L. gen. n. 909., D. C. l. c.)

Capitules few-flowered. *Florets* all ligulate, hermaphrodite. *Involucre* oblong, cylindrical, imbricated; the scales membranous at the margin. *Receptacle* naked. *Achenes* plano-obcompressed, not winged; the beak long, filiform. *Pappus* stipitate, pilose, soft, in many rows, deciduous. — Herbs, with blue or yellow flowers.

Keel, or central nervure of the leaves, prickly	
cauline leaves linear, lanceolate, entire	- 1. L. SALIGNA.
cauline leaves sinuated, pinnatifid, or dentate	
leaves spreading	- 2. L. VIROSA.
leaves nearly upright	- 3. L. SCARIOLA.

Keel, or central nervure of the leaves, not prickly	
leaves rounded or ovate, not pinnatifid	- 4. L. SATIVA, clt.
leaves lyrato-pinnatifid	- 5. L. MURALIS.

1. ! *L. saligna*. (L. sp. 1119.) *Small Wild Lettuce*. Sea banks, on a chalky soil. Gravesend and south of England. Fl. yellow. Aug. Biennial. E. B. 707., H. 347.

2. ! *L. virosa*. (L. sp. 1119.) *Strong-scented Wild Lettuce*. Way sides, on a clayey or chalky soil. Not uncommon. Fl. yellow. Aug. Biennial. E. B. 1957., H. 346.

3. ! *L. scariola*. (L. sp. 1119.) *Prickly Wild Lettuce*. Cambridgeshire; Southend, Essex; also near Islington. On waste ground. Fl. yellow. Aug. Perennial. E. B. 268., H. 346.

4. *L. sativa*. (L. sp. 1118.) *Garden Lettuce*. Native country unknown. Cult. in gardens. All the varieties of lettuce are supposed to spring from the *L. sativa*. Fl. yellow. Aug., Sept. Annual. Bot. gal. 296.

5. ! *L. muralis*. (Less.) *Ivy-leaved Wall Lettuce*. On old walls, and on shaded cliffs. Fl. yellow. July. Annual. Perennial. Lind. 157. Prenanth. mur. (L. sp. 1121., E. B. 457., H. 347.)

LXVII. TARAXACUM. (Haller, D. C. l. c.)

Capitules many-flowered. *Florets* ligulate, hermaphrodite. *Involucre* imbricated with weak narrow scales; the outer ones often spreading. *Receptacle* naked, flat. *Achenes* terete or angular, not winged, but having a long slender beak. *Pappus* in many rows, pilose, stipitate. — Perennial herbs. Leaves radical. Scape 1-headed, fistulous.

Outer scales of involucre spreading; leaves runcinate	1. T. DENS LEONIS.
Outer scales erect; leaves sinuato-dentate	- 2. T. PALUSTRE.

1. ! *T. Dens Leonis*. (Desf.) *Common Dandelion*. Meadows and pastures. Common. Fl. yellow. May, Nov. Perennial. Bot. gal. 300. Leontodon Tarax. (L. sp. 1122., E. B. 510., H. 347.)

2. ! *T. palustre*. (D. C.) *Marsh Dandelion*. Wet pastures and moist heaths. Fl. yellow. June, Sept. Perennial. Bot. gal. 300. Leont. pal. (E. B. 553., H. 347.)

LXVIII. BARKHAUSIA. (Mœnch, D. C. l. c.)

Capitules many-flowered. *Florets* ligulate, hermaphrodite. *Involucre* of 1 row of subequal scales, having a calycle of short, subulate, loose bractees at

the base; ribbed when ripe. *Receptacle* naked, flattish. *Achenes* not winged, transversely rugose; the inner ones tapering into a subulate beak. *Pappus* in many rows, pilose, stipitate; that of the circumference short.

1. ! *B. foetida*. (D. C.) *Fetid Hawk's-beard*. Dry chalky ground. Norfolk, Kent, &c. Fl. yellow. June, July. Biennial. H. 353. Crep. foet. (L. sp. 1133., E. B. 406.)

LXIX. CREPIS. (L. gen. n. 914., D. C. l. c.)

Capitules many-flowered. *Florets* ligulate, hermaphrodite. *Involucre* becoming ventricose, and having a calycle of loose spreading bracteoles at the base; ribbed when in fruit. *Receptacle* flat, subalveolate. *Achenes* not winged, terete, attenuated into a very short beak. *Pappus* in many rows, pilose, white, sessile, deciduous.

Leaves glabrous or subglabrous; radical leaves runcinate 1. *C. TECTORUM*.

Leaves downy or hispid

radical leaves runcinato-pinnatifid - - - 2. *C. BIENNIS*.

radical leaves oblong-obovate - - - 3. *C. PULCHRA*.

1. ! *C. tectorum*. (L. sp. 1135.) *Smooth Hawk's-beard*. Meadows and pastures. Common. Fl. yellow. July. Annual. E. B. 1111., H. 352.

2. ! *C. biennis*. (L. sp. 1136.) *Rough Hawk's-beard*. Chalky pastures in the south of England. Fl. yellow. June, July. Biennial. E. B. 149., H. 353.

3. *C. pulchra*. (L. sp. 1134.) *Elegant Hawk's Beard*. Near Forfar. Fl. yellow. June, Sept. Annual. E. B. 2325. Prenanth hieracefol. (H. 347.)

Division II. SONCHÆ. (Less., D. C. l. c.)

Achenes not rostrate; truncate at the apex.

LXX. SONCHUS. (L. gen. n. 908. D. C. l. c.)

Capitules many-flowered. *Florets* ligulate, hermaphrodite. *Involucre* oblong; ventricose at the base, imbricated with 2 or 3 rows of unequal scales, which become connivent. *Receptacle* flat, naked. *Achenes* uniform, not winged, or rostrate; truncate at the apex, and not attenuated; plano-compressed, transversely rugose. *Pappus* in many rows, short, sessile, pilose.

Flowers blue - - - - - 1. *S. ALPINUS*.

Flowers yellow

involucre glabrous - - - - - 4. *S. OLERACEUS*.

involucre hispid

leaves rough-edged, sagittate at the base; flowers numerous - - - } 2. *S. PALUSTRIS*.

leaves ciliato-dentate, cordate at the base - - - } 3. *S. ARVENSIS*.

1. *S. alpinus*. (? L. sp. 1115.) *Blue Alpine Sow Thistle*. Mountains of Scotland. Fl. blue. July, Aug. Perennial. H. 345. *S. cæruleus*. (E. B. 2425.)

2. ! *S. palustris*. (L. sp. 1116.) *Tall Marsh Sow Thistle*. Marshy places about Greenwich, Blackwall, Croydon. Fl. yellow. July, Aug. Perennial. E. B. 933—935., H. 346.

3. ! *S. arvensis*. (L. sp. 1116.) *Corn Sow Thistle*. Corn fields. Common. Fl. yellow. Aug. Perennial. E. B. 674., H. 346.

4. ! *S. oleraceus*. (L. sp. 1116.) *Common Sow Thistle*. Waste places and cultivated grounds. Common. Fl. yellow. Aug. Annual. E. B. 343., H. 346.

β. *asper*. (D. C.) Leaves with rounded auricles; lower ones sessile. Fruit ribbed, scarcely cancellate. *S. oleraceus* γ. and δ. (Lin. and Smith.) *S. asper*. (Borr., E. B. 2765., 2766.)

Subtribe VI. HIERACIÆ. (Less., D. C. in Lind. l. c.)

Receptacle ebracteolate or bracteolate. *Pappus* pilose, rigid, fragile, most commonly becoming brownish or straw-coloured, never plumose; hairs perfectly linear, and not dilated at the base. *Achenes* either rostrate, with a continuous beak, or erostrate, cylindrical, truncated at the apex; the *pappus* being surrounded by a prominent margin at the base.

Division I. HIERACIÆ. (Less.)

Achenes erostrate, 10-ribbed.

LXXI. HIERACIUM. (L. gen. n. 913., D. C. l. c.)

Capitules many-flowered. *Florets* ligulate, hermaphrodite. *Involucre* imbricated with many linear oblong scales. *Receptacle* alveolate or villous, ebracteolate, becoming subglobose. *Achenes* angular, furrowed. *Pappus* sessile, pilose, in 1 row, uniform; generally of a reddish-brown colour. — Herbs, generally beset with dentate, stellate, or glandular hairs.

- Stem leafless, or, rarely, 1-leaved
 stem 1-flowered
 stolons, or creeping stems, from the collet of the root
 lower surface of the leaves downy - - 3. *H. PILOSELLA*.
 lower surface glabrous - - - 6. *H. AURICULA*, var.
 stolons none
 leaves entire, or slightly dentate - - 1. *H. ALPINUM*.
 leaves distinctly dentate, or incised - 2. *H. HALLERI*.
 stem generally many-flowered
 stolons from the collet of the root
 leaves hairy, green on both sides - - 6. *H. AURICULA*.
 leaves with only a few scattered hairs, sub- }
 glaucous beneath - - - } 4. *H. DUBIUM*.
 stolons none; flowers deep orange; invo- }
 lucre with black hairs - - - } 5. *H. AURANTIACUM*.
 Stem with few (1—2) leaves, many-flowered
 leaves slightly, if at all, dentate - - 7. *H. LAWSONI*.
 leaves distinctly dentate or sinuated
 leaves sinuated along the whole margin - 8. *H. PULMONARIUM*.
 leaves dentate only at the base - - 9. *H. MURORUM*.
 Stem with many leaves, many-flowered
 stem leaves amplexicaule
 plant generally glabrous - - - 11. *H. PALUDOSUM*.
 plant pilose or downy; often glandular
 radical leaves petiolated
 upper part of stem viscous, covered with }
 brown hairs; receptacle villous - } 14. *H. AMPLEXICAULE*.
 upper part of the stem not viscous
 stem angular, tubular, downy - - 12. *H. MOLLE*.
 stem solid, hairy; receptacle villous - 13. *H. CERINTHOIDES*.
 radical leaves more or less amplexicaule
 leaves cordate, distinctly amplexicaule - 16. *H. PRENANTHOIDES*.
 leaves ovato-lanceolate, slightly amplex- }
 icaule - - - - - } 17. *H. SABAUDUM*.
 stem leaves sessile
 leaves subpilose; radical ones distinctly pe- }
 tiolated - - - - - } 10. *H. SYLVATICUM*.
 leaves subglabrous; radical ones not petio-
 lated
 flowers imperfectly umbellate; leaves li- }
 near, green on both sides - - - } 18. *H. UMBELLATUM*.
 flowers cymose; leaves elliptico-lanceolate, }
 glaucous beneath - - - - - } 15. *H. DENTICULATUM*.

1. *H. alpinum*. (L. sp. 1124.) *Alpine Hawkweed*. Snowdon and Highland mountains. Fl. yellow. July, Aug. Perennial. E. B. 1110., H. 348.

2. *H. Halleri*. (Vill.) *Haller's Hawkweed*. Highland mountains. Fl. yellow. Aug. Perennial. H. 348. *H. villosum*. (E. B. 2379.)

3. ! *H. pilosella*. (L. sp. 1125.) *Common Mouse-ear Hawkweed*. Banks and dry pastures. Common. Fl. lemon-yellow. May, July. Perennial. E. B. 1093., H. 349.

4. *H. dubium*. (L. sp. 1125.) *Branching Mouse-ear Hawkweed*. Mountainous countries. Rare. Fl. yellow. July. Perennial. E. B. 2352., H. 349.

5. *H. aurantiacum*. (L. sp. 1126.) *Orange Hawkweed*. Woods, in the north of England and Scotland. Very doubtful native. Cult. in gardens. Common. Fl. orange. July, Aug. Perennial. E. B. 1469., H. 349.

6. *H. auricula*. (L. sp. 1126.) *Orange Mouse-ear Hawkweed*. Cumber-

land; near Grassmere. Fl. yellowish orange. July. Perennial. E. B. 2368. H. 350.

7. *H. Lawsoni*. (Vill.) *Glaucous hairy Hawkweed*. Mountains of Westmoreland, Wales, and Scotland. Fl. yellow. E. B. 2083., H. 350.

β. *ovata*. Leaves broadly ovate, lanceolate, entire, with long petioles. Hook. scot. 230.

8. *H. pulmonarium*. (Sm.) *Lungwort Hawkweed*. Mountainous valleys of Scotland. Fl. pale yellow. Aug. Perennial. E. B. 2307., H. 350.

9. ! *H. murorum*. (L. sp. 1128.) *Wall Hawkweed*. Woods, and on walls and rocks. Common. Fl. yellow. July, Aug. Perennial. E. B. 2082., H. 350.

10. ! *H. sylvaticum*. (Sm.) *Wood Hawkweed*. Mountain woods; walls and banks. Common. Fl. yellow. Aug. Perennial. E. B. 2031., H. 351.

β. ! *maculatum*. Leaves ovato-lanceolate, spotted with dark purple; with large teeth. *H. maculatum*. (E. B. 2121.)

γ. ! *pictum*. Leaves lanceolate, spotted and clouded with purple. H. 351.

11. *H. paludosum*. (L. sp. 1129.) *Succory-leaved Hawkweed*. Moist woods, in the north of England and Scotland. Fl. yellow. Aug. Perennial. E. B. 1094., H. 351.

12. *H. molle*. (Jacq.) *Soft-leaved Hawkweed*. Woods, in the north of England and Scotland. Fl. yellow. July, Aug. Perennial. E. B. 2210., H. 351.

13. *H. cerinthoides*. (L. sp. 1129.) *Honeywort Hawkweed*. Rocks, in the Highlands. Fl. yellow. Aug. Perennial. E. B. 2378., H. 351.

14. *H. amplexicaule*. (L. sp. 1129.) *Amplexicaule Hawkweed*. Kinross-shire and Clova Mountains. Walls of Oxford Garden. Fl. yellow. Aug. Perennial. E. B. 2690., H. 351.

15. *H. denticulatum*. (Sm.) *Dentate Hawkweed*. Perthshire, and in other parts of Scotland. Fl. yellow. July, Aug. Perennial. E. B. 2122., H. 352.

16. *H. prenanthoides*. (Vill.) *Rough-bordered Hawkweed*. River sides, in Scotland. Rare. Fl. yellow. Aug. Perennial. E. B. 2235., H. 352.

17. ! *H. sabaudum*. (L. sp. 1131.) *Shrubby Hawkweed*. Coppices, &c. Common. Fl. yellow. Aug., Sept. Perennial. E. B. 349., H. 352.

18. ! *H. umbellatum*. (L. sp. 1131.) *Narrow-leaved Hawkweed*. Stony or rocky places, and groves. Fl. yellow. Aug., Sept. Perennial. E. B. 1771., H. 352.

Order LIX. LOBELIACEÆ. (Juss., D. C. bot. gal. i. p. 310.)

Calyx adherent to the ovary; the limb 5-lobed (rarely entire). *Corolla* gamopetalous, inserted into the calyx, irregular, 5-lobed, with a deep longitudinal fissures above. *Stamens* 5, inserted into the calyx, alternate with the lobes of the corolla. *Anthers* cohering, oblong, adnate, throughout their whole length, to the filament, longitudinally dehiscent. *Pollen* oval. *Ovary* inferior, generally 2-celled. *Style* simple. *Stigma* surrounded by a membranaceous pitcher-shaped fringe. *Fruit* capsular, 2- (rarely 4-) celled; the cells many-seeded, dehiscing at the apex; sometimes a drupaceous, 2-celled, and many-seeded nut. *Seeds* attached to the parietes or axis. *Embryo* straight, enclosed within a thin fleshy albumen. *Radicle* directed towards the hilum. — Herbs or undershrubs, with alternate exstipulate leaves, and axillary or terminal flowers.

I. LOBELIA. (Lin. gen. n. 1006. D. C., Bot. gal. i. p. 310.)

Calyx 5-dentate. *Corolla* unequally 5-lobed, bilabiate. *Stamens* 5. *Anthers* oblong, connate into a tube. *Stigma* obtuse, subbilobed. *Capsule* crowned by the calyx, 2—3-celled. *Seeds* numerous, very small.

Flowers blue, or blue and white, or yellow

stem foliaceous; radical leaves petiolated, obovate

flowers in terminal racemes

flowers solitary, axillary

scape nearly naked; radical leaves sessile, rosulate,

linear, subcylindrical

Flowers bright scarlet

1. *L. Dortmanna*. (L. sp. 1318.) *Water Lobelia*. Lakes in the mountainous parts of England, Scotland, and Ireland; forming bright green, grass-like

plots under the water. Fl. pale blue, rising in spikes above the surface of the water. Aug. Perennial. E. B. 142., H. 115., Bot. gal. 310.

2. *L. urens*. (L. sp. 1321.) *Acrid Lobelia*. Devonshire, near Axminster and Ottery. Very rare. Fl. purple. Aug., Sept. Perennial. E. B. 953., H. 115.

3. *L. Erinus*. (L. sp. 1321.) *Creeping Blue Lobelia*. Leaves dentate; the lower ones obovate, petiolate; upper ones sessile, narrow. Peduncles 1-flowered, longer than the bracteas. Stem spreading. Native of the Cape of Good Hope. Cult. in borders. Common. Fl. blue, with a white or yellow throat. July, Sept. Perennial. Bot. mag. 901., Don sys. iii. p. 711.

* * *L. bicolor* and *L. pubescens* are also much cultivated. The former has oblong nearly sessile leaves; the corolla blue, with a yellow throat. *L. pubescens* is remarkably villous; the flowers white or blue, with a reddish tube.

L. syphilitica also has blue flowers, but is easily distinguished by its erect, thick, leafy racemes.

4. *L. cardinalis*. (L. sp. 1320.) *Common Cardinal Flower*. Leaves oblong, lanceolate, dentate; the tips cartilaginous, glabrous. Racemes terminal, unilateral, leafy. Native of Mexico. Cult. Common. Fl. scarlet. July, Aug. Perennial. Don. iii. p. 708., Bot. mag. 320.

* * *L. fulgens* and *L. splendens* also have scarlet flowers. The former is downy, and has the margin of the leaves revolute; the latter is glabrous, the margin of the leaves neither revolute nor cartilaginous.

Order LX. CAMPANULACEÆ. (Juss., D. C. bot. gal. i. p. 311.)

Calyx adnate to the ovary, generally 5-lobed, persistent. *Corolla* gamopetalous, inserted into the upper part of the tube of the calyx, 5-lobed, generally regular and marcescent; valvate in æstivation. *Stamens* generally 5, inserted into the calyx beneath the corolla, distinct from it, and alternate with its lobes. *Anthers* generally distinct, sometimes slightly connate; oblong, 2-celled, with spherical pollen. *Ovary* glandular above. *Style* 1, more or less hairy. *Stigma* naked, 3-5-fid. *Capsule* 3-, rarely 5-celled, dehiscing by 3-5 lateral apertures, or by incomplete valves at the apex. *Cells* many-seeded. *Seeds* attached to a central placenta of the cells. *Embryo* straight, in the axis of a fleshy albumen. *Radicle* inferior. — Herbs, with a milky juice, and alternate leaves. Flowers distinct, or in involucreted heads.

Anthers connate before the ejection of the pollen	-	1. JASIONE.
Anthers distinct		
corolla campanulate	-	- 3. CAMPANULA.
corolla rotate, or sometimes apparently tubular		
flowers solitary or subsolitary	-	- 4. SPECULARIA.
flowers collected into a bracteated spike or capitulum	-	- } 2. PHYTEUMA.

Tribe I. JASIONEÆ.

Capsule dehiscing at the apex. *Anthers* combined.

I. JASIONE. (L. gen. n. 1005., D. C. Bot. gal. i. p. 311.)

Calyx 5-fid. *Corolla* rotate; the tube very short, with 5 long linear segments. *Stamens* 5. *Anthers* united into a tube. *Stigma* bifid. *Capsule* 2-celled. — Flowers collected in a many-leaved involucre.

1. ! *J. montana*. (L. sp. 1317.) *Annual Sheep's Scabious*. Dry heathy pastures. Fl. blue. June, Aug. Annual. E. B. 882., H. 115.

β. *maritima*. (D. C.) Very hairy, prostrate. Cauline leaves short. Outer scales of involucre obtuse. *Calyx* hirsute. On the sea shore, near Portsmouth.

Tribe II. CAMPANULEÆ.

Capsule dehiscing at the sides. *Anthers* distinct.

II. PHYTEUMA. (L. gen. n. 220., Bot. gal. i. p. 311.)

Calyx 5-fid. *Corolla* rotate; the tube very short; the segments long, linear more or less cohering. *Stamens* 5. *Stigma* 3-partite. *Capsule* 3-celled, dehiscing by lateral apertures. — Flowers collected into spikes or bracteated heads.

Flowers in a rounded head, bluish purple	-	- 1. P. ORBICULARE.
Flowers in an oblongo-cylindrical spike, greenish-white	-	2. P. SPICATUM.

1. ! *P. orbiculare*. (L. sp. 242.) *Round-headed Rampion*. Chalky hills. Leatherhead, &c. Fl. blue. Aug., Sept. Perennial. E. B. 142., H. 115.
 2. *P. spicatum*. (L. sp. 242.) *Spiked Rampion*. About Mayfield and Waldron, Sussex. Fl. greenish white. June, July. Perennial. E. B. 2598., H. 116.

III. CAMPANULA. (L. gen. n. 218., Bot. gal. i. p. 312.)

Calyx 5-fid; the *sinuses* sometimes reflexed. *Corolla* 5-fid, generally campanulate. *Stamens* 5; the *filaments* expanded at the base. *Stigma* 3-5-filiform. *Capsule* 3-5-celled, dehiscing laterally.

- | | | | | |
|--|---|---|---|----------------------|
| Capsules covered by the reflexed sinuses of the calyx | - | - | - | 1. C. MEDIUM, clt. |
| Sinuses of calyx not reflexed | | | | |
| flowers collected into a capitulum or compact spike | - | - | - | 2. C. GLOMERATA. |
| flowers in racemes or loose panicles | | | | |
| segments of the corolla more than half its length | - | - | - | 9. C. PATULA. |
| segments of the corolla less than half its length | | | | |
| corolla perfectly glabrous | | | | |
| lobes of calyx covered with hairs | - | - | - | 4. C. TRACHELIUM. |
| lobes of calyx glabrous | | | | |
| stems erect or ascending; upper leaves sessile | | | | |
| lower leaves roundish, petiolated | - | - | - | 6. C. ROTUNDIFOLIA. |
| lower leaves oblong | | | | |
| lobes of calyx entire | | | | |
| leaves all perfectly glabrous | - | - | - | 7. C. PERSICIFOLIA. |
| lower leaves pubescent | - | - | - | 8. C. RAPUNCULUS. |
| lobes of calyx dentate at the base | - | - | - | 9. C. PATULA. |
| stems procumbent; all the leaves petiolated | - | - | - | 10. C. HEDERACEA. |
| corolla pubescent or hairy | | | | |
| stem quite simple; flowers, while in blossom, erect; leaves ovato-lanceolate | - | - | - | 3. C. LATIFOLIA. |
| stem branched; flowers always drooping; leaves cordato-lanceolate | - | - | - | 5. C. RAPUNCULOIDES. |

1. *C. Medium*. (L. sp. 236.) *Canterbury Bells*. Stem erect. Leaves sessile, ovato-lanceolate, crenato-dentate. Lobes of calyx ovato-acuminate, with the sinuses reflexed. Corolla campanulate, inflated. Native of the south of Europe. Cult. Very common. Fl. purple, blue, or white. July, Sept. Biennial. Bot. gal. i. p. 313.

2. ! *C. glomerata*. (L. sp. 235.) *Clustered Bellflower*. On chalk and clay soils. Common. Fl. purple, rarely white. July, Aug. Perennial. E. B. 90., H. 117.

3. *C. latifolia*. (L. sp. 233.) *Giant Bellflower*. Common in Scotland and the north of England; but rare in the midland counties. Shady woods. Fl. blue. July, Aug. Perennial. E. B. 302., H. 117.

4. ! *C. Trachelium*. (L. sp. 235.) *Nettle-leaved Bellflower*. Woods. Not uncommon. Fl. violet blue. July, Aug. Perennial. E. B. 12., H. 117.

5. *C. rapunculoïdes*. (L. sp. 234.) *Creeping Bellflower*. Woods and fields. Rare. Oxfordshire and Yorkshire. Fl. bluish violet. July, Aug. Perennial. E. B. 1369., H. 117.

6. ! *C. rotundifolia*. (L. sp. 232.) *Harebell*. Dry and hilly places. Common. Fl. deep blue. July, Sept. Perennial. E. B. 866., H. 116.

7. *C. persicifolia*. (L. sp. 232.) *Peach-leaved Bellflower*. Woods, near Cullen, Scotland. Doubtful native. Fl. blue. July. Perennial. E. B. 2773., H. 116.

* * *C. pyramidalis* (L. sp. 233.), *Pyramidal Bellflower*, is much cultivated. It may be readily distinguished by its glabrous stem and leaves; rotate purple corolla, and pyramidal inflorescence.

C. versicolor only differs in having the base of the corolla white, the segments being purple.

8. ! *C. Rapunculus*. (L. sp. 232.) *Rampion Bellflower*. In the southern and eastern counties, on gravelly soil. Fl. blue. July, Aug. Perennial. E. B. 283., H. 116.

9. ! *C. patula*. (L. sp. 232.) *Spreading Bellflower*. Pastures and hedges in the south-east of England, but rare. Fl. dark blue. July, Aug. ? Biennial. E. B. 42., H. 116.

10. ! *C. hederacea*. (L. sp. 240.) *Ivy-leaved Bellflower*. Moist shady woods; but more common in the west of England and Wales. Fl. pale purple. July, Aug. Perennial. E. B. 73., H. 118.

IV. SPECULARIA. (Heist., Alph. D. C. monog. camp. p. 344.)

Calyx 5-lobed, with an elongated prismatic or long obconical tube. *Corolla* rotate, 5-lobed. *Stamens* 5, free, shorter than the corolla. *Anthers* longer than the short membranous and pilose filaments. *Style* included, pilose; the *hairs* secund, arranged in 10 rows. *Stigmas* 3, filiform. *Capsule* long, prismatic, 3-celled, dehiscing by 3 valves near the apex.

Corolla the length of the lobes of the calyx - 1. *S. SPECULUM*, clt.

Corolla half the length of the lobes of the calyx - 2. *S. HYBRIDA*.

1. *S. Speculum*. (A. D. C. monog. 346.) *Venus's Looking-glass*. Stem branched. Branches 3-flowered. Calyx with a prismatic tube, narrow at the apex; and linear, lanceolate, spreading lobes, which are reflexed after flowering. Native of the south of Europe. Cult. Very common. Corolla deep violet; the centre white. June, Sept. Biennial. Bot. mag. 102. Camp. spec. (L. sp. 239.) Prismatic. spec. (Bot. gal. 312.)

2. ! *S. hybrida*. (A. D. C. 348.) *Corn Venus's Looking-glass*. Corn fields, on a chalky soil. Fl. rose-coloured. Aug. Annual. Camp. hybrida. (L. sp. 239., E. B. 375., H. 118.) Prismatic. spec. (Lind. 135.)

Order LXI. VACCINEÆ. (D. C. bot. gal. i. p. 315.)

Calyx adherent, persistent, gamophyllous, entire or 4—6-lobed. *Corolla* gamopetalous, 4—5-partite, inserted into an epigynous disk; generally urceolate. *Stamens* distinct, definite, double the number of the lobes of the corolla; inserted under the corolla. *Anthers* often 2-horned, opening by pores. *Ovary* single. *Style* 1. *Stigma* 1, simple. *Berry* persistent, crowned by the calyx; 4—5-celled; the *cells* 1 or many-seeded. *Embryo* straight in the axis of a fleshy albumen. *Cotyledons* very short. *Radicle* long, inferior. — Undershrubs, with coriaceous alternate leaves.

Segments of corolla erect - - - - - 1. *VACCINIUM*.
Segments of corolla reflexed - - - - - 2. *OXYCOCCUS*.

I. VACCINIUM. (L. gen. n. 483., Bot. gal. i. p. 315.)

Calyx entire or dentate. *Corolla* urceolate or campanulate, 4—5-fid; the segments erect. *Stamens* 8—10. *Berry* globose, umbilicated.

Leaves deciduous; anthers with 2 dorsal awns

leaves serrated, mucronate; branches angular; calyx } 2. *V. MYRTILLUS*.
entire - - - - -

leaves entire, obtuse; branches round; calyx 4-den- } 1. *V. ULIGINOSUM*.
tate - - - - -

Leave persistent, evergreen; anthers not awned - 3. *V. VITIS IDÆA*.

1. *V. uliginosum*. (L. sp. 499.) *Great Bilberry*. Mountain bogs in Cumberland, Westmoreland, Scotland, and Ireland. Fl. flesh-coloured. May. Small shrub. E. B. 381., H. 181.

2. ! *V. Myrtillus*. (L. sp. 498.) *Common Bilberry*. In mountainous districts. Very common. Also on heaths, at Hampstead, &c. Fl. green, with a red tinge. May. Small shrub. E. B. 456., H. 181.

3. *V. Vitis idæa*. (L. sp. 500.) *Red Whortleberry, or Cowberry*. Dry heaths in mountainous countries. Fl. pale flesh-colour. May, June. Small shrub. E. B. 598., H. 182.

II. OXYCOCCUS. (Rich., Don syst. iii. p. 857.)

Calyx dentate. *Corolla* 4-partite; the segments reflexed. *Berry* globose, many-seeded, umbilicated.

1. ! *O. palustris*. (Rich.) *Common Cranberry*. In peat bogs, among Sphagnum. Common in the north of England. Found at Guildford. Fl. bright rose-colour. June. Undershrub. *V. Oxycoccus*. (L. sp. 500., E. B. 319. H. 182.)

* * * *O. macrocarpus*, the American cranberry, has been cultivated in England,

on the margins of ponds, for the sake of the fruit, which is much larger, but not so well-flavoured, as our native cranberry. See Don syst. iii. p. 858.

Order LXII. ERICACEÆ. (D. Don.) ERICINEÆ. (D. C. bot. gal. i. p. 316.)

Flowers hermaphrodite, subsymmetrical, regular. *Calyx* persistent, 4—5-cleft. *Corolla* 4-rarely 5-fid, or partite; regular or irregular, marcescent. *Stamens* alternate with the segments of the corolla; 4, 5, 8, or 10 in number, inserted into the base of the calyx or corolla. *Anthers* 2-horned at the base, 2-celled; the cells hard and dry, generally dehiscing by a pore. *Style* 1. *Stigma* 1. *Ovary* free. *Fruit* many-celled, baccate, or, more commonly, capsular, many-seeded. *Valves* often dehiscing in the middle. *Seeds* minute, adherent to a central placenta. *Embryo* straight in the middle of a fleshy albumen. *Cotyledons* semicylindrical. — Mostly shrubs. Leaves generally evergreen.

Fruit baccate, dry or fleshy

- anthers with 2 pores at the tip; berry granulated 6. ARBUTUS.
anthers without pores; berry smooth - - - 7. ARCTOSTAPHYLOS.

Fruit capsular

shrubs or undershrubs

- divisions of the calyx 4; stamens 8
fruit dehiscing at the middle of the valves - 1. ERICA.
fruit dehiscing at the sutures
corolla oblong-ovoid; calyx green - - 5. DABŒCIA.
corolla campanulate, 4-cleft; calyx double, }
coloured - - - - } 2. CALLUNA.
divisions of the calyx 5; stamens 5—10
anthers lodged in 10 niches of the corolla - 9. KALMIA, clt.
anthers free; corolla without niches
corolla deeply 5-parted, or 5-petalous - 11. LEDUM, clt.
corolla 5-fid or dentate
stamens declinate, exserted - - - 8. RHODODENDRON, clt.
stamens not declinate, shorter than the
corolla
stamens 5; corolla short, campanulate 10. AZALEA.
stamens 10; corolla globose
fruit dehiscing at the middle of the }
valves - - - - } 3. ANDROMEDA.
fruit dehiscing at the sutures - 4. PHYLLODOCE.
herbs - - - - - 12. PYROLA.

Tribe I. ERICEÆ. (D. Don.) ERICACEÆ. (D. C. bot. gal. i. p. 316.)

Anthers 2-celled. *Ovary* free. *Hypogynous disk* nectariferous; sometimes, though rarely, with scales. — Buds naked. Leaves generally with revolute margins.

Subtribe I. ERICEÆ NORMALES. (D. Don.)

Corolla persistent.

I. ERICA. (L. gen. n. 484., D. C. bot. gal. i. 317.)

Calyx 4-parted, naked at the base. *Corolla* campanulate or ovate, often ven-
tricose, 4-fid. *Stamens* 8. *Capsule* 4—8-celled, 4—8-valved.

Stamens included within the corolla. (Gen. Erica
of D. Don)

anthers with awns or appendages at the base

- leaves in whorls of 4, ciliated - - - 1. E. TETRALIX.
leaves in whorls of 3, not ciliated - - - 3. E. CINEREA.
anthers without awns at the base - - - 2. E. CILIARIS.

Stamens exserted. (Gen. Gypsocallis of D. Don)

- corolla narrow, urceolate - - - 4. E. MEDITERRANEA.
corolla campanulate - - - 5. E. VAGANS.

1. ! E. Tetralix. (L. sp. 502.) Cross-leaved Heath. Heaths. Common.

Wandsworth, Richmond, &c. Fl. light rose-coloured. July, Aug. Small shrub., E. B. 1015., H. 180.

β. *Mackaiana*. Style much exserted. Cunnamara. E. Mackaiana. (Babbington in. Fl. Hibern.)

2. *E. ciliaris*. (L. sp. 503.) *Ciliated Heath*. Bogs of Cornwall; at East Croft, and many other situations, abundant. Fl. rose-coloured or purplish. July, Aug. Small shrub. E. B. 2618., H. 181.

3. ! *E. cinerea*. (L. sp. 501.) *Fine-leaved Heath*. Heaths. Common. Fl. purple. July, Sept. Small shrub. E. B. 1015., H. 180.

4. *E. mediterranea*. (Thunb.) *Mediterranean Heath*. Cunnamara, Ireland. Fl. pink, with dark anthers. April. Large shrub. E. B. 2774., H. 180. *Gypsocallis. medit.* (D. Don.)

5. *E. vagans*. (L. mant. 230.) *Cornish Heath*. Heaths in Cornwall, on the the serpentine formation. Fl. rose-coloured, with dark anthers. July, Aug. Small shrub. E. B. 3., H. 180. *Gypsocallis vagans*. (D. Don.)

* * Many species of heaths are cultivated; but most of them require care, and the temperature of a green-house.

E. arborea and *E. scoparia* are sometimes cultivated in shrubberies, where their greater size (10—20 feet high), and the abundance of small whitish or rose-coloured flowers, have a very good effect. A dwarf variety of *E. scoparia*, and *E. gracilis*, with its leaves in whorls of 4, are common in Covent Garden during the spring months.

II. CALLUNA. (Salisb., Bot. gal. i. p. 318.)

Calyx 4-partite, double, and coloured. *Corolla* campanulate, 4-fid. *Stamens* 8. *Capsule* 4-celled, with the *dissepiments* affixed to the receptacle; 4-valved; the *valves* dehiscing at the suture.

! *C. Erica*. (D. C. fl. fr.) *Common Heath*; *Ling.* Heaths. Very common. Fl. reddish, sometimes white. June, Sept. Small shrub. *C. vulgaris*. H. 181. *Erica vulgaris*. (L. sp. 501., E. B. 1013.)

Subtribe II. ANDROMEDEÆ. (D. Don.)

Corolla deciduous.

III. ANDROMEDA. (L. gen. n. 549., Bot. gal. 317.)

Calyx very small, 5-partite. *Corolla* 5-fid, with the segments reflexed. *Stamens* 10. *Capsule* 5-celled, 5-valved.

1. *A. polifolia*. (L. sp. 564.) *Marsh Andromeda, or Wild Rosemary*. Peat bogs, Norfolk; North of England, Scotland, and Ireland. Fl. rose-coloured. June. Small shrub. E. B. 713., H. 193.

IV. PHYLLODOCE. (Salisb., Don. syst. iii. p. 832.)

Calyx 5-partite. *Corolla* globose; the *limb* contracted, 5-dentate. *Stamens* 10, enclosed. *Filaments* slender, glabrous. *Cells* of the anthers short, truncate, not awned. *Stigma* peltate, 5-tuberculated. *Capsule* 5-celled, with a septicidal dehiscence. *Seeds* compressed, shining.

1. *P. taxifolia*. (Salisb.) *Scottish Heath*. Scotland. Very rare. Fl. blue or purple. June, July. Small shrub. Don. syst. iii. p. 833. *Androm. cærulea*. (L. sp. 563.) *Menziesia cærulea*. (E. B. 2469., H. 179.)

V. DABÆCIA. (D. Don, Don. syst. iii. p. 833.)

Calyx 4-partite. *Corolla* oval, ventricose; the *limb* 4-dentate. *Stamens* 8, enclosed. *Filaments* dilated, glabrous. *Anthers* linear, sagittate at the base. *Cells* of the anthers parallel, loosened at the apex, dehiscing longitudinally. *Stigma* simple, truncate. *Capsule* 4-celled, with a septicidal dehiscence.

1. *D. polifolia*. (D. Don.) *Irish, or St. Dabæc's Heath*. Cunnamara, west of Ireland. Fl. purple. July, Sept. Small shrub. Don. syst. iii. p. 833. *Erica Dabæc*. (L. sp. 509., E. B. 35.) *Menziesia polifolia*. (H. 180.)

VI. ARBUTUS. (L. gen. 552., Don. syst.)

Calyx very small, 5-partite. *Corolla* ovate or globose; the *limb* 5-fid, reflexed. *Stamens* 10, villous at the base. *Anthers* dehiscing by 2 pores at the apex. *Berry* 5-celled, many-seeded, granulated.

1. *A. Unedo*. (L. sp. 366.) *Strawberry Tree, or Common Arbutus*. Lakes of Killarney; spontaneous. Cult. in pleasure-grounds. Common. Fl. greenish white. Sept., Oct. The fruit ripens the following summer, and

much resembles a strawberry in appearance, but not in taste. Small tree. E. B. 2377., H. 193.

*** *A. Andrachne*, the *Oriental Arbutus*, is often cultivated, and is remarkable for its peculiarly smooth stem, owing to the spontaneous separation of the epidermis. The peduncles are downy, and the leaves entire; while those of *A. Unedo* are serrated.

VII. ARCTOSTAPHYLOS. (Kunth., Don syst. iii. p. 835.)

Calyx very small, 5-partite. *Corolla* ovate or round; the *limb* 5-cleft, with the segment reflexed. *Stamens* 10, smooth. *Anthers* not dehiscing by pores at the apex. *Berry* smooth. *Seeds* solitary.

Leaves rugose, serrated; berries black - - 1. *A. ALPINA*.
Leaves smooth, entire; berries red - - 2. *A. UVA-URSI*.

1. *A. alpina*. (Spreng.) *Black Bearberry*. Highland mountains. Fl. white, with a slight tinge of pink. May. Trailing shrub. Don, l. c. *Arbut. alp.* (L. sp. 566., E. B. 2030., H. 193.)

2. *A. Uva-ursi*. (Spreng.) *Red Bearberry*. North of England, and Highlands of Scotland. Fl. rose-coloured. May. Trailing shrub. Don, l. c. *Arb. Uva-ursi.* (L. sp. 566., E. B. 714., H. 193.)

Tribe II. RHODOREÆ. (D. Don) RHODORACEÆ. (D. C. bot. gal. i. p. 318.)

Anthers 2-celled. *Ovary* free. *Hypogynous disk* nectariferous, rarely with scales. *Buds* strobiliform, with imbricated scales. — Leaves flat, having the extremity of the midrib callous.

VIII. RHODODENDRON. (L. gen. 548., Bot. gal. i. p. 319., Don syst. iii. p. 813.)

Calyx 5-partite. *Corolla* somewhat funnel-shaped or campanulate, rarely rotate or 5-partite. *Limb* 5-fid, somewhat bilabiate; upper *lip* broadest, and usually spotted. *Stamens* 5—10, generally exserted, declinate. *Anthers* dehiscing by 2 terminal pores. *Capsule* 5-celled, 5-valved, with a septicidal dehiscence at the apex. *Placenta* simple, angular. *Seeds* compressed, very minute, winged. — Mostly evergreen shrubs, with alternate leaves. Flowers terminal, corymbose.

Leaves evergreen; stamens generally 10 - - 1. *R. PONTICUM*, clt.
Leaves deciduous; stamens generally 5
flowers with viscous foliaceous bracteas
stamens very long; leaves pilose - - 2. *R. FLAVUM*, clt.
stamens scarcely longer than the corolla; }
leaves smooth, green - - } 4. *R. VISCOSUM*, clt.
flowers without foliaceous bracteas - - 3. *R. NUDIFLORUM*, clt.

1. *R. ponticum*. (L. sp. 562.) *Rosebay*, or *Rhododendron*. Leaves oblong-lanceolate; glabrous on both surfaces, attenuated towards the thick petioles, with a wide lanceolate streak on the upper surface. Racemes short, corymbose. Native of Asia Minor. Cult. in pleasure-grounds. Very common. Fl. purple. May, June. Large shrub. Bot. mag. 650. Don. syst. iii. p. 813.

β. *obtusum*. (Wats.) Leaves subcordate, coriaceous, obtuse. Calyx short, unequally and undulately crenated.

γ. *myrtifolium*. (Lodd.) Leaves small. Flower purple.

δ. *Smithii*. (Sweet.) Leaves lanceolate, with white tomentum beneath. Corymbs many-flowered. Ovarium tomentose, 10-celled.

Note. *R. maximum* is also sometimes cultivated, but not so common as *R. ponticum*; from which it may be distinguished by the greater size of the leaves, which are obtuse at the base, and white or rusty beneath.

2. *R. flavum*. (Don.) *Yellow Azalea*. Flowers foliaceous, viscous. Leaves oblong-ovate, piloso-ciliated. Corolla funnel-shaped. Stamens very long. Native of the Levant. Cult. in pleasure-grounds. Fl. yellow. May, June. Large shrub. Don syst. iii. p. 847. *Azalea pontica.* (L. sp. 1669., Bot. mag. 433.)

3. *R. nudiflorum*. (Torr.) *Scaleless Red Azalea*. Leaves lanceolate-oblong, nearly glabrous, and green on both surfaces; ciliated on the margin; having the midrib bristly beneath, and woolly above. Flower subnaked, not viscous. Tube of corolla longer than the division. Teeth of calyx short, rather rounded. Stamens much exserted. Native of North America. Cult. in

pleasure-grounds. Fl. of various shades of red. April, June. Large shrub. Don syst. iii. p. 847. *A. nudiflora*. (L. sp. 214., Bot. mag. 180.)

4. *R. viscosum*. (Torr.) *Viscous Azalea*. Leaves oblong-obovate, acute, smooth and green on both surfaces, ciliated on the margin; the midrib bristly. Flowers viscous, foliaceous, hairy. Tube of the corolla as long as the segments. Teeth of calyx short, rounded. Stamens scarcely longer than the corolla. Native of North America. Cult. in pleasure-grounds. Fl. white, fragrant. July, Aug. Large shrub. *Azalea viscosa*. (L. sp. 214.)

IX. KALMIA. (L. gen. n. 545., Don syst. iii. p. 850.)

Calyx 5-partite. *Corolla* salver-shaped; under side of limb marked with 10 cornute protuberances; upper side with as many corresponding cavities, in which the anthers are concealed before fecundation. *Capsule* 5-celled, many-seeded. *Dissepiments* marginal. — Evergreen shrubs.

Corymbs terminal

- | | | |
|--|---|-------------------------------|
| leaves scattered, or 3 in a whorl, green on both surfaces; pedicels downy and viscid | } | 1. <i>K. LATIFOLIA</i> , clt. |
| leaves opposite, glaucous beneath; margin revolute; pedicels and calyces glabrous | | |
| | } | 3. <i>K. GLAUCA</i> , clt. |
| | | |

Corymbs lateral

- | | | |
|--|---|----------------------------------|
| | } | 2. <i>K. ANGUSTIFOLIA</i> , clt. |
| | | |

1. *K. latifolia*. (L. sp. 560.) *Broad-leaved Kalmia*. Leaves on long petioles, scattered, or in verticels of 3; oval, coriaceous, smooth, and green on both surfaces. Corymbs terminal, downy, and viscid. Native of North America. Cult. in pleasure-grounds. Common. Fl. red or whitish. June, July. Small shrub. Bot. mag. 175. Don syst. iii. p. 850.

2. *K. angustifolia*. (L. sp. 561.) *Narrow-leaved Kalmia*. Leaves petiolate, scattered, or in verticels of 3; oblong, obtuse, ferrugineous beneath. Corymbs lateral. Bractees linear. Peduncles and calyces covered with a glandular pubescence. Native of North America. Cult. in gardens. Fl. of various shades of red. May, July. Small shrub. Bot. mag. 331. Don syst. iii. p. 850.

3. *K. glauca*. (Ait. hort. kew.) *Glaucous-leaved Kalmia*. Branchlets 2-edged, or triquetrous. Leaves opposite, on short petioles; oblong, smooth, glaucous beneath, with revolute edges. Corymbs terminal, compound, bracteate. Pedicels and calyces glabrous. Native of North America. Cult. as above. Fl. pale red. April, May. Small shrub. Bot. mag. 177., Don syst. iii. p. 850.

X. AZALEA. (L. gen. n. 212., Bot. gal. i. p. 318.)

Calyx 5-partite. *Corolla* short, campanulate, 5-fid. *Stamens* 5, equal, shorter than the corolla, inserted beneath the pistil. Cells of anthers opening by terminal pores. *Style* straight, included. *Capsule* 5-celled, with 5 cloven pointed valves, whose inflexed margins form the double partition.

1. *A. procumbens*. (L. sp. 215.) *Procumbent Azalea*. Dry moory ground on the Highland mountains. Fl. flesh-coloured. May, June. Small shrub. E. B. 865., H. 113.

XI. LEDUM. (L. gen. n. 546., Bot. gal. i. p. 319.)

Calyx very small, 5-dentate. *Corolla* 5-partite, or almost 5-petalled, spreading. *Stamens* 5—10, inserted into the base of the calyx, exserte. *Capsule* subovate, 5-celled, 5-valved, opening at the base. *Seeds* numerous, flat, linear, scabrous, with a membranous wing. — Shrubs with coriaceous leaves, revolute at the margin, and covered with a downy tomentum beneath.

- | | | | | | | | |
|------------|---|---|---|---|---|---|--------------------------------|
| Stamens 10 | - | - | - | - | - | - | 1. <i>L. PALUSTRE</i> , clt. |
| Stamens 5 | - | - | - | - | - | - | 2. <i>L. LATIFOLIUM</i> , clt. |

1. *L. palustre*. (L. sp. 561.) *Marsh Wild Rosemary*. Observed by the late Sir Charles Gisecke in the north-west of Ireland. Very doubtful native; but often cultivated. Fl. white. April, May. Small shrub. Don syst. iii. p. 851.

2. *L. latifolium*. (Ait. hort. kew.) *Broad-leaved Ledum*. Native of Canada. Cult. in gardens. Fl. white. April, May. Small shrub. Don syst. iii. p. 851.

Tribe III. PYROLEÆ. (D. Don.)

Anthers 2-celled. *Ovary* free. *Hypogynous disk* naked. *Seeds* peltate, samaroid. *Embryo* dicotyledonous. — Plants leafy, not parasitical.

XII. PYROLA. (L. gen. n. 554., Bot. gal. 317.)

Calyx 5-fid or 5-partite. *Corolla* 5-partite or almost 5-petalous. *Stamens* 10, filiform, subulate. *Anthers* dehiscent at the base by 2 holes. *Style* filiform, longer than the stamens. *Stigma* 5-lobed or simple. *Capsule* 5-celled, dehiscent at the base. *Seeds* narrow, winged at both ends. *Embryo* transverse. — Evergreen herbs, with flowers in terminal racemes.

- | | | | | | |
|---|---|---|---|---|---------------------|
| Stalk, 1-flowered | - | - | - | - | 5. P. UNIFLORIA. |
| Stalk many-flowered | | | | | |
| style deflexed | | | | | |
| leaves obovato-rotund; petals spreading | - | | | | 1. P. ROTUNDIFOLIA. |
| leaves ovato-rotund; petals converging | - | - | | | 2. P. MEDIA. |
| style straight | | | | | |
| style much protruded beyond the stamens; | | | | | } 4. P. SECUNDA. |
| flowers on one side | - | - | - | - | |
| style very short; flowers from all sides of the | | | | | } 3. P. MINOR. |
| stem | - | - | - | - | |

1. *P. rotundifolia*. (L. sp. 567.) *Round-leaved Wintergreen*. Woods in Suffolk, Norfolk, and Scotland. Rare. Fl. white. July, Sept. Perennial. E. B. 213., H. 192.

2. *P. media*. (Swartz.) *Intermediate Wintergreen*. Oxfordshire, &c. Often mistaken for the former species. Fl. whitish. July, Aug. Perennial. E. B. 1945., H. 192.

3. *P. minor*. (L. sp. 567.) *Lesser Wintergreen*. Woods in the north of England and Scotland. Fl. whitish. July. Perennial. E. B. 158.; and *P. rosea* 2543., ex Hook. 191.

4. *P. secunda*. (L. sp. 567.) *Serrated Wintergreen*. Yorkshire, rare, but common in the Highlands of Scotland. Fl. greenish-white. July. Perennial. E. B. 307., H. 192.

5. *P. uniflora*. (L. sp. 568.) *Single-flowered Wintergreen*. Woods in Scotland. Fl. white; fragrant. July. Perennial. E. B. 146., H. 192. *Moneses grandiflora*. (Salisb., Don syst.)

Order LXIII. MONOTROPEÆ. (Bot. gal. i. p. 319.)

Calyx 5-partite, persistent; sometimes none, or having its place supplied by irregular bracteas. *Corolla* perigynous, persistent, with 4—5 petals, which are sometimes united at the base, sometimes connected into a tube, and 4—5-dentate at the apex. *Stamens* double the number of the petals, inserted into the base of the corolla. *Anthers* excentrically peltate, adnate to the filaments, generally 1-celled. *Appendages* filiform, recurved, placed between the stamens. *Ovary* free. *Style* 1. *Stigma* simple. *Capsule* 5-celled, 5-valved. *Valves* septiferous in the middle. *Septæ* united at the base. *Seeds* numerous, very small, enclosed in a winged pellicle. — Parasitical leafless plants, the stems covered with scales.

I. MONOTROPA. (L. gen. n. 737., Bot. gal. 319.)

Calyx 4—5-sepalous, coloured. *Petals* as many as the sepals, alternate with them, and deciduous. *Stamens* 8—10, with subulate filaments. *Ovary* free. *Style* simple, cylindrical. *Capsule* with 8—10 furrows, 4—5-celled, 4—5-valved. *Albumen* fleshy.

1. ! *M. Hypopitys*. (L. sp. 555.) *Yellow Bird's Nest*. Beech and fir woods. Coulsdon; Mickleham. Fl. yellowish, as is the whole plant. June, July. Perennial. E. B. 713., H. 191.

Subclass III. COROLIFLORÆ. (D. C. bot. gal. i. p. 320.)

Calyx free, gamosepalous; i. e. the *sepals* more or less united. *Petals* united into a free hypogynous corolla. *Stamens* inserted into the corolla. *Ovary* free.

Order LXIV. JASMINEÆ. (Juss., D. C. bot. gal. i. p. 321.)

Flowers hermaphrodite, rarely polygamous. *Calyx* gamosepalous, tubular at the base, 4—5—8-lobed. *Corolla* gamopetalous, regular, 4—5—8-lobed, or partite; contorted or valvate in æstivation; sometimes wanting. *Stamens* 2, inserted into the corolla. *Filaments* short. *Anthers* 2-celled, longitudinally

dehiscent, introrse. *Ovary* free, sessile, 2-celled. *Cells* 2-ovuled. *Ovules* pendulous. *Style* simple. *Stigma* 2-lobed. *Fruit* either dry, dehiscent, or indehiscent and 1—2-celled, 1—2-seeded; or fleshy, and 1—2-celled. *Seeds* covered with a membranaceous integument. *Albumen* white, fleshy or horny; sometimes very thin. *Radicle* cylindrical, turned towards the hilum. — Trees or shrubs, with generally opposite leaves. Flowers axillary or in terminal racemes.

Calyx 5-fid	-	-	-	-	3. JASMINUM, clt.
Calyx 4-dentate, or 4-partite, or none					
tube of the corolla elongated	-	-	-	-	4. SYRINGA, clt.
tube of the corolla short					
corolla 4-fid; fruit fleshy					
berry 1-seeded	-	-	-	-	1. PHILLYREA, clt.
berry 2—4-seeded	-	-	-	-	2. LIGUSTRUM.
corolla 4-partite or none; fruit dry	-	-	-	-	5. FRAXINUS.

Tribe I. JASMINEÆ. (Vent., D. C. 1. c.)

Fruit fleshy.

I. PHILLYREA. (L. gen. n. 19., D. C. 1. c.)

Calyx very small, 4-dentate. *Corolla* short, 4-fid. *Stamens* 2. *Berry* 1-celled, 1-seeded.

1. *P. angustifolia*. (L. sp. 10.) *Narrow-leaved Phillyrea*. Leaves linear, lanceolate, very entire, acute. Native of the south of Europe. Cult. in shrubberies. Fl. white. June. Large shrub.

2. *P. latifolia*. (L. sp. 10.) *Broad-leaved Phillyrea*. Leaves lanceolate, oblong, subobtuse, entire, or serrated. Native of the south of Europe. Cult. in shrubberies. Fl. white. June. Large shrub.

II. LIGUSTRUM. (L. gen. n. 18., D. C. 1. c.)

Calyx very small, 4-dentate. *Corolla* with a short tube; *limb* 4-fid, patent. *Berry* 1-celled, 2—4-seeded.

1. *L. vulgare*. (L. sp. 10.) *Common Privet*. Hedges and thickets. Very common. Fl. white. June, July. Large shrub. E. B. 746., H. 4.

III. JASMINUM. (L. gen. n. 27., D. C. 1. c.)

Calyx 5-fid. *Corolla* tubular, with a 5-partite flat limb; the *segments* oblique. *Berry* 2-celled. *Cells* 1-seeded. *Seeds* with an arillus.

Flowers yellow	-	-	-	-	1. J. FRUTICANS, clt.
Flowers white	-	-	-	-	2. J. OFFICINALE, clt.

1. *J. fruticans*. (L. sp. 9.) *Small-flowered yellow Jasmine*. Leaves alternate, ternate, and simple. Leaflets rather wedge-shaped, obtuse. Segments of calyx subulate. Native of the south of Europe. Cult. Very common. Fl. yellow. July. Large shrub. Bot. mag. 461.

2. *J. officinale*. (L. sp. 9.) *White Jasmine*. Leaves opposite, pinnate. Leaflets acuminate. Segments of calyx subulate. Native of India. Cult. Common. Fl. white. July. Climbing shrub. Bot. mag. 31.

Note. *J. revolutum*, *Indian Yellow Jasmine*, which is distinguished by its larger corolla, with the margin revolute, is often cultivated against walls about London.

Tribe II. LILACEÆ. (Vent., D. C. bot. gal.)

Fruit dry.

IV. SYRINGA. (L. gen. n. 22.) LILAC. D. C. (Bot. gal. 322.)

Calyx small, 4-dentate. *Corolla* tubular; the *limb* 4-partite. *Stamens* 2, enclosed within the tube. *Capsule* ovate, compressed, 2-celled, 2-valved, 2-seeded. *Valves* navicular, semiseptiferous in the middle.

Leaves cordate	-	-	-	-	1. S. VULGARIS, clt.
Leaves lanceolate	-	-	-	-	2. S. PERSICA, clt.

1. *S. vulgaris*. (L. sp. 11.) *Common Lilac*. Leaves cordate. Native of Persia. Cult. in shrubberies. Very common. Fl. lilac or white. June. Large shrub. Bot. mag. 183.

2. *S. persica*. (L. sp. 11.) *Persian Lilac*. Leaves lanceolate, entire; sometimes pinnatifid. Native of Persia. Cult. in gardens. Fl. lilac. June. Large shrub. Bot. mag. 486.

V. FRAXINUS. (L. gen. n. 1160., D. C. bot. gal. 322.)

Diœcious. Calyx none, or 3—4-partite. Corolla none. Capsules (*Samaras*) pendulous, with 1 seed at the base.

1. *F. excelsior*. (L. sp. 1509.) *Common Ash*. Woods and hedges. Fl. greenish, with black scales. April, May. Large tree. H. 12., E. B. 1692. The weeping ash is a variety of this, with pendent branches.

β. *heterophylla*. Leaves simple and pinnated. *F. heterophylla*. (E. B. 2476.)

Order LXV. APOCYNÆ. (Juss., D. C. bot. gal. p. 323.)

Calyx gamosepalous, 5-divided, persistent. *Corolla* gamopetalous, hypogynous, 5-lobed, regular, imbricate, or, very rarely, valvate in æstivation, deciduous. *Stamens* 5, inserted into the base of the corolla, and alternate with its segments. *Filaments* connate or distinct. *Anthers* 2-celled. *Ovaries* 2. *Styles* 2, closely approximated, often very short. *Stigma* capitate. *Fruit* 2-follicled; the follicle elongated, 1-celled, dehiscing by a chink on the inside. *Seed* inserted along the margin of the follicle, imbricated, flat, pendulous, naked or downy. *Albumen* fleshy. *Embryo* straight. *Radicle* superior. — Herbs or shrubs, sometimes climbing, and often lactescent. Leaves opposite, entire.

Tribe VINCEÆ. (D. C. bot. gal. p. 324.; APOCYNÆ, R. Brown.)

Filaments of the stamens distinct. *Anthers* 2-celled, dehiscing longitudinally. *Pollen* granulated, immediately applied to the stigma.

I. VINCA. (L. gen. n. 295., D. C. l. c.)

Calyx 5-partite. *Corolla* salver-shaped, with a long tube. *Fauces* prominent, pentagonal. *Limb* flat, obtuse, 5-lobed. *Anthers* approximated to the style. *Stigma* capitate, annular at the base. *Seeds* naked.

Leaves ovate, subciliate; peduncles generally shorter than } 1. V. MAJOR.
the leaves - - - - - }

Leaves oblongo-lanceolate, glabrous at the margin; peduncles } 2. V. MINOR.
longer than the leaves - - - - - }

1. ! *V. major*. (L. sp. 304.) *Greater Periwinkle*. Woods and thickets. Doubtful native. Cult. Common. Fl. bluish-purple. May. Perennial. E. B. 514., H. 114.

2. ! *V. minor*. (L. sp. 304.) *Lesser Periwinkle*. Hedges and banks in woods. Fl. blue or white. May, June. Perennial. E. B. 917., H. 114.

*** *Nerium Oleander* is much cultivated, but is not sufficiently hardy to bear the open air during the winter.

Order LXVI. BIGNONIACEÆ. (R. Brown, prod. 471.)

Calyx gamosepalous. *Corolla* hypogynous, generally irregular, 4—5-lobed. *Filaments* of the stamens 5, unequal; 2—4 being antheriferous; the *anthers* 2-celled. *Ovary* surrounded by a glandular disk, 2-celled, many-seeded. *Style* 1. *Stigma* bilamellar. *Capsule* 2-valved, 2-celled. *Seeds* transverse, compressed, generally winged. *Albumen* none. *Embryo* straight, foliaceous. *Radicle* centrifugal. — Trees or shrubs.

Antheriferous stamens 4. - - - - - 1. TECOMA, clt.

Antheriferous stamens 2. - - - - - 2. CATALPA, clt.

I. TECOMA. (Juss. gen. plant. 188., R. Br. l. c.)

Calyx 5-dentate. *Corolla* subcampanulate; the limb 5-lobed, unequal. *Stamens* 4, didynamous; the fifth filament sterile, shorter.

1. *T. radicans*. (Juss.) *Ash-leaved Trumpet Flower*. Leaves pinnate; the leaflets ovate, acuminate, dentate. Corymb terminal. Tube of the corolla much longer than the calyx. Native of North America. Cult. and trained against walls. Fl. scarlet. July, Aug. Creeping shrub. *Bignonia radicans*. L. sp. 871., Bot. mag. 485.

II. CATALPA. (Juss. gen. plant. 188., Ait. hort. kew. i. p. 24.)

Calyx 2-partite. *Corolla* irregular, 5-fid. *Filaments* of stamens 5; 2 antheriferous, 3 sterile. *Capsule* 2-celled. *Seeds* with a membranous pappus at the base and apex.

1. *C. syringæfolia*. (Ait. l. c.) *Common Catalpa*. Leaves cordate, flat. Native of North America. Cult. in pleasure-grounds. Fl. whitish, with purple and yellow spots. July, Aug. Tree. *Bignonia Catalpa*. (L. sp. 868., Bot. mag. 1094.)

Order LXVII. GENTIANEÆ. (Juss., D. C. bot. gal. p. 325.)

Calyx gamosepalous, divided, persistent. *Corolla* gamopetalous, regular, often marcescent; *limb* partite, equal; the *lobes* imbricated in æstivation, equal in number to the segments of the calyx; generally 5. *Stamens* inserted on the corolla; as many as, and alternate with, its segments. *Ovary* free. *Style* 1, or rarely 2. *Stigma* simple, or 2-lobed. *Capsule* many-seeded, 1—2-celled, bivalved; the *valves* dehiscent at the apex, with the *margin* bent inwards, which in the 2-celled ones forms a dissepiment. *Seeds* inserted on the margin of the valves. *Embryo* straight, in the centre of a fleshy albumen. *Radicle* generally inferior. — Bitter glabrous herbs, with opposite, generally sessile, leaves.

Capsule 1-celled

corolla rotate

lobes of the corolla with ciliated margins - - - 2. VILLARSIA.

lobes of the corolla not ciliated - - - 4. SWERTIA.

corolla funnel or salver-shaped

leaves trifoliate - - - 1. MENYANTHES.

leaves entire

stamens 8 - - - 3. CHLORA.

stamens 5 - - - 5. GENTIANA.

Capsule 2-celled

stamens 5; anthers spirally twisted after blossoming 6. CHIRONIA.

stamens 4; anthers not twisted - - - 7. EXACUM.

I. MENYANTHES. (L. gen. n. 202., D. C. bot. gal. 325.)

Calyx 5-partite. *Corolla* funnel-shaped; the *limb* patent, 5-lobed, covered with corolline hairs on the inside. *Stamens* 5. *Style* 1. *Stigma* capitate, 2—5-furrowed. *Capsule* 1-celled, the parietes seminiferous.

1. ! *M. trifoliata*. (L. sp. 208.) *Common Buckbean*. Marshy and boggy places. Common. Hampstead Heath. Fl. white, tipped externally with red. June, July. Perennial. E. B. 495., H. 108.

II. VILLARSIA. (Gmel., D. C. bot. gal. 325.)

Calyx 5-partite. *Corolla* rotate, with a short tube, and a spreading 5-lobed limb; the *lobes* ciliated at the margin. *Stamens* 5. *Style* 1. *Stigma* 2-lobed, crenulate. *Capsule* 1-celled, the parietal sutures seminiferous. *Seeds* with a membranaceous border; in 2 rows.

1. ! *V. nymphaeoides*. (Vent.) *Villarsia*. In deep rivers and pools in the east of England, but rare; on Wandsworth Common, and in the Thames. Fl. yellow. July, Aug. Perennial. H. 109. Menyan. nymph. (L. sp. 207., E. B. 217.)

III. CHLORA. (L. mant. 10., D. C. bot. gal. 325.)

Calyx 8-partite. *Corolla* salver-shaped; the *tube* short; the *limb* 8-partite. *Stamens* 8, very short, inserted into the fauces of the corolla. *Style* 1. *Stigma* 4-fid. *Capsule* 1-celled.

1. ! *C. perfoliata*. (L. mant. 10.) *Yellow Wort*. Chalky and clayey pastures. Common. Fl. yellow. July, Sept. Annual. E. B. 2469., H. 179.

IV. SWERTIA. (L. gen. n. 321., D. C. bot. gal. 325.)

Calyx sub-5-partite. *Corolla* rotate; the *tube* very short; *limb* flat, 5-partite; the *segments* lanceolate; each having 2 ciliated glands at the base. *Stamens* 5, shorter than the corolla.

1. *S. perennis*. (L. sp. 328.) *Marsh Felwort*. Wales; but a doubtful native. Fl. dark purple. Aug. Perennial. E. B. 1441., H. 124.

V. GENTIANA. (L. gen. n. 322., D. C. bot. gal. 326.)

Calyx 5-fid. *Corolla* tubular, campanulate or funnel-shaped at the base; the *limb* 4—5—6-fid, with entire or ciliated segments; sometimes having smaller ones projecting inwards from between the primary ones. *Stamens* 5, in-

served into the tube of the corolla. *Anthers* sometimes connate. *Style* 2-partite. *Stigmas* 2. *Capsule* 1-celled.

Fauces not fringed with scales

corolla subcampanulate, 5-cleft

flowers generally 2 or 3, on an elongated stem 1. *G. PNEUMONANTHE*.

flowers solitary; peduncles radical - - 2. *G. ACAULIS*.

corolla funnel- or salver-shaped, with 5 larger

and 5 smaller segments

radical leaves clustered, ovate; flowers large, } 3. *G. VERNA*.

solitary - - - - - }

radical leaves not clustered; flowers gene- } 4. *G. NIVALIS*.

rally more than one, small - - - }

Fauces fringed with scales

segments of calyx 5, nearly equal; corolla 5-fid 6. *G. AMARELLA*.

segments of calyx 4, 2 larger; corolla 4-fid - 5. *G. CAMPESTRIS*.

1. ! *G. Pneumonanthe*. (L. sp. 330.) *Marsh Gentian*. Moist heaths, but not common; near Northfleet. Fl. deep blue. Aug., Sept. Perennial. E. B. 28., H. 125.

2. ! *G. acaulis*. (L. sp. 330.) *Dwarf Gentian*. Near Haverfordwest; and also near London, but certainly not native. Much cult. in gardens. Fl. purplish blue. June, July. Perennial. E. B. 1594., H. 124.

3. *G. verna*. (L. sp. 331.) *Spring Alpine Gentian*. Alpine pastures; Teesdale, Durham; also in Ireland. Fl. bright blue. April, May. Perennial. E. B. 493., H. 125.

4. *G. nivalis*. (L. sp. 332.) *Small Alpine Gentian*. Ben Lawers, but very rare; also Clova. Fl. purple. Aug. Annual. E. B. 896., H. 125.

5. ! *G. campestris*. (L. sp. 334.) *Field Gentian*. Hilly pastures, especially on a limestone or chalky soil. Fl. pale and dull purple. Aug., Oct. Annual. E. B. 237., H. 125.

6. ! *G. Amarella*. (L. sp. 334.) *Autumnal Gentian*. Subalpine pastures and chalky soils. Fl. pale dingy purple. April, Oct. Annual. E. B. 236., H. 125. *G. germanica*. (Willd., D. C. bot. gal. 327.)

VI. ERYTHRÆA. (Pers. ench. 283.) CHIRONIA. D. C. (Bot. gal. 327.)

Calyx 5-fid. *Corolla* funnel-shaped; *limb* 5-lobed. *Stamens* 5, inserted into the tube of the corolla. *Anthers* spirally contorted after flowering. *Capsule* 2-celled.

Stem simple or subsimple

calyx half the length of the tube of the corolla - 1. *E. CENTAURIUM*.

calyx as long as the tube of the corolla - - 3. *E. LITTORALIS*.

Stem branched

calyx as long as the tube of the corolla; flower in } 4. *E. LATIFOLIA*.

a dense tuft - - - - - }

calyx not as long as the tube; flower in a loose } 2. *E. PULCHELLA*.

panicle - - - - - }

1. ! *E. Centaurium*. (Pers. l. c.) *Common Centaury*. Dry pastures. Common. Fl. rose-coloured. Aug. Annual. H. 109. Chir. Cent. (E. B. 417., Bot. gal. 328.) Gent. Cent. (L. sp. 332.)

2. ! *E. pulchella*. (Hook.) *Dwarf-branched Centaury*. Sandy sea shores. Fl. rose-coloured. Aug., Sept. Annual. Chir. pulch. (E. B. 458.; var. β , Bot. gal. 328.)

3. *E. littoralis*. (Hook.) *Dwarf tufted Centaury*. Sandy coasts of the north of England and Scotland. Fl. rose-coloured. June, July. Annual. H. 110. Chir. lit. (E. B. 2305.)

4. *E. latifolia*. (Sm.) *Broad-leaved tufted Centaury*. Sea shores of Lancashire. Fl. rose-coloured. July. Annual. E. B. 2719., H. 110.

The three latter species deserve to be considered as mere varieties of *E. Centaurium*.

VII. EXACUM. (Willd., D. C. bot. gal. 328.)

Calyx 4-partite. *Corolla* with a globose tube; the *limb* 4-lobed. *Stamens* 4. *Anthers* not twisted after flowering. *Style* 1. *Stigma* bifid. *Capsule* 2-celled.

1. *E. filiforme*. (Sm.) *Slender Gentianella*. Sandy turf bogs; south of England. Fl. yellow. July. Annual. E. B. 235., H. 70.

Order LXVIII. POLEMONIDEÆ. (Juss., D. C. bot. gal. p. 329.)

Calyx gamosepalous, 5-partite. *Corolla* regular, 5-lobed. *Stamens* 5, inserted into the middle of the tube of the corolla, and alternate with its lobes. *Pollen* generally blue. *Ovary* superior, free, 3-celled. *Style* simple. *Stigma* trifid. *Capsule* covered by the persistent calyx; 3-celled, 3-valved, few- or many-seeded. *Valves* having a prominent rib or septum in the middle, which extends to the central trigonal axis. *Seeds* often enveloped in mucus. *Embryo* straight. *Albumen* horny. *Radicle* inferior. *Cotyledons* elliptical, foliaceous. — Herbs, with opposite or rarely, alternate leaves.

Cells of the capsule many-seeded

- | | | | | |
|---------------------------------------|---|---|---|----------------------|
| corolla rotate | - | - | - | 1. POLEMONIUM. |
| corolla funnel-shaped | | | | |
| anthers oblong, sagittate at the base | - | - | - | 3. LEPTOSIPHON, clt. |
| anthers ovato-subrotund | - | - | - | 4. GILIA, clt. |

Cells of the capsule 1—2-seeded

- | | | | | |
|-----------------|---|---|---|-------------------|
| stamens unequal | - | - | - | 2. PHLOX, clt. |
| stamens equal | - | - | - | 5. COLLONIA, clt. |

I. POLEMONIUM. (L. gen. n. 217., D. C. bot. gal. 329.)

Calyx cup-shaped, 5-fid; the segments acute. *Corolla* rotate; the tube shorter than the calyx, closed at the base by stamiferous valves; limb 5-lobed; the lobes roundish, obtuse. Filaments of the *stamens* broader at the base, inserted into the valves. *Anthers* incumbent, subrotund. *Capsule* 3-celled. *Cells* many-seeded.

1. ! *P. cæruleum*. (L. sp. 162.) *Jacob's Ladder*. Banks and bushy places; Derbyshire and Yorkshire. Rare. D. C. l. c.

II. PHLOX. (L. gen. n. 214.)

Calyx prismatic, 10-angled, 5-dentate; the segments acute. *Corolla* salver-shaped; the tube longer than the calyx, narrow and curved at the lower part; limb 5-partite; segments obtuse. Filaments inserted into the tube of the corolla, unequal. *Stigma* trifid. *Capsule* 3-celled, 1-seeded.

Leaves rough at the margin; flowers generally pink 1. *P. PANICULATA*, clt.

Leaves quite glabrous

- | | | | |
|--|---|---|--------------------------------|
| leaves ovato-lanceolate; flowers white | - | - | 2. <i>P. SUAVEOLENS</i> , clt. |
| leaves linear, lanceolate; flowers lilac | - | - | 3. <i>P. GLABERRIMA</i> , clt. |

1. *P. paniculata*. (L. sp. 216.) *Panicled Lychnidea*. Stem tall, smooth. Leaves lanceolate; the margins rough. Corymbs paniculated. Segments of the corolla round; the tube pubescent. Calyx awned. Native of North America. Cult. Common. Fl. pink; sometimes white. Aug., Sept. Perennial. Pers. i. p. 186.

2. *P. suaveolens*. (Ait.) *White-flowered Phlox*. Stem quite glabrous. Leaves ovato-lanceolate, smooth on both sides. Racemes panicled. Native of North America. Cult. Fl. white, fragrant. July, Aug. Perennial. Pers. i. p. 186.

3. *P. glaberrima*. (L. sp. 217.) *Smooth Lychnidea*. Stem erect. Leaves lineari-lanceolate, glabrous. Corymb terminal. Native of Virginia. Cult. Fl. lilac. June, Aug. Perennial.

III. LEPTOSIPHON. (Benth.)

Calyx tubuloso-campanulate, equal, semi-5-fid; the lobes lineari-subulate, acute. *Sinuses* membranous. *Corolla* funnel-shaped; the tube much exsert, very slender; limb campanulate, 5-fid; the lobes oval, obtuse, very entire. *Stamens* inserted into the fauces. *Anthers* oblong, sagittate at the base. *Cells* of the capsule many-seeded.

Tube of the corolla much longer than the limb - 1. *L. ANDROSACEUS*, clt.

Tube of the corolla shorter than the limb - 2. *L. DENSIFLORUS*, clt.

1. *L. androsaceus*. (Benth. bot. reg.) *Long-tubed Leptosiphon*. Leaves 5—7-fid; the segments oblongo-linear. Tube of the corolla much longer than the limb. Stamens short. Native of California. Cult. in gardens. Fl. white, pale blue, or pink. July, Aug. Annual.

2. *L. densiflorus*. (Benth. bot. reg.) *Dense-flowered Leptosiphon*. Leaves 9—11-fid; the segments subulate, stiff, having their margins revolute. Tube

of the corolla shorter than the limb. Native of California. Cult. in gardens. Fl. pale purple, white, or pink. July, Aug. Annual.

IV. GILIA. (Cavanil.)

Calyx campanulate, 5-fid; the *margins* and *sinuses* membranous. *Corolla* funnel-shaped or subcampanulate; the *limb* 5-partite, with obovate entire *segments*. *Stamens* inserted into the fauces, or immediately within the tube. *Anthers* ovato-subrotund. Cells of the *capsules* many-seeded.

- | | | | |
|---|---|---------------------------|----------------------|
| Flowers subsessile, in a dense fascicle | - | - | 1. G. CAPITATA, clt. |
| Flowers on long peduncles corymbose | | | |
| flowers three-coloured; corymb paniculate | - | 2. G. TRICOLOR, clt. | |
| flowers blue; corymb capitate | - | 3. G. ACHILLEÆFOLIA, clt. | |

1. *G. capitata*. (Hook. bot. mag. 2690.) *Round-headed Gilia*. Glabrous. Leaves bipinnatifid; the segments linear, incised. Flowers sessile, densely capitate. Native of California. Cult. Very common. Fl. blue. June, July. Annual.

2. *G. tricolor*. (Benth.) *Three-coloured Gilia*. Stem erect, glabrous, leafy. Leaves bipinnatisect; the segments linear, subulate. Corymb 3—6-flowered, paniculato-virgate. Corolla 3 times the length of the calyx. Native of California. Cult. Common. Tube of the corolla yellow; the limb straw-coloured, purple at the base. July. Annual.

3. *G. achilleæfolia*. (Benth.) *Yarrow-leaved Gilia*. Stem erect, glabrous. Leaves 2—3-pinnatisect; the segments lineari-subulate. Corymbs capitate, many-flowered; the peduncles very long. Calyx woolly. Corolla twice the length of the calyx. Stamens shorter than the corolla. Native of California. Cult. Fl. blue. July. Annual.

V. COLLOMIA. (Douglas bot. reg.)

Calyx campanulate, 5-fid or 5-partite; the *lobes* lanceolate, or linear, entire, equal. *Corolla* funnel-shaped; the *tube* slender, exsert; *limb* patent, 5-partite; the *segments* oblong, entire. *Stamens* inserted into the middle of the tube. *Anthers* ovate, subrotund. Cells of the *capsule* 1—2-seeded.

1. *C. grandiflora*. (Douglas bot. reg.) *Large-flowered Collomia*. Leaves oblong, lanceolate, very entire, shining, ciliato-glandular. Stem branched, pubescent. Capitules hemispherical. Corolla ventricose. Native of California. Cult. in gardens. Very common. Fl. ochre-coloured or pinkish. July. Annual.

Order LXIX. CONVULVULACEÆ. (Chois. mém. soc. phys.

gen. v. p. 406.)

Calyx 5-sepaled. *Sepals* persistent, equal, or unequal, in 1—3 rows; often becoming enlarged. *Corolla* gamopetalous, hypogynous, regular; the *limb* 5-plicate, or 5-lobed; contorted in æstivation. *Stamens* 5, inserted into the corolla. *Anthers* often contorted after the ejection of the pollen. *Nectary* annular, often conspicuous. *Ovary* single, 2—4-celled; or 2—4 ovaries. *Cells* 1—2-seeded. *Style* 1, entire or bifid. *Stigma* bilobed. *Fruit* dehiscing by the valves; rarely transversely. *Seeds* inserted into the base of the ovaries; *testa* black. *Cotyledons* foliaceous, corrugated. *Radicle* incurved, inferior. — Generally twining plants, with alternate, simple, entire, or lobed leaves. Pedicels bibracteate. Stem often filled with a milky purgative juice.

Tribe CONVULVULÆ.

Corolla campanulate; embryo with cotyledons; plant not parasitical

- | | | | |
|---|--------------------|---|----------------|
| calyx enclosed in 2 large foliaceous bracteas | - | - | 3. CALYSTEGIA. |
| calyx naked, or with very small bracteas | | | |
| capsule 3—4-celled; cells 2-seeded; stigma capitate | 1. PHARBITIS, clt. | | |
| capsule 2-celled, 2-seeded; stigmas 2, linear, revolute | 2. CONVULVULUS. | | |
| Corolla globoso-urceolate; embryo without cotyledons; | | | |
| plant parasitical | - | - | 4. CUSCUTA. |

Subtribe I. CONVULVULÆ. (Chois. mém. p. 433.)

Embryo with cotyledons. *Carpels* united into a single ovary. *Pericarp* capsular, dehiscent.

I. PHARBITIS. (Chois. mém. l. c.)

Calyx 5-sepaled. *Corolla* campanulate or campanulato-infundibuliform, *Style* 1. *Stigma* capitate, granulate. *Ovary* 3- (rarely 4-) celled; the *cells* 2-seeded.

1. *P. purpurea*. (Chois.) *Convolvulus major*. Leaves cordate, entire. Pedicels thickened at the upper part. Fruit nodding. Native of North America. Cult. Very common. Fl. purple. June, Aug. Annual. Convol. purp. (L. sp. 219.)

II. CONVULVULUS. (L. gen. n. 215., Chois. mém. l. c.)

Sepals 5. *Corolla* campanulate. *Style* 1. *Stigmas* 2, lineari-cylindrical; often revolute. *Ovary* 2-celled, 4-ovuled. *Capsule* 2-celled, 2-seeded.

Stem climbing; flower white or rose-coloured - - - 1. *C. ARVENSIS*.
Stem prostrate; flowers 3-coloured - - - 2. *C. TRICOLOR*, clt.

1. ! *C. arvensis*. (L. sp. 218.) *Small Bindweed*. Corn fields and hedges. Common. Fl. rose-coloured or whitish. June, July. Perennial. E. B. 312., H. 112.

2. *C. tricolor*. (L. sp. 225.) *Convolvulus minor*. Leaves lanceolato-ovate, glabrous. Stem trailing. Flowers solitary. Native of the south of Europe and Africa. Cult. Very common. Fl. three-coloured yellow at the base, white in the middle, and blue above. June, Aug. Annual. Bot. mag. 27.

III. CALYSTEGIA. (R. Brown prod., Chois. mém. l. c.)

Bracts 2, opposite, enclosing the calyx. *Sepals* 5, equal. *Corolla* campanulate. *Style* 1. *Stigma* 2-lobed; the lobes linear or oblongo-cylindrical. *Ovary* 2-celled beneath; 1-celled above; the *dissepiment* not reaching to the apex.

Stem climbing; leaves sagittate - - - 1. *C. SEPIUM*.
Stem prostrate; leaves reniform - - - 2. *C. SOLDANELLA*.

1. ! *C. sepium*. (R. Br.) *Great Bindweed*. Moist woods and hedges. Common. Fl. large, pure white. July, Aug. Perennial. Lind. syn. 167. Convol. sep. (L. sp. 218., E. B. 313., H. 113.)

2. ! *C. soldanella*. (R. Br.) *Sea-side Bindweed*. Sandy banks on the sea shores. Common. Fl. rose-coloured. Aug. Perennial. Lind. syn. 167. Convol. Sold. (L. sp. 226., E. B. 314., H. 113.)

Subtribe II. CUSCUTEÆ. (Chois. mém. p. 497.)

Embryo without cotyledons. — Plants parasitical.

IV. CUSCUTA. (L. gen. n. 170., Chois. mém. l. c.)

Sepals 5. *Corolla* campanulate. *Stamens* 5, naked, or scaly at the base. *Styles* 2, free, or united. *Stigma* acute or capitate. *Capsule* 1-celled, 1-2-seeded.

Corolla without a scale - - - 1. *C. EUROPEA*.
Corolla with a fringed scale at the base of the stamens - 2. *C. EPITHYUM*.

1. ! *C. europæa*. (L. sp. 180.) *Greater Dodder*. Parasite on nettles, flax, &c. Not common. Fl. rose-coloured; the stem red. Aug., Sept. Annual. E. B. 378., H. 126. *C. major*. (D. C. bot. gal. 331.)

2. ! *C. Epithymum*. (L. sp. B. 180.) *Lesser Dodder*. Furze and other heath plants. More common than *C. europ.* Fl. rose-coloured. Aug. Annual. E. B. 55., H. 126. *C. minor*. (D. C. bot. gal. 331.)

Order LXX. BORAGINEÆ. (Juss., D. C. bot. gal. p. 331.)

Calyx gamosepalous, 5-lobed, persistent. *Corolla* 5-lobed, generally regular; the *faucis* naked, or with 5 scales; imbricate in æstivation. *Stamens* 5, inserted into the corolla, and alternate with its segments. *Ovary* 2-4-lobed, free, within an hypogynous disk. *Style* simple, persistent, arising from between the lobes of the ovary. *Stigma* entire or bilobed. *Nuts* or *cariopsides* 2-4, 1-celled, 1-seeded; adnate to the style by the inner side. *Seeds* separable from the pericarps. *Albumen* none. *Embryo* straight. *Radicle* inferior. *Cotyledons* foliaceous. — Herbs or undershrubs, with alternate, generally

rough, dry leaves, which are often covered with asperities. Flowers generally in unilateral gyrate racemes or spikes.

- Throat of the corolla naked
 corolla obliquely truncated, the segments unequal - 1. ECHIUM.
 segments of corolla equal
 calyx 5-partite; stigma bifid - - - 2. LITHOSPERMUM.
 calyx 5-fid, prismatic; stigma emarginate - 3. PULMONARIA.
- Throat of the corolla furnished with scales
 calyx dilated after flowering; flowers axillary - 8. ASPERUGO.
 calyx not dilated; flowers terminal
 limb of the corolla ventricose, tubular - - 4. SYMPHYTUM.
 limb of the corolla patent or erecto-patent
 tube of the corolla bent - - - 5. LYCOPSIS.
 tube of the corolla straight
 corolla rotate - - - - 7. BORAGO.
 corolla salver-shaped - - - - 9. MYOSOTIS.
 corolla funnel-shaped
 calyx 5-partite; nuts depressed - - - 10. CYNOGLOSSUM.
 calyx 5-fid; nuts not depressed - - - 6. ANCHUSA.

I. ECHIUM. (L. gen. n. 191., D. C. bot. gal. 332.)

Calyx 5-partite. *Corolla* with a short tube; the *limb* large, campanulate, obliquely 5-lobed; *segments* unequal; the 2 upper longer; the lowest small, acute, reflexed. *Nuts* tuberculated.

Stem erect, tuberculated; leaves linear, lanceolate - 1. E. VULGARE.

Stem decumbent, not tuberculated; leaves ovato-ob- }
 long; the upper ones cordate, subamplexicaule - } 2. E. VIOLACEUM.

1. ! *E. vulgare*. (L. sp. 200.) *Viper's Bugloss*. On sandy and chalky soils; on the Surrey Hills, &c. Fl. blue. July. Biennial. E. B. 181., H. 98.

2. *E. violaceum*. (L. mant. 42.) *Violet Bugloss*. Jersey. Fl. violet. Aug. Biennial. H. 98.

II. LITHOSPERMUM. (L. gen. n. 181., D. C. bot. gal. 332.)

Calyx 5-partite. *Corolla* funnel-shaped, small, 5-lobed. *Anthers* oblong, enclosed within the fauces of the corolla. *Stigma* obtuse, bifid. *Nuts* shining, smooth or wrinkled.

Flowers blue

leaves fleshy and glaucous; stem prostrate 1. L. MARITIMUM.

leaves neither fleshy nor glaucous; flowering }
 stems erect - - - - - } 2. L. PURPUREO-CÆRULEUM.

Flowers white or yellowish

stem strong, very much branched; nuts smooth 3. L. OFFICINALE.

stem weak, slightly branched; nuts wrinkled 4. L. ARVENSE.

1. *L. maritimum*. (Lehm.) *Sea-side Gromwell*. Sea coast of Scotland, Wales, and Ireland. Fl. purplish blue. June, July. Perennial. H. 99. Pulm. mar. (L. sp. 195., E. B. 368.)

2. ! *L. purpureo-cæruleum*. (L. sp. 190.) *Purple Gromwell*. Thickets, on chalky soil. Greenhithe, Kent; Somersetshire; Wales, &c. Fl. bright blue. June, July. Perennial. E. B. 117., H. 99.

3. ! *L. officinale*. (L. sp. 198.) *Gromwell, or Grey Millet*. Dry waste places. Not uncommon. Fl. pale yellow. June. Perennial. E. B. 134., H. 99.

4. ! *L. arvense*. (L. sp. 190.) *Corn Gromwell*. Corn fields. Common. Fl. white. May, June. Annual. E. B. 123., H. 99.

III. PULMONARIA. (L. gen. n. 184., D. C. bot. gal. 333.)

Calyx campanulate, 5-fid, pentagonal. *Corolla* funnel-shaped, sub-5-lobed, erecto-patent. *Stigma* obtuse, emarginate.

Leaves ovato-cordate or ovate, spotted - - - 1. P. OFFICINALIS.

Leaves lanceolate, seldom spotted - - - 2. P. ANGUSTIFOLIA.

1. ! *P. officinalis*. (L. sp. 194.) *Common Lungwort*. Woods and thickets in Hampshire; also in Bedfordshire and Durham; but not common. Fl. purple. May. Perennial. E. B. 118., H. 99.

2. *P. angustifolia*. (L. sp. 194.) *Narrow-leaved Lungwort*. Hampshire and Isle of Wight, in woods; but rare. Fl. light purple. May, June. Perennial. E. B. 1628., H. 99.

IV. SYMPHYTUM. (L. gen. n. 185., D. C. bot. gal. 334.)

Calyx 5-fid. *Corolla* cylindrico-campanulate; the *tube* very short; the *limb* tubulato-ventricose, 5-lobed; the *lobes* short. Scales of the *fauces* subulate, connivent.

Lower leaves tapering into a petiole; upper ones ovate, }
 oblong, slightly decurrent - - - - - } 1. *S. TUBEROSUM*.
 Leaves all sessile, ovate, lanceolate, very decurrent - - - - - 2. *S. OFFICINALE*.

1. ! *S. tuberosum*. (L. sp. 195.) *Tuberous Comfrey*. Shady banks in Scotland, frequent; in the north of England, rare. Fl. yellowish. June, July. Perennial. E. B. 1502., H. 100.

2. ! *S. officinale*. (L. sp. 195.) *Common Comfrey*. Banks of rivers and ditches. Common. Battersea fields, &c. Fl. yellowish or purplish. June, July. Perennial. E. B. 817., H. 100.

V. LYCOPSIS. (L. gen. n. 190., D. C. bot. gal. 334.)

Calyx 5-fid. *Corolla* funnel-shaped, 5-lobed, erecto-patent; the *tube* crooked. Scales of the *fauces*, ovate, prominent, connivent. *Stigma* emarginate. *Nuts* concave at the base.

1. ! *L. arvensis*. (L. sp. 199.) *Bugloss*. Corn fields and road sides. Common. Fl. blue, purple. June. Annual. E. B. 930., H. 100.

VI. ANCHUSA. (L. gen. n. 182., D. C. Bot. gal. 334.)

Calyx 5-fid. *Corolla* funnel or salver-shaped, 5-lobed, erecto-patent; *lobes* entire; *tube* straight. Scales of the *fauces* ovate, prominent, and connivent. *Stigma* emarginate. *Nuts* concave at the base.

Leaves oblong, lanceolate, all alternate; spikes }
 crowded, unilateral - - - - - } 1. *A. OFFICINALIS*.
 Leaves ovate; flower subcapitate, having 2 opposite }
 leaves beneath the capitule - - - - - } 2. *A. SEMPERVIRENS*.

1. *A. officinalis*. (L. sp. 191.) *Common Alkanet*. Waste grounds in Northumberland and other places. A doubtful native. Fl. deep purple. July. Perennial. E. B. 662., H. 101.

Note. De Candolle makes *A. officinalis* L. a doubtful synonyme of *A. italica*. But the plant cultivated in gardens under the name of *A. italica* appears to be a much taller and more divaricating plant, with the corolla rather salver than funnel-shaped.

2. ! *A. sempervirens*. (L. sp. 192.) *Evergreen Alkanet*. Road sides and about ruins. Supposed to be the outcast of gardens. Fl. blue. May, June. Perennial. E. B. 45., H. 101.

VII. BORAGO. (L. gen. n. 188., D. C. Bot. gal. 334.)

Calyx 5-partite. *Corolla* rotate, 5-fid, generally patent. Scales of the *fauces* obtuse, emarginate. *Fruit* rugose, covered by the connivent calyx.

1. ! *B. officinalis*. (L. sp. 195.) *Common Borage*. Among rubbish and near ruins; probably the outcast of gardens. Fl. bright blue. June, July. Biennial. E. B. 36., H. 100.

VIII. ASPERUGO. (L. gen. n. 189., D. C. Bot. gal. 335.)

Calyx 5-fid, unequal, with intermediate smaller teeth. *Corolla* with a short tube, 5-lobed. Scales convex, connivent. *Nuts* covered by the folded and compressed calyx.

1. ! *A. procumbens*. (L. sp. 198.) *German Madwort*. Waste places; Purfleet, Durham, and Scotland. Fl. light blue. June, July. Annual. E. B. 36., H. 105.

IX. MYOSOTIS. (L. gen. n. 180., D. C. Bot. gal. 335.)

Calyx 5-fid, or 5-partite. *Corolla* salver-shaped, with a short tube, and a flat 5-lobed limb; the *lobes* emarginate. Scales convex, connivent. *Nuts* smooth or rough.

Setæ of calyx straight, and adpressed
 pubescence of the stem spreading (or none); limb
 of the corolla flat, longer than the tube
 calyx spreading - - - - - 1. *M. PALUSTRIS*.
 calyx when in fruit, connivent - - - - - 2. *M. REPENS*.

- pubescence adpressed; limb of the corolla as long } 3. *M. CÆSPITOSA*.
 as the tube - - - - - }
 Setæ of calyx partly straight, and partly curved - 4. *M. ALPESTRIS*
 Setæ of calyx spreading, uncinatæ
 calyx, when in fruit, open - - - - - 7. *M. COLLINA*.
 calyx, when in fruit, closed
 pedicels almost erect, shorter than the calyx - 8. *M. VERSICOLOR*.
 pedicels divergent, longer than the calyx
 limb of the corolla flat, longer than the tube; } 5. *M. SYLVATICA*
 calyx 5-partite - - - - - }
 limb of the corolla concave, as long as the tube; } 6. *M. ARVENSIS*.
 calyx 5-fid - - - - - }

1. ! *M. palustris*. (Roth.) *Great Water Scorpion Grass, or Forget me not*. Ditches and sides of rivers. Common. Fl. bright blue. June, Sept. Perennial. E. B. 1973., H. 101. *M. scorpioides palustris*. (L. sp. 188.)

2. *M. repens*. (Don.) *Creeping Scorpion Grass*. Fruit smooth. Calyx with straight adpressed bristles, 5-partite. Segments connivent when in fruit, shorter than the divergent pedicel. Limb of the corolla flat, longer than the tube; the lobes subemarginate. Pubescence of stem spreading. Boggy streamlets. Yorkshire, Kent, and Sussex. Fl. blue. May, Aug. Perennial. E. B. 2703. *M. palustris* β. (Hook.)

3. ! *M. cæspitosa*. (Schultz.) *Tufted Water Scorpion Grass*. Watery places in clayey and boggy soils. Fl. pale blue. May, June. Biennial. E. B. 2661., H. 182.

4. *M. alpestris*. (Schmidt.) *Rock Scorpion Grass*. Highland Mountains. Fl. blue. July, Aug. Perennial. H. 102.

5. ! *M. sylvatica*. (Hoff.) *Upright Wood Scorpion Grass*. Dry shady places in Kent, Essex, Norfolk, and the northern counties. Fl. blue. June, July. Perennial. H. 103.

6. ! *M. arvensis*. (Hoff.) *Field Scorpion Grass*. In cultivated grounds and on banks. Common. Fl. blue. June, July. Annual. E. B. 2629., H. 103. *M. scorpioides* α. *arvensis*. (L. sp. 188.)

7. ! *M. collina*. (Hoff.) *Early Field Scorpion Grass*. Sandy banks, wall tops, and other dry places. Fl. blue. April, May. Annual. *M. arvensis*. (E. B. 2558., H. 104.)

8. ! *M. versicolor*. (Lehm.) *Blue and yellow Scorpion Grass*. Dry places. Common. Fl. blue; the upper ones yellow. April, June. Annual. *M. scorpioides* β. (E. B. 480.)

X. CYNOGLOSSUM. (L. gen. n. 183., D. C. bot. gal. 336.)

Calyx 5-partite. *Corolla* short, funnel-shaped, 5-lobed. Scales of the *faucis* convex, connivent. *Stigma* emarginate. *Nuts* depressed, attached by the inner side to the style.

Nuts rough, flat

leaves downy, lanceolate; attenuated at the base 1. *C. OFFICINALE*.

leaves glabrous, ovato-lanceolate; broad at the } 2. *C. SYLVATICUM*.
 base - - - - - }

Nuts smooth, concave, with a membranous margin 3. *C. OMPHALODES*, clt.

1. ! *C. officinale*. (L. sp. 192.) *Common Hound's Tongue*. Waste grounds. Not unfrequent. Fl. purplish red. June, Aug. Biennial. E. B. 921., H. 105.

2. ! *C. sylvaticum*. (Hænk.) *Green-leaved Hound's Tongue*. Shady places in the east and middle of England. Rare. Fl. purple. June, July. Biennial. E. B. 1642., H. 105.

3. *C. Omphalodes*. (L. sp. 193.) *Venus's Navelwort*. Leaves subglabrous, petiolated; the radical ones ovato-cordate; cauline ones ovate. Native of Piedmont. Cult. in gardens. Fl. blue, with 5 white stripes radiating from the centre. May. Perennial. Bot. mag. 7., Bot. gal. 336. *Omphalodes verna*. (Lehm.)

* * *C. linifolia* (L. sp. 193.), *Omphalodes linifolia* (Lehm.), an annual species, with linear leaves and whitish flowers, is also much cultivated.

Order LXXI. SOLANÆ. (Juss., D. C. bot. gal. p. 337.)

Calyx gamosepalous, equal, generally persistent; 5- (rarely 4-) fid or partite. *Corolla* gamopetalous, generally regular, 5- (rarely 4-) fid, deciduous; plicate in æstivation. *Stamens* 5, inserted into the base of the corolla, alternate with,

and equal in number to, its lobes. *Ovary* free, simple. *Style* 1. *Stigma* simple. *Fruit* either a 2-celled capsule, the *dissepiments* parallel to the valves; or a berry, the *receptacle* seminiferous and central. *Seeds* numerous. *Albumen* fleshy. *Embryo* straight or curved. *Cotyledons* semiterete, elongated. — Herbs, or rarely shrubs, with alternate, simple, or lobed leaves. Flowers often extra-axillary.

Fruit baccate

corolla rotate

berry covered by the elongated inflated calyx - 5. *PHYSALIS*, clt.

berry not covered by the calyx

anthers dehiscing at the apex by 2 pores - 3. *SOLANUM*.

anthers dehiscing longitudinally

leaves pinnatifid - - - - 4. *LYCOPERSICUM*, clt.

leaves simple - - - - 2. *CAPSICUM*, clt.

corolla funnel-shaped - - - - 1. *LYCIUM*, clt.

corolla campanulate - - - - 6. *ATROPA*.

Fruit capsular

calyx large, tubular, ventricose, 5-angular - 7. *DATURA*.

calyx much shorter than the funnel-shaped corolla

calyx urceolate; corolla regular

segments of calyx small - - - 8. *NICOTIANA*, clt.

segments of calyx foliaceous - - 10. *PETUNIA*, clt.

calyx tubular; limb of corolla irregular - 9. *HYOSCYAMUS*.

I. *LYCIUM*. (L. gen. n. 262., D. C. bot. gal. 337.)

Calyx short, tubular. *Corolla* funnel-shaped; the *tube* short; the *limb* 5-fid. *Filaments* of the stamens villous at the base. *Stigma* furrowed. *Berry* subrotund. *Embryo* uncinat, subcentral.

1. *L. barbarum*. (L. sp. 192.) *Box Thorn*. Leaves oblong, glabrous. Branches flexuose, nodding. *Calyx* 2-lipped. Native of the north of Africa. Cult. Trained against walls. Fl. purple. July, Aug. Shrub. D. C. bot. gal. 337.

α. vulgare. Willow-leaved *Box Thorn*. Style the length of the stamens.

β. chinense. Chinese *Box Thorn*. Style longer than the stamens.

II. *CAPSICUM*. (L. gen. n. 252., D. C. bot. gal. 337.)

Calyx 5-fid. *Corolla* rotate; the *tube* very short; the *limb* 5-fid, patent. *Anthers* 5, erect, connivent, dehiscing longitudinally. *Berry* juiceless. *Embryo* semicircular.

1. *C. annuum*. (L. sp. 270.) *Capsicum*. Stem herbaceous. Peduncles solitary. Native of South America. Cult. in gardens. Fl. whitish, small. July, Aug. Annual. Bot. gal. 337.

III. *SOLANUM*. (L. gen. n. 251., D. C. bot. gal. 337.)

Calyx persistent, 5—10-divided. *Corolla* monopetalous, rotate; the *tube* very short; the *limb* 4—5—6-divided, patent. *Anthers* 4—5—6, oblong, dehiscing at the apex by 2 pores. *Berry* subrotund, 2—3—4—6-celled. *Embryo* spiral.

Stem shrubby, flexuose, and somewhat climbing - 1. *S. DULCAMARA*.

Stem herbaceous

leaves simple - - - - 2. *S. NIGRUM*.

leaves pinnatisect - - - - 3. *S. TUBEROSUM*, clt.

1. ! *S. Dulcamara*. (L. sp. 264.) *Bittersweet, or woody Nightshade*. Hedges and thickets. Common. Fl. purple. June, July. Climbing shrub. E. B. 365., H. 111.

2. ! *S. nigrum*. (L. sp. 266.) *Black Nightshade*. Waste places. Common. Fl. white. June, Sept. Annual. E. B. 566., H. 111.

3. *S. tuberosum*. (L. sp. 262.) *Potato*. Stem herbaceous. Leaves imparipinnatisect; the segments unequal. Pedicels articulated. *Corolla* 5-angled. Native of South America. Cultivated. Very common. Fl. purple or white. June, Sept. Perennial.

IV. *LYCOPERSICUM*. (Tourn., D. C. bot. gal. 338.)

Calyx persistent, 5—6-partite. *Corolla* 5—6-fid. *Anthers* conical, united together at the apex by an elongated membrane, dehiscing longitudinally and inwards. *Seeds* villous.

1. *L. esculentum*. (Dunal.) *Love Apple; Tomato*. Pilose; the hairs various. Leaves unequally pinnatisect; the segments incised and glaucous beneath. Flowers numerous, aggregated. Berry fleshy, distended. Native of America. Cult. in gardens. Fl. yellow. Aug. Annual. Bot. gal. 338. Solan. Lycoper. (L. sp. 265.)

V. *PHYSALIS*. (L. gen. n. 250., D. C. bot. gal. 338.)

Calyx 5-fid. *Corolla* rotate, 5-fid. *Anthers* 5, oblong, erect, connivent. *Berry* globose, covered by the enlarged distended calyx.

1. *P. Alkekengi*. (L. sp. 262.) *Common Winter Cherry*. Leaves in pairs, entire, acute. Stem herbaceous. Native of the south of Europe. Cultivated in gardens, and well known by its red bladder-like calyx. The fruit is sub-acid, and occasionally eaten in Spain and Germany. Bot. gal. 338.

VI. *ATROPA*. (L. gen. n. 249., D. C. bot. gal. 338.)

Calyx campanulate, 5-fid. *Corolla* campanulate, twice the length of the calyx; 5-lobed, equal. *Filaments* 5, filiform. *Berry* globose, seated in the calyx.

1. *A. Belladonna*. (L. sp. 260.) *Deadly Nightshade*. Waste places, but not common; often in rabbit warrens. Near Croydon. Fl. drooping, lurid purple. June. Perennial. E. B. 592., H. 111.

VII. *DATURA* (L. gen. n. 246., D. C. bot. gal. 339.)

Calyx large, tubular, ventricose, 5-angled, 5-fid, and caducous at the apex; orbicular, peltate, and persistent at the base. *Corolla* very large, funnel-shaped; the tube long; the limb 5-angled, 5-plicate, with 5 points. *Stamens* 5. *Stigma* 2-lobed. *Capsule* generally prickly, ovate, 2-celled; the cells divided into 2 or many partitions by spurious dissepiments.

1. *D. Stramonium*. (L. sp. 255.) *Thorn-apple*. Waste places in the neighbourhood of towns. A naturalised American plant. Fl. white. July. Annual. E. B. 1288., H. 110.

VIII. *NICOTIANA*. (L. gen. n. 248., D. C., Bot. gal. 339.)

Calyx urceolate, 5-fid. *Corolla* much longer than the calyx, funnel-shaped, 5-fid, regular. *Stamens* 5. *Stigma* emarginate. *Capsule* 2-valved.

1. *N. Tabacum*. (L. sp. 258.) *Common Tobacco*. Leaves sessile, oblongo-lanceolate, acuminate; lower ones decurrent. Fauces of the corolla inflated, ventricose; the limb with acuminate segments. Native of America. Cult. in gardens. The cultivation of tobacco, however, on a large scale, is prohibited by law. Other species and varieties also occasionally occur in gardens, but none so common as *N. Tabacum*. Fl. rose-coloured or yellowish green. July, Aug. Annual.

IX. *HYOSCYAMUS*. (L. gen. n. 247., D. C. bot. gal. 339.)

Calyx tubular, 5-fid. *Corolla* funnel-shaped; the limb patent, oblique, 5-lobed, unequal. *Stamens* 5. *Stigma* capitate. *Capsule* ovate, compressed; often furrowed on each side, opening by a lid at the apex.

1. *H. niger*. (L. sp. 257.) *Common Henbane*. Waste place; especially on the chalk. Fl. dingy yellow, veined with purple lines. July. Biennial. E. B. 591., H. 110.

X. *PETUNIA*. (Juss. Pers., i. p. 218.)

Calyx deeply 5-fid; the segments subspathulate. *Corolla* tubular; the limb dilated, 5-lobed. *Stigma* capitate, 2-lobed. *Capsule* 2-valved, 2-celled, many-seeded.

1. *P. nyctaginiflora*. (Juss.) *Nyctago-flowered Petunia*. Stem rough. Leaves ovate-oblong, pubescent. *Corolla* 4 times longer than the calyx. Native of South America. Cult. Very common. Fl. purple. Aug., Sept. Annual.*

* A number of very interesting and showy plants have, within these few years, attracted the attention of British florists, and are now among the most common ornaments of our gardens. These have been collected into a group (*Salpiglossideæ*) by Mr. Bentham, and are by him made a tribe of the *Scrophularinæ*; but I believe Mr. G. Don, in his forthcoming volume (the 4th) of

Order LXXII. SCROPHULARINEÆ. (Juss., D. C. bot. gal. p. 342.,
Benth. scroph. ind. p. 15.)

Calyx free, 5-divided, or, more generally (by abortion), 4-divided; the *sepals* more or less united, or sometimes free, unequal; the upper one largest; the lateral ones smallest, imbricated in æstivation. *Corolla* gamopetalous, 5-divided or (by the cohesion of the 2 upper petals to the apex) 4-divided; the *tube* short or elongated; the *limb* expanded or erect, subequally partite or bilabiate; imbricated in æstivation. *Stamens* simple, opposite the sepals; upper *stamens* entirely wanting, or sterile, very rarely fertile; shorter than the others; the 2 lateral equal, rarely abortive; the 2 lower equal to, or longer than, the lateral ones, sometimes wanting. *Anthers* 2- or 1-celled; dehiscing longitudinally. *Ovary* free, 2-celled; the *cells* 2- or many-seeded. *Style* simple, rarely slightly bifid. *Stigma* generally simple, entire, emarginate, or bifid. *Fruit* capsular, rarely baccate, 2-celled, 2-seeded, dehiscing by valves or pores. *Dissepiment* parallel, or opposite to the valves, becoming loose in the centre, or altogether free. *Placenta* adhering to the dissepiments; sometimes separating when ripe. *Seeds* generally indefinite. *Embryo* variously placed in the albumen. — Inodorous or fetid herbs or shrubs.

Stamens 5

- | | | | | | |
|--|---|---|---|---|-----------------------|
| stamens all fertile | - | - | - | - | 1. VERBASCUM. |
| stamens 4, fertile; the fifth sterile, with the filament | - | - | - | - | } 9. PENTSTEMON, clt. |
| elongated | - | - | - | - | |

Stamens 4

- | | | | | | |
|--|---|---|---|---|--------------------|
| corolla equal | | | | | |
| stem ligneous | - | - | - | - | 12. BUDDLEIA, clt. |
| stem herbaceous | | | | | |
| corolla campanulate; ovary 1-celled | - | - | - | - | 11. LIMOSELLA. |
| corolla rotate; ovary 2-celled | - | - | - | - | 14. SIBTHORPIA. |
| corolla irregular, generally 2-lipped | | | | | |
| calyx 5-fid, 5-partite, or 2—3-lobed | | | | | |
| stigma bilamellate | - | - | - | - | 10. MIMULUS, clt. |
| stigma not bilamellate | | | | | |
| calyx ventricose, 5-fid, or 2—3-lobed | - | - | - | - | 18. PEDICULARIS. |
| calyx not ventricose, 5-partite | | | | | |
| corolla with the tube subglobose; the limb | | | | | } 3. SCROPHULARIA. |
| short, 5-lobed | - | - | - | - | |
| corolla personate | | | | | |
| corolla with a spur | - | - | - | - | 4. LINARIA. |
| corolla not calcarate, gibbous at the base | | | | | 5. ANTIRRHINUM. |

the *System of Gardening and Botany*, has arranged them among the *Solanææ*. Mr. Bentham's character of the tribe is as follows:—

SALPIGLOSSIDEÆ. (Part of SCROPH. Benth.)

Corolla with an elongated, rarely shortened, tube; the *limb* oblique, sometimes irregularly bilabiate; sometimes concave or flattish, with 5 incised lobes, imbricate in æstivation. *Fertile stamens* 2—4, didynamous, declinate. *Anthers* 2-celled; the *cells* becoming confluent at the apex. *Capsules* 2—4-valved; the *valves* bifid, or with a septicidal dehiscence. — The genera only to be distinguished from capsular *Solanææ* (as *Petunia*) by the imbricated æstivation of their corolla, and 4 stamens.

* *Corolla gibbous at the base; the limb very irregular.*

I. COLLINSIA. (Nuttal.)

Corolla 5-fid. *Capsule* globose, 4-valved. Two species are cultivated, *C. grandiflora* and *C. bicolor*.

II. SCHIZANTHUS. (Ruiz.)

Corolla multifid. *Capsule* oblong. The 2 species most commonly cultivated are, *S. pinnatus* and *S. retusus*.

** *Corolla funnel-shaped; the limb nearly equal.*

III. SALPIGLOSSIS. (Ruiz.)

Tube of the *corolla* distended, nearly straight; *limb* 5-lobed; the *segments* flat, expanded, notched, or bifid. *S. sinuata* is the most commonly cultivated.

- corolla tubular or campanulate
 stem climbing
 capsule dehiscing at the apex by 10 } 6. MAURANDIA, clt.
 teeth - - - - - }
 capsule bursting irregularly beneath } 7. LOPHOSPERMUM, clt.
 the apex - - - - - }
 stem not climbing - - - - - 8. DIGITALIS.
- calyx 4-dentate or 4-fid
 calyx ventricose - - - - - 19. RHINANTHUS.
 calyx not ventricose
 capsule 2-seeded - - - - - 20. MELAMPYRUM.
 capsule many-seeded
 stamens longer than the upper lip - 15. ODONTITES.
 stamens shorter than the upper lip
 upper lip, and segments of the lower } 17. BARTSIA.
 entire - - - - - }
 upper lip and segments of the lower lip } 16. EUPHRASIA.
 emarginate - - - - - }
- Stamens 2
 corolla bilabiate; the lips inflated - - - 2. CALCEOLARIA, clt.
 corolla rotate, with 4 flat lobes - - - 13. VERONICA.

Tribe I. VERBASCEÆ. (Benth.; part of SOLANEÆ, D.C.)

Corolla with a short or subglobose tube; the *limb* expanded, 4—5-fid, or bilabiate, not ringent. *Fertile stamens* 2—5, generally declinate. *Anthers* approximated or coherent, either unilocular or subbilocular; the *cells* divaricated at the base, confluent at the apex. *Capsule* 2-valved with a septicidal dehiscence; the *valves* often bifid; the *dissepiment* separable from the inflexed margin of the valves. *Seeds* naked. — A transition tribe between *Solaneæ* and *Scrophularineæ*.

I. VERBASCUM. (L. gen. n. 245., Bot. gal. 339.)

Calyx campanulate, 5-partite, subequal. *Corolla* with a very short tube; the *limb* flat, expanded, subrotate, 5-partite; the *lobes* rounded, subequal, or the lower one larger. *Stamens* 5, declinate; the lower ones longer; all fertile: the *filaments* either all, or the 3 upper, barbate. *Anthers* generally adnate, and (by the confluence of the cells) unilocular. *Style* simple, thick at the apex. *Stigma* entire or bifid. *Capsule* ovate or subglobose; the *valves* bifid at the apex. — Generally tomentose herbs, with the leaves often decurrent. Flowers yellow or purple.

Leaves decurrent

- flowers spicate; leaves subentire - - - 1. V. THAPSUS.
 flowers racemose; leaves crenulate - - - 2. V. THAPSIFORME.
- Leaves petiolated or sessile, but not decurrent
 leaves glabrous - - - - - 7. V. BLATTARIA.
 leaves more or less hairy or tomentose, at least on
 the under surface
 filaments violet, or covered with violet hairs
 leaves petiolated - - - - - 5. V. NIGRUM.
 leaves sessile - - - - - 6. V. VIRGATUM.
- filaments yellow or whitish
 leaves with only a few scattered hairs on the } 3. V. LYCHNITIS.
 upper surface - - - - - }
 leaves pulverulento-tomentose on both sides 4. V. PULVERULENTUM.
1. *V. Thapsus*. (L. sp. 252.) *Great Mullein*. Banks and waste ground, on a sandy or chalky soil. Fl. yellow. July, Aug. Biennial. E. B. 549., H. 111.
 2. ! *V. thapsiforme*. (Schr.) *Thapsus-like Mullein*. Road sides. Kent. Fl. yellow. July, Aug. Biennial. H. 111.
 3. ! *V. Lychnitis*. (L. sp. 253.) *White Mullein*. Road sides and pastures; especially on the chalk. Fl. cream-coloured. July, Aug. Biennial. E. B. 58., H. 111.
 4. ! *V. pulverulentum*. (Vill.) *Yellow hoary Mullein*. Road sides on gravelly or chalky soil. Fl. yellow. July. Biennial. E. B. 487., H. 112.
 5. ! *V. nigrum*. (L. sp. 253.) *Dark Mullein*. Banks and way sides, on a

gravelly or chalky soil. Fl. yellow. Stamens with bright purple hairs. July, Aug. Perennial. E. B. 59., H. 112.

6. ! *V. virgatum*. (With.) *Large-flowered Mullein*. Fields 'near' Wrexham; Plymouth; Lincoln. Rare. Fl. yellow. July. Biennial. E. B. 550., H. 112.

7. ! *V. Blattaria*. (L. sp. 254.) *Moth Mullein*. Banks, on a gravelly soil. Near Cobham, Kent; also in south-west of England. July. Annual. E. B. 393., H. 112.

Note. *V. ferrugineum* (Ait.), with subvillous rugose leaves; the cauline ones subsessile, equally crenate; the radical ones oblong, cordate, doubly crenate; is said by Mr. Mill to grow spontaneously near Walton on Thames. (Hook.)

* * ALONZOA (Ruiz and Pavon.), with only 4 fertile stamens, and resupinate flowers, belongs to this section. *A. linearis* and *A. incisifolia* are cultivated, and easily distinguished by their scarlet flowers, the lower part black. The first has linear leaves, 3 in a whorl; the leaves of *A. incisifolia* are ovato-lanceolate, serrate.

II. CALCEOLARIA. (Willd.)

Calyx 4-partite, patent, equal; the segments oval. *Corolla* bilabiate; the under lip large, inflated; the upper lip contracted, globose. *Stamens* 2, covered by the upper lip. *Ovary* subrotund. *Style* very short. *Stigma* obtuse. *Capsule* 2-celled, 2-valved. — Herbs or undershrubs. Natives of South America.

Leaves woolly; flowers purple - - - 1. *C. ARACHNOÏDEA*, clt.

Leaves glabrous, wrinkled; flowers yellow - - - 2. *C. RUGOSA*, clt.

1. *C. arachnoïdea*. (Graham edinb. phil. journ.) *Spider-web Slipperwort*. Stem herbaceous, branched, spreading. Leaves ligulate, oblong, subdentate, woolly. Peduncles terminal, dichotomous. Calyx and pedicels arachnoid. Native of Chili. Cult. Fl. purple. Sept. Perennial. Bot. mag. 2874.

2. *C. rugosa*. (Hook.) *Sage-leaved Slipperwort*. Leaves lanceolate, unequally serrated, glabrous, wrinkled. Peduncles terminal, bi-tri-chotomous. Native of Chili. Cult. Common. Fl. yellow. July, Sept. Perennial. Bot. mag. 2523.

Many hybrids of these, varying much in colour, are also cultivated.

III. SCROPHULARIA. (L. gen. n. 756., D. C. bot. gal. 346.)

Calyx 5-fid or 5-partite, subequal. Tube of the *corolla* ventricose, subglobose; the limb with 5 short rounded lobes; the 2 upper united, and forming the upper lip. *Stamens* 4, didynamous. *Anthers* adnate; the fifth stamen sometimes present, sterile, or changed into a scale within the upper lip. *Style* simple. *Stigma* emarginate. *Capsule* subglobose or ovoid, often acuminate. *Valves* entire, or slightly bifid at the apex.

Flowers yellow; segments of the calyx acute - - - 1. *S. VERNALIS*.

Flowers purple; lobes of the calyx rounded
leaves pubescent - - - - - 2. *S. SCORODONIA*.

leaves glabrous
stem winged; peduncle 6—10-flowered - - - 3. *S. AQUATICA*.

stem with obtuse angles; root tuberous; peduncle }
with about 5 flowers - - - - - 4. *S. NODOSA*.

1. ! *S. vernalis*. (L. sp. 864.) *Yellow Figwort*. Road sides in many parts of England; but not common. Fl. yellow. April, May. Perennial. E. B. 567., H. 290.

2. *S. scorodonia*. (L. sp. 864.) *Balm-leaved Figwort*. Moist places in the south west of England. Fl. dull purple. July. Perennial. E. B. 2209., H. 290.

3. ! *S. aquatica*. (L. sp. 864.) *Water Figwort*. Wet places. Fl. dark purple at the mouth. July. Perennial. E. B. 854., H. 290.

4. ! *S. nodosa*. (L. sp. 863.) *Knotted Figwort*. Moist ground and woods. Common. Fl. greenish purple. July. Perennial. E. B. 1544., H. 290.

Tribe II. ANTIRRHINEÆ. (Benth. scroph. ind. p. 19.; part of ANTIRRHINEÆ of D. C. bot. gal. p. 342.)

Corolla tubular; the limb personate, or ringent, bilabiate, rarely subequal. *Fertile stamens* 4, didynamous. *Anthers* approximated in pairs; 2-celled. *Capsule* dehiscing by many teeth or valves, or by a lid, or bursting irregularly. *Seeds* naked, or enclosed in an arilliform shell.

IV. LINARIA. (Tourn., D. C. bot. gal. 343.)

Calyx 5-partite. *Corolla* personate; the *tube* short, inflated, spurred at the base; the *fauces* with a prominent or depressed palate. *Stamens* pilose at the base. *Style* thick at the apex, or bifid. *Stigma* emarginate or bilobed. *Capsule* ovate or globose, dehiscing by 2 or many pores.

- Stem trailing; leaves angular, petiolate
 stem and leaves glabrous - - - 1. *L. CYMBALARIA*.
 stem and leaves downy or hirsute
 leaves ovato-reniform or cordate - - - 2. *L. SPURIA*.
 leaves broadly hastate - - - 3. *L. ELATINE*.
 Stem erect; leaves linear, sessile
 leaves glabrous
 stem panicled; calyx the length of the spur; flowers } 4. *L. REPENS*.
 blue, striated - - - }
 spike terminal; calyx shorter than the spur; } 5. *L. VULGARIS*.
 flowers yellow - - - }
 leaves pubescent - - - 6. *L. MINOR*.

1. ! *L. Cymbalaria*. (Mill.) *Ivy-leaved Toadflax*. On old walls. Common. Fl. pale blue or purplish. May, Sept. Perennial. H. 289. *Antirrhinum Cymbalaria*. (L. sp. 851., E. B. 502.)

2. ! *L. spuria*. (Mill.) *Round-leaved Toadflax*; *Fluellen*. Corn fields, on a sandy or chalky soil. Fl. yellow; upper lip purple. July, Sept. Annual. H. 289. Ant. spur. (L. sp. 851., E. B. 691.)

3. ! *L. Elatine*. (Desf.) *Sharp-pointed Fluellen*, or *Toadflax*. Corn fields, on a sandy or chalky soil. Fl. yellow; upper lip violet, much smaller than the last. H. 289. Ant. El. (L. sp. 851., E. B. 692.)

4. *L. repens*. (Aiton.) *Pale blue Toadflax*. Near the sea, in the south of England. Fl. bluish; the palate yellow. July, Sept. Perennial. H. 289. Ant. rep. (L. sp. 854., E. B. 1253.)

5. ! *L. vulgaris*. (Mœnch.) *Yellow Toadflax*. Hedges and borders of fields. Common. Fl. yellow. July, Aug. Perennial. H. 289. Ant. *Linaria*. (L. sp. 858., E. B. 658.)

β. *Peloria*, with 5 spurs. (E. B. 260.)

6. ! *L. minor*. (Desf.) *Lesser Toadflax*. Chalky and sandy fields in the south of England. Fl. purplish-yellow. June, Aug. Annual. H. 290., E. B. 2014. Ant. min. (L. sp. 852.)

V. ANTIRRHINUM. (L. gen. 750., D. C. bot. gal. 343.)

Calyx 5-partite. *Corolla* personate; the *tube* thick or elongated; saccate at the base. *Stamens* pilose at the base. *Stigma* short, 2-lobed. *Capsule* somewhat ligenous; generally oblique at the base, incurved at the apex, with 3 many-valved pores; sometimes membranaceous, dehiscing beneath the apex by 2 irregular apertures.

- Lobes of the calyx obtuse, shorter than the corolla; spikes } 1. *A. MAJUS*.
 many-flowered - - - }
 Lobes of the calyx linear, longer than the corolla; } 2. *A. ORONTIUM*.
 spikes few-flowered - - - }

1. ! *A. majus*. (L. sp. 859.) *Great Snapdragon*. On walls and chalk cliffs. Escaped from gardens. Common. Many beautiful varieties are now cultivated. Fl. purplish red, variegated by cultivation. July, Aug. Perennial. E. B. 129. H. 288.

2. ! *A. Orontium*. (L. sp. 860.) *Lesser Snapdragon*. Corn fields in the east and south of England; Battersea Fields; Thames Ditton. Fl. purple. July, Aug. Perennial. E. B. 1155., H. 289.

VI. MAURANDIA. (Jacq.)

Calyx 5-partite. *Corolla* campanulate, unequal, subpersonate. *Filaments* callous at the base. *Capsule* compressed, 2-celled; the *cells* unequal, dehiscing at the apex by 10 teeth. *Seeds* muricated.

1. *M. Barclayana*. (Lind.) *Barclay's Maurandia*. Calyx hairy, glandular. Leaves sagittate. Stem scandent. Native of Mexico. Cultivated. Trained against walls. Fl. violet. July, Aug. Climbing shrub.

VII. LOPHOSPERMUM. (D. Don, L. trans. xv. p. 350.)

Calyx 5-partite. *Corolla* campanulate; the *limb* 5-lobed, subequal. *Capsule*

bilocular, dehiscing irregularly. *Seeds* imbricated, surrounded with a membranous wing.

1. *L. erubescens*. (D. Don. l. c.) *Rose-coloured Lophospermum*. Leaves triangulari-cordate, coarsely and unequally serrated; pubescent. Segments of the calyx oblongo-mucronate. Filaments simple. Native of Mexico. Cult. Fl. pale red. July, Sept. Climbing shrub.

Tribe III. DIGITALEÆ. (Benth.)

Corolla tubular, generally ventricose; the *limb* bilabiate. *Stamens* declinate at the base, but mostly ascending at the apex; fertile ones 4, didynamous, the fifth, upper one sterile or wanting. *Anthers* 2-celled; the *cells* confluent. *Stigma* simple or bifid. *Capsule* hard, 2-valved; the *valves* dehiscing by the *sceptæ*, generally bifid or bipartite. *Dissepiments* doubled, becoming separable from the inflexed margins of the valves. *Placenta* generally separating, when ripe, from the dissepiment.

VIII. DIGITALIS. (L. gen. n. 758., D. C. bot. gal. p. 342.)

Calyx 5-partite, unequal. *Corolla* campanulate; the *limb* obliquely 4-lobed; the *lobes* unequal. *Stamens* 4, didynamous; no vestige of the fifth apparent. *Stigma* simple or bilamellate. *Capsule* ovato-acuminate.

1. ! *D. purpurea*. (L. sp. 866.) *Purple Foxglove*. Dry banks. Not uncommon. Hampstead, Wandsworth. Fl. purple, or sometimes white. July, Aug. Biennial. E. B. 357., H. 291.

IX. PENTSTEMON. (Mitch.)

Calyx 5-partite. Tube of the *corolla* ventricose; the *segments* flat. *Stamens* 5: 4 fertile; the fifth barren, longer than the fertile ones. *Capsule* compressed, 2-celled, 2-valved. *Seeds* numerous, subglobose, naked.

Leaves linear, entire - - - 1. *P. BARBATUS*, clt.

Leaves ovate, deeply serrate - - - 2. *P. CAMPANULATUS*, clt.

1. *P. barbatus*. (Lind. bot. reg.) *Bearded Penstemon*. Leaves linear, acute, very entire; lower lip bearded. Native of Mexico. Cult. Common. Fl. scarlet. June, Sept. Perennial. *Chelone barbata*. (Cav. iii. t. 242.)

2. *P. campanulatus*. (Willd.) *Bell-shaped Penstemon*. Leaves ovato-lanceolate, deeply serrated. *Corolla* campanulate; the lower lip glabrous. Native of Mexico. Cult. Common. Fl. purple. June, Sept. Perennial. *Chelone campanulata*. (Cav. i. t. 29.)

*** *CHELONE glabra* is also cultivated; and may be distinguished by the seeds being winged, and the flowers paniced, scarlet.

Tribe IV. GRATIOLEÆ. (Benth.)

Corolla tubular; the *limb* bilabiate or subequal; the *lobes* flattish. Fertile *stamens* 2—4, ascendent. *Anthers* 2-celled, not bearded. *Capsule* 2—4-valved, with a septicidal or loculicidal dehiscence; the *valves* entire or bifid. *Placentas* adherent to the dissepiment, which becomes free, and is not bipartible. *Seeds* naked.

X. MIMULUS. (L. sp. 783., Benth scrop. ind. 27.)

Calyx tubular, 5-angled, 5-dentate. *Corolla* ringent; the upper lip 2-lobed; the lower 3-fid, generally with 2 gibbosities at the base; the *segments* all flat. *Stamens* 4, didynamous, included. Cells of the *anthers* divergent, or divaricate, becoming subconfluent. *Stigma* bilamellate. *Capsule* scarcely furrowed, 2-valved; with a loculicidal dehiscence; the *valves* entire. *Dissepiment* becoming free. *Placentas* adnate.

Leaves hairy, viscous, musk-scented - - - 1. *M. MOSCHATUS*, clt.

Leaves glabrous, not viscous - - - 2. *M. GUTTATUS*, clt.

1. *M. moschatus*. (Douglas.) *Musk Plant*. Stem diffuse, lanato-villous. Leaves petiolate, ovate, or ovato-lanceolate; subdentate; rounded at the base; pilose, subviscous. *Calyx* tubular; the fruit bearing ones oblong, with lanceolate unequal teeth. Native of Central America. Much cultivated on account of its odour. Fl. yellow. June, Sept. Annual.

2. *M. guttatus*. (D. C.) *Dotted Mimulus*. Leaves glabrous, subrotund, ovate, nerved; the lower ones petiolate, not viscous. *Calyx* prismatic. Native of the north-west coast of America. Cult. Very common. Fl. yellow

with orange dots. May, Aug. Perennial. *M. luteus* Willd. (Bot. mag. 1501.)

* * * *M. luteus*, which is also much cultivated, is easily distinguished from *M. guttatus* by the single large brown spot on the lower lip. Hybrids of these, and with *M. Smithii*, are very common.

XI. LIMOSELLA. (L. gen. n. 776., D. C. bot. gal. 348.)

Calyx 5-fid, irregular. *Corolla* campanulate, very small; 5-lobed, subequal. *Stamens* 4, or, by abortion, 2. *Stigma* globose. *Ovary* 2-celled at the base, 1-celled at the apex. *Capsule* ovoid.

1. *L. aquatica*. (L. sp. 881.) *Mudwort*. Muddy places in many parts of England; about Croydon, Hornsey, &c. Fl. pale rose-coloured. July, Aug. Annual. E. B. 357., H. 291.

Tribe V. BUDDLEIÆ. (Benth. scroph. ind. p. 42.)

Corolla with a straight tube; the *limb* flat, patent, equally 4-fid. *Fertile stamens* 4, equal. *Anthers* distant, 2-celled. *Capsule* 2-valved.

XII. BUDDLEIA. (L. gen. n. 141., Benth. l. c.)

Calyx short, campanulate, regular, 4-fid. *Corolla* and *stamens* as in the tribe. *Style* simple. *Stigma* clavate, or capitate entire. *Capsule* 2-valved, septicide; the *valves* bifid, bipartite, or rarely entire.

1. *B. globosa*. (Lam.) *Honeycomb Tree*; *Buddlea*. Leaves lanceolate, acuminate, crenate; white and tomentose beneath. Capitules globose; the peduncles opposite. Native of Chili. Commonly cult. in shrubberies. Fl. yellow. Aug. Large shrub. Bot. mag. 174.

Tribe VI. VERONICEÆ. (Benth. scroph. ind. p. 43.; Tribe of

RHINANTHACEÆ, D. C. bot. gal. p. 355.)

Corolla rotate, funnel-shaped, or rarely irregularly bilabiate. *Fertile stamens* sometimes 4 subequal, exsert, distant; sometimes the 2 upper fertile, without any vestige of the lower ones. *Style* simple; the *stigma* slender or rarely capitate. *Capsule* 2-celled, with a loculicidal dehiscence. *Valves* generally bifid, or bipartite at the septa. *Seeds* naked, or enclosed in a loose arilli-form shell.

XIII. VERONICA. (L. gen. n. 25., D. C. l. c.)

Calyx 4-, rarely 5-partite, campanulate or compressed. Tube of the *corolla* generally short; the *limb* 4-partite; all the *segments* very entire, flat, patent; the upper one being the broadest. *Stamens* 2, divergent. *Capsule* compressed, ovate or obcordate. *Seeds* naked.

Roots perennial; seeds oblong; flowers in spikes or racemes

racemes, or spikes, lateral
stem and leaves glabrous

racemes alternate - - - 1. *V. SCUTELLATA*.

racemes opposite

stem erect; leaves lanceolate - - 2. *V. ANAGALLIS*.

stem procumbent; leaves elliptical, obtuse 3. *V. BECCABUNGA*.

stem and leaves villous or pubescent

hairs of the stem disposed in 2 rows - - 4. *V. CHAMÆDRYS*.

hairs scattered

leaves sessile, or with short petioles; capsule obcordate

stem procumbent; leaves broad, ovate - 5. *V. OFFICINALIS*.

stem ascending; leaves lanceolate, acute 6. *V. HIRSUTA*.

leaves with long petioles; capsule orbicular - - } 7. *V. MONTANA*.

racemes, or spikes, terminal

leaves pubescent - - - 8. *V. SPICATA*.

leaves glabrous; sometimes ciliated on the margin

stem somewhat woody at the base

raceme few-flowered; stem spreading; } 9. *V. SAXATILIS*.
leaves obtuse - - - }

- raceme elongated, many-flowered; stem }
 erect; leaves acute - - - } 10. *V. FRUTICULOSA*.
 stem herbaceous
 stem erect; calyx hairy - - - 11. *V. ALPINA*.
 stem repent at the base, afterwards ascending; calyx glabrous - - - } 12. *V. SERPYLLIFOLIA*.
 Root annual; seeds navicular; pedicels axillary,
 1-flowered; the upper sometimes subspicate
 cauline leaves (especially the lower ones) pin-
 natifid - - - } 13. *V. VERNA*.
 cauline leaves divided into 3—5 deep segments 15. *V. TRIPHYLLOS*.
 cauline leaves lobed or crenate
 stem erect - - - 14. *V. ARVENSIS*.
 stem procumbent
 leaves 5—7-lobed; sepals cordate - - - 16. *V. HEDERIFOLIA*.
 leaves inciso-serrated; sepals ovate or ob-
 long
 lobes of the capsule divaricated, and com-
 pressed upwards; flowers large - - - } 19. *V. BUXBAUMI*.
 lobes of the capsule turgid, not divaricat-
 ing; flowers small
 foliage greenish; sepals blunt - - - 17. *V. AGRESTIS*.
 foliage greyish; sepals acute - - - 18. *V. POLITA*.
1. ! *V. scutellata*. (L. sp. 16.) *Marsh Speedwell*. Wet places. Not un-
 common. Fl. flesh-coloured. July, Aug. Perennial. E. B. 782., H. 6.
 2. ! *V. Anagallis*. (L. sp. 16.) *Water Speedwell*. Ditches and watery places,
 fields, &c. Fl. bluish. July, Aug. Perennial. E. B. 781., H. 6.
 3. ! *V. Beccabunga*. (L. sp. 16.) *Brooklime*. Watercourses. Common. Fl.
 blue. May, Sept. Perennial. E. B. 635., H. 6.
 4. ! *V. Chamædrys*. (L. sp. 17.) *Germander Speedwell*. Woods, pastures,
 and hedge banks. Common. Fl. blue. May, June. Perennial. E. B. 623.,
 H. 7.
 5. ! *V. officinalis*. (L. sp. 14.) *Common Speedwell*. Woods and dry pas-
 tures. Common. Fl. light blue. May, July. Perennial. E. B. 765., H. 6.
 6. *V. hirsuta*. (Hopk.) *Small hairy Speedwell*. Ayrshire. Fl. blue. June.
 Perennial. E. B. 2673., H. 7.
 7. ! *V. montana*. (L. sp. 17.) *Mountain Speedwell*. Moist woods, near Nor-
 wood and other places; but not abundant. Fl. blue. May, June. Perennial.
 E. B. 766., H. 7.
 8. ! *V. spicata*. (L. sp. 14.) *Spiked Speedwell*. Newmarket and Bury; Lan-
 cashire and Wales. Rare. Fl. blue. July, Aug. Perennial. E. B. 2., H. 4.
 β. *hybrida*. (Hook.) Stem leaves broad, elliptical. *V. hybrida*. (L. sp.
 14., E. B. 673.)
 9. *V. saxatilis*. (L. suppl. 83.) *Blue Rock Speedwell*. Rocks of the Breadal-
 bane and Clova Mountains. Rare. Fl. blue. July. Perennial. E. B. 1027.,
 H. 5.
 10. *V. fruticulosa*. (L. sp. 15.) *Flesh-coloured Speedwell*. Ben Cruachan
 and Ben Lawers. Fl. flesh-coloured. July. Perennial. E. B. 1028., H. 5.
 11. *V. alpina*. (L. sp. 15.) *Alpine Speedwell*. Summits of the Highland
 mountains. Rare. Fl. bright blue. July, Aug. Perennial. E. B. 484., H. 5.
 12. ! *V. serpyllifolia*. (L. sp. 15.) *Thyme-leaved Speedwell*. Pastures and
 road sides. Common. Fl. blue. May, July. Perennial. E. B. 1075., H. 5.
 β. *alpina*. (Hook.) Stems prostrate, often rooting. Racemes short. *V.*
humifusa. (Dickson.)
 13. *V. verna*. (L. sp. 19.) *Vernal Speedwell*. About Bury and Thetford,
 Suffolk. Rare. Fl. blue. April. Annual. E. B. 25., H. 9.
 14. ! *V. arvensis*. (L. sp. 18.) *Wall Speedwell*. Fields and walls. Common.
 Fl. blue. May, July. Annual. E. B. 734., H. 8.
 15. *V. triphyllos*. (L. sp. 19.) *Blunt-fingered Speedwell*. Sandy fields about
 Bury. Rare. Fl. bluish purple. April. Annual. E. B. 26., H. 9.
 16. ! *V. hederifolia*. (L. sp. 19.) *Ivy-leaved Speedwell*. Fields and banks.
 Common. Fl. blue. April, June. Annual. E. B. 784., H. 7.
 17. ! *V. agrestis*. (L. sp. 18.) *Green procumbent Speedwell*. Fields and waste
 places. Common. Fl. blue. April, Sept. Annual. E. B. 2603., H. 8.
 18. ! *V. polita*. (Fries.) *Grey procumbent Speedwell*. Cultivated fields and
 waste places. Fl. blue. May, Aug. Annual. *V. agrestis*. (E. B. 783., H. 8.)

19. ! *V. Buxbaumi*. (Ten.) *Buxbaum's Speedwell*. Fields and cultivated places. Doubtful native. Near Dartford. Fl. large, blue. June, Sept. Annual. E. B. 2769., H. 8.

XIV. SIBTHORPIA. (L. gen. 775., D. C. bot. gal. p. 355.)

Calyx 5-partite. *Corolla* subrotate; the *tube* short; the *limb* regular, 5-lobed. *Stamens* 4, didynamous. *Stigma* capitate. *Capsule* compressed, orbicular, dehiscing at the apex.

1. *S. europæa*. (L. sp. 880.) *Creeping Sibthorpia*; *Cornish Moneywort*. Moist shady places; Devonshire, Cornwall, &c. Fl. pinkish white. July, Aug. Perennial. E. B. 649., H. 291.

Tribe VII. RHINANTHEÆ. (Benth. scroph. ind. p. 50.)

Limb of the *corolla* bilabiate; the upper *lip* concave, helmet-shaped, or linear; entire or emarginate; the lower one spreading, trifold. *Fertile stamens* 4, rarely 2, ascending. *Anthers* 2-celled; the *cells* separate, parallel, often acuminate. *Style* simple. *Capsule* 2-valved, with a loculicidal dehiscence; the *valves* generally entire. *Seeds* sometimes enclosed in a loose arilliform shell, sometimes naked or winged.

XV. ODONTITES. (Stev., Benth. in bot. reg.)

Calyx campanulate, 4-fid. *Corolla* deeply bilabiate; the upper *lip* entire, about the same length as the segments of the lower one, which are entire, or the middle one retuse. *Anthers* oblong, exsert beyond the upper lip; all mucronate. *Capsule* ovate, compressed, obtuse, emarginate.

1. ! *O. rubra*. (Pers., Gray nat. arran.) *Wood Chickweed*. Stem branched, scabrous, hairy. Leaves linear, lanceolate, serrate. Corn fields and waste places. Common. Fl. reddish purple. Aug., Sept. Annual. Pers. ii. p. 150. *Bartsia Odont.* (E. B. 1415., H. 286.) *Euphrasia Odontites*. (D. C. bot. gal. 355.)

XVI. EUPHRASIA. (L. gen. n. 741., Benth. l. c.)

Calyx campanulate, 4-fid. Upper lip of the *corolla* helmet-shaped, emarginate; the lower one large, expanded, with the segments emarginate. *Stamens* 4, with 2 of the *anthers* spurred at the base, and ciliated. *Capsule* ovate, compressed, obtuse, emarginate.

1. ! *E. officinalis*. (L. sp. 841.) *Eyebright*. Pastures. Common. Fl. white, or reddish streaked with purple. July, Aug. Annual. E. B. 1416., H. 286.

XVII. BARTSIA. (L. gen. n. 739., Benth. l. c.)

Calyx campanulate or tubular, 4-fid. Upper lip of the *corolla* helmet-shaped, compressed. *Segments* of the lower lip very entire. *Anthers* tomentose, ovate, shorter than the upper lip. *Capsule* ovate, compressed, acuminate.

Flowers in a terminal, short, leafy spike, purplish blue; }
leaves cordato-ovate, opposite - - - - - }

Flowers solitary, axillary, distant, yellow; leaves lan- }
ceolate, the upper ones alternate - - - - - }

1. ! *B. alpina*. (L. sp. 839.) *Alpine Bartsia*. Rocky alpine pastures in the north of England and Scotland. Rare. Fl. deep purplish blue, downy. June, July. Perennial. E. B. 361., H. 285.

2. *B. viscosa*. (L. sp. 839.) *Yellow viscid Bartsia*. Pastures in the west of England, Wales, and Scotland. Fl. yellow, odorous. Aug. Annual. E. B. 1045., H. 286.

XVIII. PEDICULARIS. (L. gen. n. 746., D. C. bot. gal. p. 352.)

Calyx ventricose, 5-fid, 5-dentate, or unequally 2—3-dentate. *Corolla* tubular, bilabiate; the upper *lip* compressed, helmet-shaped, elongated, generally emarginate; the lower one flat, expanded, 3 lobed. *Stamens* 4, didynamous. *Capsule* compressed, acuminate; often oblique, and longer than the calyx. — Herbs, with inciso-dentate or pinnatifid leaves.

Upper lip of the *corolla* dentate at the base; calyx hairy, }
with subequal lobes - - - - - }

Upper lip not dentate at the base; calyx glabrous, with }
unequal segments - - - - - }

1. ! *P. palustris*. (L. sp. 845.) *Marsh Lousewort*. Wet and marshy places. Fl. deep rose-colour. June, July. Annual. E. B. 399. H. 288.
 2. ! *P. sylvatica*. (L. sp. 845.) *Pasture Lousewort*. Moist pastures, and heaths. Common. Fl. pale rose-colour. July. Perennial. E. B. 400., H. 288.

XIX. RHINANTHUS. (L. gen. n. 740., D. C. bot. gal. p. 353.)

Calyx ventricose, 4-fid. *Corolla* tubular, bilabiate; the upper lip compressed; the lower one flat, 3-lobed. *Stamens* 4, didynamous. *Capsule* compressed, obtuse, covered by the calyx. *Seeds* compressed, marginate.

- Flowers in lax spikes; style included; seeds with a } 1. *R. CRISTA GALLI*.
 broad border - - - - - }
 Flowers in dense spikes; style subexsert; seeds with } 2. *R. MAJOR*.
 a narrow border - - - - - }

1. ! *R. Crista galli*. (L. sp. 840.) *Common Yellow Rattle*. Meadows and pastures. Common. Fl. yellow, tipped with purple. June. Annual. E. B. 657., H. 286.

2. *R. major*. (Ehrh.) *Large bushy Yellow Rattle*. Corn fields, north of England. Fl. yellow; upper segments purple. July. Annual. E. B. 2737., H. 286.

XX. MELAMPYRUM. (L. gen. n. 742., D. C. bot. gal. p. 351.)

Calyx tubular, 4-fid. *Corolla* tubular, bilabiate, compressed; the upper lip helmet-shaped, with a replicate margin; the lower one furrowed, and trifid. *Stamens* 4, didynamous. *Capsule* oblong, obliquely acuminate, compressed; the cells 1-seeded. *Seeds* large, subovoid.

- Flowers in spikes
 spike 4-sided; bracts cordate, acuminate, finely } 1. *M. CRISTATUM*.
 ciliato-dentate - - - - - }
 spike conical, lax; bracts coloured, lanceolate, pin- } 2. *M. ARVENSE*.
 natifid, with setaceous segments - - - - - }
 Flowers in distant pairs, axillary and secund
 corolla 4 times as long as the calyx, closed; lower } 3. *M. PRATENSE*.
 lip protruded - - - - - }
 corolla scarcely twice as long as the calyx; lips } 4. *M. SYLVATICUM*.
 equal in length, somewhat open - - - - - }

1. ! *M. cristatum*. (L. sp. 842.) *Crested Cow-wheat*. Woods and thickets; chiefly in the eastern and midland counties. Fl. yellow; upper lip purple within. July. Annual. E. B. 41., H. 287.

2. *M. arvense*. (L. sp. 842.) *Purple Cow-wheat*. Corn fields and dry banks, in Norfolk. Fl. variegated with yellow, purple, rose-colour, and green. July. Annual. E. B. 53., H. 287.

3. ! *M. pratense*. (L. sp. 843.) *Common Yellow Cow-wheat*. Groves and thickets. Common. Fl. pale yellow. June, Aug. Annual. E. B. 113., H. 287.

β. montanum. (Hook.) Smaller, somewhat succulent. Bractæas quite entire. *M. montanum*. (Johnst.) Near Berwick; and Richmond, Yorkshire.

4. *M. sylvaticum*. (L. sp. 843.) *Small-flowered Yellow Cow-wheat*. Alpine woods in the north of England; also in Scotland. Rare. Fl. deep yellow, very small. July. Annual. E. B. 804., H. 287.

Order LXXIII. OROBANCHEÆ. (Juss., D. C. bot. gal. p. 348.)

Calyx gamosepalous, bracteate; sometimes deeply divided. *Corolla* hypogynous, gamopetalous, irregular, with a bilabiate limb; persistent. *Stamens* 4, didynamous, inserted into the corolla. *Ovary* single, free, 1-celled, many-seeded. *Style* 1. *Stigma* simple or 2-lobed. *Capsule* surrounded by the withered corolla, 1-celled, 2-valved. *Valves* free; seminiferous along the central nervure. *Albumen* fleshy or subcorneous. *Embryo* small in the upper part of the albumen.—Fleshy and generally parasitical plants, without true leaves, but having the stem covered with brownish scales.

- Calyx* 1—2-partite; corolla ringent, 4—5-fid - - - 1. *OROBANCHE*.
Calyx campanulate, 4-fid; corolla bilabiate - - - 2. *LATHRÆA*.

I. OROBANCHE. (L. gen. n. 779., D. C. bot. gal. p. 348.)

Calyx 1—2-partite, bracteated. *Corolla* gamopetalous, tubular, ringent, 4—5-fid. *Stamens* 4, didynamous. *Style* 1. *Stigma* capitate, bilobed. *Ovary* glandular at the base.

- | | |
|--|-----------------------|
| Bracteas solitary under each flower | |
| stamens perfectly glabrous - - - | 1. O. MAJOR. |
| stamens more or less hairy or downy | |
| style pubescent - - - | 2. O. CARYOPHYLLACEA. |
| style glabrous or subglabrous | |
| segments of lower lip subequal | |
| stamens downy; corolla funnel-shaped | 3. O. ELATIOR. |
| stamens glanduloso-pilose; corolla tubular - - - | 5. O. RUBRA. |
| segments curled, the middle one largest | 4. O. MINOR. |
| Bracteas 3 under each flower | |
| stem simple - - - | 6. O. CÆRULEA. |
| stem branched - - - | 7. O. RAMOSA. |

1. ! *O. major*. (L. sp. 882.) *Greater Broom-rape*. On the roots of broom and furze. Common. Hampstead; Gravesend. Fl., and whole plant, of a dingy purplish brown. June, July. Perennial. E. B. 421., H. 292.

2. *O. caryophyllacea*. (Sm.) *Clove-scented Broom-rape*. On the roots of *Galium Mollugo*, and ? *Rubus fruticosus*. South Kent. Fl. purplish; scape reddish. Aug. Perennial. E. B. 2639., H. 292. *O. gallii*. (Bot. gal. 349.)

* * I think it probable that the species found on *Rubus fruticosus* is *O. Rubi fruticosi* (Vauch.)

3. *O. elatior*. (Sutton.) *Tall Broom-rape*. Fields, on the roots of *Centaurea scabiosa*, in several parts of England. Fl. yellowish. July, Aug. Perennial. E. B. 568., H. 293. *O. Cent. scab.* (Vauch.)

4. ! *O. minor*. (Sm.) *Lesser Broom-rape*. In clover fields, on the roots of *Trifolium pratense*. Norfolk, Kent, Surrey. Fl. pale violet or whitish. Aug. Perennial. E. B. 422., H. 293.

* * From analogy, I should be inclined to think that the *O. minor*, found in Ireland on ivy, was *O. hederæ* of Vaucher. But the accuracy of Mr. Mackay's observations are scarcely to be called in question.

5. *O. rubra*. (Smith.) *Red Broom-rape*. Found on basaltic and trap rocks in Scotland and Ireland. Fl. purplish, fragrant. July. Perennial. E. B. 1786. Bad, according to Hooker. H. 293.

6. *O. cærulea*. (Vill.) *Purple Broom-rape*. On the roots of *Artemisia vulg.* and *A. marit.*, near the sea. Norfolk. Rare. Fl. purplish blue. July. Perennial. E. B. 423., H. 293. *Or. Artem. vulg.* (Vauch.)

7. *O. ramosa*. (L. sp. 882.) *Branched Broom-rape*. On the roots of hemp. Norfolk and Suffolk. Fl. bluish above, yellow beneath. Aug., Sept. Annual. E. B. 184., H. 293. *O. cannabis*. (Vauch.)

II. LATHRÆA. (L. gen. n. 743., D. C. bot. gal. p. 351.)

Calyx campanulate, 4-fid. *Corolla* tubular, bilabiate; the upper lip helmet-shaped. *Stamens* 4, didynamous. *Ovary* glandular at the base. *Style* 1. *Stigma* 2-lobed.

1. ! *L. Squamaria*. (L. sp. 843.) *Toothwort*. On the roots of trees; especially of hazels, elms, and walnuts. Fl. purplish. April, May. Perennial. E. B. 50., H. 288.

Order LXXIV. LABIATÆ. (Juss., D. C. bot. gal. p. 359., Benth. lab. gen. et spec. p. xiii.)

Calyx inferior, persistent, gamosepalous; generally regular; either 5-dentate, with the fifth tooth superior, and next the axis; or 10-dentate; sometimes irregular, oblique, incurved. *Corolla* gamopetalous, hypogynous, deciduous, irregular; the tube polymorphous; the limb 4—5-lobed, subcampanulate, bilabiate or oblique; imbricated in æstivation. *Stamens* 4, generally didynamous, inserted into the tube of the corolla, and alternate with its segments; the 2 lower ones constant, and mostly fertile; the 2 upper sometimes sterile, generally fertile. *Normal anthers* 2-celled; the cells united by a connective; parallel,

or diverging, or divaricate at the base; being continuous at the apex. Sometimes one cell is abortive; the *anther* being then dimidiate. *Connective* sometimes elongated, separating the anther cells to some distance; often imperceptible; the cells being confluent. *Ovary* 4-lobed; the lobes 1-ovuled; the *ovule* erect. *Style* 1, inserted between the lobes at their base, bifid. *Stigmas* 2, terminal or subterminal; generally extremely small. *Fruit* generally consisting of 4 achenes (or fewer, by abortion), persistent in the bottom of the calyx; the *pericarp* membranous, thickened, or fleshy. *Seeds* erect. *Albumen* none. *Embryo* erect, deeply cleft. *Cotyledons* straight, or recurved at the apex. *Radicle* straight, or slightly curved. — Herbs or shrubs, with opposite tetragonal branches, and opposite or verticillate exstipulate leaves. Flowers in axillary opposite cymes, or 1-flowered; sometimes subspicate. Leaves and calyx covered with glands, containing an aromatic volatile oil.

Stamens 2

- | | | | | |
|--|---|---|---|---------------------|
| corolla tubular, 4—5-lobed | - | - | - | 4. LYCOPUS. |
| corolla bilabiate | | | | |
| connective, elongated; 1 cell of the anther generally abortive | - | - | - | 5. SALVIA. |
| connective, small (or imperceptible); anther subbilocular | | | | |
| calyx bilabiate | - | - | - | 6. ROSMARINUS, clt. |
| calyx equally 5-dentate | - | - | - | 7. MONARDA, clt. |

Stamens 4

- | | | | | |
|--|---|---|---|--------------------|
| stamens declinate | | | | |
| tube of the corolla shorter than the calyx; segments of the limb subequal | - | - | - | 1. OCYUM, clt. |
| tube of the corolla longer than the calyx; the limb bilabiate | - | - | - | 2. LAVANDULA, clt. |
| stamens ascending or straight | | | | |
| upper stamens longer than the lower | - | - | - | 16. NEPETA. |
| upper stamens equal to, or shorter than, the lower | | | | |
| upper lip of the corolla small; and, hence, the corolla is apparently 1-lipped | | | | |
| upper lip very small, 2-dentate; achenes reticulated | - | - | - | 26. AJUGA. |
| upper lip 2-partite; the segments deflexed; achenes smooth | - | - | - | 25. TEUCRIUM. |
| corolla with nearly equal segments; tube not longer than the calyx | | | | |
| corolla 4-lobed | - | - | - | 3. MENTHA. |
| corolla 5-lobed, obscurely bilabiate | | | | |
| calyx 10—13-nerved | | | | |
| flowers imbricated; with bracteas | | | | |
| calyx subequally 5-dentate; bracteas coloured | - | - | - | 8. ORIGANUM. |
| calyx orbicular, cleft above; bracteas green | - | - | - | 9. MAJORANA, clt. |
| flowers scattered | | | | |
| calyx bilabiate; the throat villous | - | - | - | 10. THYMUS. |
| calyx subequal; the throat naked | - | - | - | 11. SATUREIA, clt. |
| calyx 15-nerved | - | - | - | 12. HYSSOPUS, clt. |
| corolla distinctly bilabiate, or much longer than the calyx | | | | |
| calyx bilabiate | | | | |
| lips both entire | - | - | - | 15. SCUTELLARIA. |
| lower lip 2-lobed | | | | |
| stamens with a tooth below the anther | - | - | - | 14. PRUNELLA. |
| stamens not dentate | - | - | - | 13. MELISSA. |
| calyx with 3—4 rounded foliaceous lobes | - | - | - | 17. MELITTIS. |
| calyx regularly 5—10-dentate | | | | |
| stamens shorter than the tube of the corolla | - | - | - | 22. MARRUBIUM. |

- stamens longer than the tube
 anthers with transverse valves - 20. GALEOPSIS.
 anthers with longitudinal valves
 calyx nearly funnel-shaped - 23. BALLOTA.
 calyx tubular, campanulate, or tur-
 binate
 stamens, after shedding their pol- } 21. STACHYS.
 len, deflexed to the sides - }
 stamens not deflexed
 upper lip of the corolla entire
 lower lip of the corolla re- } 19. LEONURUS.
 flexed, 3-partite, subequal; }
 calyx teeth subspinous - }
 lower lip 3-lobed; middle lobe }
 much the largest; calyx } 18. LAMIUM.
 teeth not spinous - }
 upper lip of the corolla emar- } 24. PHLOMIS, clt.
 ginate - }

Tribe I. OCYMOIDEÆ. (Benth. lab. p. 1.)

Stamens declinate. *Corolla* subbilabiate; the 4 upper lobes flat, subequal, the lower ones declinate, generally deformed, concave, saccate, or flat.

I. OCYMUM. (L. gen. n. 732., Benth. lab. p. 1.)

Calyx ovate or campanulate, 5-dentate, deflexed after flowering, naked or pilose at the fauces. Tube of the *corolla* rather shorter than the calyx, ex-annulate; the *fauces* generally campanulate; *limb* bilabiate; the upper lip 4-fid, the lower very entire, flat, declinate. *Stamens* 4, declinate, didynamous; the lower ones longer. *Filaments* free; often appendiculated, with a tooth or fascicle of hairs. *Anthers* ovato-reniform; the *cells* confluent. *Achenes* smooth.

1. *O. basilicum*. (L. sp. 833.) *Sweet Basil*. Stem herbaceous, erect or ascendent. Leaves petiolate, ovate or oblong; narrowed at the base, subdentate, glabrous. Petioles ciliated. Racemes simple. Calyx longer than the pedicel, reflexed when ripe; ciliated at the base. Native of India. Cult. in kitchen-gardens. Fl. light purple. June. Annual. Benth. 4.

II. LAVANDULA. (L. gen. n. 711., Benth. lab. p. 146.)

Calyx ovate, tubular, subequal, 5-dentate. Tube of the *corolla* exsert; the *fauces* subdiluted; *limb* oblique, bilabiate; the upper lip 2-lobed, the lower 3-lobed; the lobes subequal, patent. *Stamens* 4, didynamous; the lower ones longer, included within the tube, declinate. *Filaments* free, glabrous, edentulous. *Anthers* ovato-reniform, confluent, 1-celled. *Achenes* smooth.

1. *L. vera*. (D. C.) *Garden Lavender*. Leaves oblongo-linear or lanceolate, entire, hoary when young; the margins revolute. Spike interrupted, composed of 6—10-flowered verticillasters. Floral leaves rhomboideo-ovate, acuminate, membranous. Bractees none. Native of the south of Europe. Cult. Very common. Fl. purplish grey. July. Small shrub. Benth. 148.

* * *L. Spica* may be distinguished by its lower habit, whiter colour, the leaves more congested at the base of the branches, the spike denser and shorter, and the presence of bractees.

Tribe II. MENTHOIDEÆ. (Benth. lab. p. 152.)

Corolla subcampanulate or funnel-shaped; tube shorter, or scarcely longer, than the calyx; *limb* 4—5-fid; the lobes subequal. *Stamens* distant, straight, or divergent; not approximated in pairs.

III. MENTHA. (L. gen. n. 713., Benth. lab. 168.)

Calyx campanulate or tubular, 5-dentate, equal or subbilabiate; the *fauces* naked or villous. Tube of the *corolla* enclosed in the calyx; the *limb* campanulate, subequal, 4-fid. Upper segment broader, subentire, or emarginate. *Stamens* 4, equal, erect, distant; the *filaments* glabrous, naked. *Anthers* 2-celled; the *cells* parallel. *Achenes* dry, smooth.

Throat of the calyx naked

leaves sessile

verticillasters approximated into a terminal spike

leaves pubescent, villous or tomentose above

leaves green, rugose, villous - 2. *M. ROTUNDIFOLIA*.

leaves with a hoary or white tomentum, at least on the under surface - } 1. *M. SYLVESTRIS*.

leaves green and glabrous on both surfaces - 3. *M. VIRIDIS*.

verticillasters all remote - 4. *M. PRATENSIS*.

leaves petiolated

verticillasters (at least the upper ones) approximated into a spike or capitule; floral leaves shorter than the flowers of the upper verticillaster

upper verticillasters cylindrico-spicate - 5. *M. PIPERITA*.

upper verticillasters approximated into a short oblong spike or globose capitule

whole herb smooth - 6. *M. CITRATA*.

stem and calyces more or less pilose, or the whole herb villous - 7. *M. AQUATICA*.

verticillasters all distinct; floral and cauline leaves subuniform - } 8. *M. ARVENSIS*.

Throat of the calyx villous - 9. *M. PULEGIUM*.

1. ! *M. sylvestris*. (L. sp. 804.) *Horse Mint*. Moist waste ground. Fl. purplish. Aug., Sept. Perennial. Benth. 171., H. 276.

α. *M. mollissima*. (Benth.) Leaves covered with a soft white tomentum on both sides. Rare in England. *M. incana*. (Sole.)

β. *M. candicans*. (Benth.) Leaves with a very short hairy tomentum on both sides. Rare in England. *M. candicans*. (Crantz.)

γ. ! *M. vulgaris*. (Benth.) Leaves pubescent; subrugose on the upper surface, with a soft white tomentum beneath. Common. *M. sylvestris* α. (Sm., E. B. 686.; not well represented.) *M. villosa*. (Sole.)

δ. ! *M. nemorosa*. (Benth.) Leaves ovate-oblong; green and pubescent above, with a loose white tomentum beneath. England. *M. sylvestris*. (Sole.)

ε. *M. crispa*. (Benth.) Leaves undulated, crisped, deeply dentate, subrugose; covered with a soft white tomentum beneath. Cult. in gardens.

2. ! *M. rotundifolia*. (L. sp. 805.) *Round-leaved Mint*. Moist places on waste ground. Fl. whitish. Aug., Sept. Perennial. E. B. 446., Benth. 173., H. 276.

3. ! *M. viridis*. (L. sp. 804.) *Spear Mint*. Marshy places, and cultivated. Common. Fl. purplish. Aug. Perennial. E. B. 2424., Benth. 173., H. 276.

β. *M. crispa*. (Benth.) Leaves undulated, crisped. Glen Targ, Perthshire. (Hook.)

4. ! *M. pratensis*. (Sole, menth. brit.) *Narrow-leaved Mint*. Ditches and watery places. Doubtful native. Fl. purplish. Aug. Perennial. Benth. 174. *M. gentilis*. (E. B. 449.) *M. gracilis*. (H. 277.)

5. ! *M. piperita*. (L. sp. 805.) *Pepper-Mint*. Watery places, and much cult. Fl. purplish. Aug., Sept. Perennial. E. B. 687., Benth. 175., H. 276.

β. *M. subhirsuta*. (Benth.) Petioles and nervures of the under surface of the leaves hirsute.

6. *M. citrata*. (Ehrh.) *Bergamot Mint*. Watery places. Rare. Cult. Fl. purplish. Aug. Perennial. E. B. 1025., Benth. 176., H. 276.

Mr. Benthams, in Supplement, p. 715., thinks this species might be referred to *M. aquatica*.

7. ! *M. aquatica*. (L. sp. 805.) *Hairy Mint*. Banks of rivers and marshes. Common. Fl. purple. Aug., Sept. Perennial. Benth. 176. *M. hirsuta*. (E. B. 447, H. 277.)

α. *M. nemorosa*. (Fries.) Hairs of the stems and peduncles short, reflexed; of the leaves, scattered, few; of the calyx, short, patent. Verticillasters few, all globoso-capitate, or the lower one remote. Britain.

β. ! *M. hirsuta*. (Benth.) More villous. Verticillasters as in var. α., but larger. *M. hirsuta*. (L. mant. 81.)

γ. *M. subspicata*. (Benth.) Villous. Verticillasters numerous; the upper ones subspicate, the lower remote. Floral and cauline leaves mostly uniform. *M. palustris* and *M. paludosa*. (Sole.)

* * *M. crispa* (L. sp. 805.) is a variety of this species according to Benth.

8. ! *M. arvensis*. (L. sp. 806.) *Corn Mint*. Corn fields. Common. Fl. pale purple. Aug. Perennial. Benth. 178.
α. sativa. (Benth.) Calyx subcylindrical. Pedicels hirsute. Leaves more or less villous. *M. sativa*. (E. B. 448., ? H. 277.) *M. acutifolia*. (E. B. 2415.)
β. rubra. (Benth.) Calyx cylindrical. Pedicels, stem, and leaves glabrous and reddish. *M. rubra*. (E. B. 1413., H. 277.)
γ. vulgaris. (Benth.) Calyx campanulate, villous. Pedicels glabrous. Stem and leaves villous. *M. arvensis*. (E. B. 2119., H. 277.) *M. agrestis*. (E. B. 2120., H. 278.)
δ. gentilis. Calyx campanulate, villous. Pedicels glabrous. Stem and leaves rather glabrous. *M. gentilis*. (E. B. 2118., H. 277.)
9. ! *M. Pulegium*. (L. sp. 807.) *Pennyroyal*. Wet commons. Abundant. Fl. purplish. June, Sept. Perennial. E. B. 1026., Benth. 182., H. 278.

IV. LYCOPUS. (L. gen. n. 33., Benth. 184.)

Calyx campanulate, equal, 4—5-dentate; the *fauces* naked. *Corolla* scarcely longer than the calyx, campanulate, equal, 4-fid. *Stamens*, 2 lower fertile; 2 upper sterile or abortive. *Anthers* 2-celled; the *cells* parallel, subdistinct. *Achenes* trigonal, with a thickened callous margin; truncate at the apex; attenuated at the base. — Herbs.

1. ! *L. europæus*. (L. sp. 30.) *Water Horehound*; *Gipsywort*. Ditches and banks of rivers. Common. Fl. whitish, with purple dots; hairy within. June, July. Perennial. E. B. 1105., H. 11., Benth. 186.

Tribe III. MONARDEÆ. (Benth. lab. i. p. 190.)

Corolla bilabiate. *Fertile stamens* 2, ascending. *Anthers* linear, sometimes connate, with the *cells* contiguous, opposite, confluent; sometimes dimidiate; free, or posteriorly connate. *Connectives* linear, articulated on the filament, bearing a fertile cell at the apex; generally elongated behind, and bearing a deformed or fertile cell.

V. SALVIA. (L. gen. n. 39., Benth. l. c.)

Calyx bilabiate; the upper *lip* entire or 3-dentate, the lower bifid; the *fauces* naked. *Corolla* bilabiate; the upper *lip* arched, entire, or slightly notched; middle lobe of the lower *lip* generally broadest. *Stamens* 2; the *filaments* short, articulated with the *anthers*, and slightly prolonged beyond the articulation. *Anthers* dimidiate. *Connectives* filiform, transversely articulated on the filament; elongated, ascending in front beneath the upper *lip* of the corolla, and bearing a linear fertile cell; the opposite or lower extremities sometimes bearing a fertile or a deformed cell; generally connected together. Disk of the *ovary* glanduliferous in front; the *gland* being as large as the lobes. *Achenes* ovoideo-triquetrous, very smooth.

Flowers purplish blue or whitish

upper *lip* of the corolla compressed

bracteas coloured, longer than the flowers

teeth of the calyx acuminate, spinous; panicle } 3. *S. SCLAREA*, clt.
divaricating, branched

teeth of the truncate upper *lip* of the calyx } 2. *S. HORMINUM*, clt.
very short; raceme simple

bracteas green, shorter than the flowers - - 4. *S. PRATENSIS*.

upper *lip* of the corolla not compressed

tube of the corolla annulate within; teeth of } 1. *S. OFFICINALIS*, clt.
the calyx acuminate; corolla twice as long
as the calyx

tube of the corolla exannulate; teeth of the } 5. *S. VERBENACA*.
calyx very short; corolla scarcely longer than
the calyx

Flowers scarlet

calyx green - - - - - 7. *S. FULGENS*, clt.

calyx scarlet - - - - - 6. *S. SPLENDENS*, clt.

1. *S. officinalis*. (L. sp. 34.) *Garden Sage*. Stem fruticose. Leaves lanceolato-ovate, crenulate, rugose, woolly beneath. Verticillasters few, 10—20-flowered. Teeth of the calyx acuminate, longer than the bracts. Corolla 2 or 3 times longer than the calyx; the tube exsert, annulated within. Connectives antheriferous at both extremities. Native of the south of Europe. Cult. in

kitchen-gardens. Very common. Fl. purple, blue, or white. July, Aug. Small shrub. Benth. 208.

2. *S. Horminum*. (L. sp. 34.) *Common Clary*. Stem herbaceous, erect, villous. Leaves petiolate, oval-oblong; rounded at the base, crenate, villous; upper ones ovato-cordate. Bracts membranous, persistent, coloured, longer than the calyx. Racemes simple. Verticillasters 6-flowered. Upper lip of the calyx truncate, shortly 3-dentate. Corolla longer than the calyx; the tube included. Native of the south of Europe. Cult. Common. Fl. purple; the bracts purple or red; the *Purple-topped Clary* and *Red-topped Clary* of the gardens. July, Aug. Perennial. Benth. 221.

3. *S. Sclarea*. (L. sp. 38.) *Clary*. Stem herbaceous. Leaves petiolate, rugose, ovato-cordate, villous, serrate. Bracteas membranous, coloured, longer than the flowers, persistent. Verticillasters 6-flowered. Teeth of the calyx subspinoso-acuminate. Corolla twice as long as the calyx; the tube not exsert. Native of the south of Europe. Cult. in gardens. Fl. light blue or whitish; the bracts tipped with pink. July, Aug. Perennial. Benth. 224. *S. bracteata*. (Bot. mag. 2320.)

4. ! *S. pratensis*. (L. sp. 35.) *Meadow Clary, or Sage*. Meadows; about Cobham, Kent. Fl. blue. July. Perennial. E. B. 153., H. 11., Benth. 233.

5. ! *S. Verbenaca*. (L. sp. 35.) *Wild English Clary*. Banks and dry pastures. Common. Fl. purple. July. Perennial. E. B. 154., H. 11., Benth. 239.

6. *S. splendens*. (Sello.) *Scarlet Sage*. Stem fruticose. Branches glabrous. Leaves petiolate, cordato-ovate, acuminate, serrate, glabrous. Verticillasters 2-flowered. Calyx coloured, membranous, glabrous, or villous. Corolla 3 times as long as the calyx; the upper lip erect, the lower abbreviated. Stamens subexsert. Style glabrous. Native of Brazil. Cult. Very common. Calyx and corolla brilliant scarlet. July, Sept. Perennial. Benth. 287.

7. *S. fulgens*. (Cavanil.) *Green-calyxed Scarlet Sage*. Stem fruticose. Branches piloso-hirsute. Leaves petiolate, cordato-ovate, acute, serrated, covered with white tomentum beneath. Verticillasters 6-flowered. Calyx tubuloso-campanulate, pubescent. Corolla twice the length of the calyx; the tube ventricose. Stamens included. Style plumose. Native of Mexico. Cult. in parterres. Fl. scarlet. Calyx greenish brown. July, Sept. Perennial. Benth.

VI. ROSMARINUS. (L. gen. n. 38., Benth. lab. 314.)

Calyx ovato-campanulate, bilabiate; the upper lip entire, the lower bifid; the *fauces* naked. Tube of the *corolla* exsert, exannulate; *fauces* subinflated; *limb* 2-lipped, subequal; the upper erect, emarginate; the lower spreading, trifid. Fertile *stamens* 2, ascending, exsert. *Filaments* slight, dentate at the base. *Anthers* linear, subbilocular; the *cells* divaricate at the base, confluent at the apex, connate at the margin. Upper lobe of the *style* very short. *Stigmas* minute, terminal. *Achenes* dry, smooth.

1. *R. officinalis*. (L. sp. 33.) *Rosemary*. Leaves linear, with the margin revolute; hoary beneath. Native of the south of Europe. Cult. Very common. Fl. pale blue. May. Shrub. Benth. 315.

VII. MONARDA. (L. gen. n. 37., Benth. lab. 315.)

Calyx cylindrical, 15-nerved, subequally 5-dentate; the *fauces* generally villous. *Corolla* bilabiate; the *lips* subequal; upper one erect, the lower patent, 3-fid; *tube* much exsert; the *fauces* subdiluted. Fertile *stamens* 2, ascending, exsert. *Anthers* linear, subbilocular, connate at the margin; the *cells* divaricate at the base, confluent at the apex. *Style* subequally bifid. *Stigmas* minute, terminal. *Achenes* dry, smooth.

1. *M. didyma*. (L. sp. 32.) *Scarlet Monarda, or Oswego Tea*. Leaves petiolate, ovato-lanceolate, acuminate, subcordate at the base; generally rough on both sides. Bracteas narrow, coloured. Calyx incurved, striated, coloured, glabrous; *fauces* subnaked. Corolla very glabrous. Native of North America. Cult. Common. Fl., calyx, and corolla scarlet. July, Aug. Perennial. Bot. mag. 546., Benth. 315.

* * *M. fistulosa* is also cultivated. The flowers are rose-coloured, purple, or violet, but never scarlet.

Tribe IV. SATUREINEÆ. (Benth. lab. p. 324.)

Calyx 5-dentate, equal, or bilabiate; the upper lip tridentate, the lower bifid. Tube of the *corolla* exannulate, shorter or subequal to the calyx or imbricated

bracteas; *limb* subbilabiate; the upper *lip* flat, entire, or emarginato-bifid; the lower one patent, trifid; the *lobes* flat, subequal. *Stamens* distant; the upper ones sometimes abortive.

VIII. ORIGANUM. (L. gen. n. 726., Benth. lab. 334.)

Calyx ovato-tubular, 10—13-nerved, striated; *teeth* 5, subequal; *fauces* villous. Tube of the *corolla* about the length of the calyx; *limb* subbilabiate; the upper *lip* suberect, emarginate; the lower trifid, with subequal lobes. *Stamens* 4, exsert, distant, subdidynamous; the lower ones being the longest. *Style* subequally bifid at the apex. *Achenes* dry, smooth. *Bracteas* coloured.

1. ! *O. vulgare*. (L. sp. 824.) *Common Marjoram*. Dry, hilly, and bushy places. Common, especially on a chalky soil. Fl. purple. July, Aug. Perennial. E. B. 1143., H. 278., Benth. 335.

IX. MAJORANA. (Mœnch., Benth. lab. 338.)

Calyx very shortly campanulate at the base; the *limb* cleft above, flattened and dilated, very entire, orbicular; the *margin* rolled in beneath to the base; *fauces* naked. Tube of the *corolla* as long as the calyx; *limb* bilabiate; the upper *lip* erect, emarginate; the lower patent, trifid, with subequal lobes. *Stamens* 4, distant, didynamous; the lower ones longest. *Anthers* 2-celled; the *cells* parallel, diverging or becoming divaricate. *Style* subequally bifid. *Bracteas* not coloured.

1. *M. hortensis*. (Mœnch.) *Sweet Marjoram*. Branches smooth, racemoso-paniculate. Leaves petiolate, oblongo-ovate, obtuse, entire; hoary and tomentose on both sides. Spiculae oblong, sessile on the crowded branchlets. Native of Asia. Cult. in kitchen-gardens. Common. Fl. purple or white. July, Sept. Perennial. Benth. l. c. Orig. Marj. (L. sp. 824.)

X. THYMUS. (L. gen. n. 727., Benth. lab. 340.)

Calyx ovate, 13-nerved, bilabiate; the upper *lip* tridentate, patent; the lower one bifid; the *segments* ciliate, subulate; *fauces* villous. Tube of the *corolla* enclosed within the calyx or the imbricated bracteas; naked within; *limb* subbilabiate; the upper *lip* straight, emarginate, flattened; the lower patent, trifid; with the middle *lobe* sometimes longer. *Stamens* generally exsert, straight, distant, subequal, or didynamous; the lower ones being longest. *Anthers* 2-celled.

Stem shrubby, erect; leaves linear - - - 1. *T. vulgaris*, clt.

Stem procumbent; flowering branches ascending; } 2. *T. Serpyllum*.
leaves rotundato-ovate, or oblong-obtuse - - - }

1. *T. vulgaris*. (L. sp. 825.) *Garden Thyme*. Stem erect or procumbent at the base, hoary, pubescent. Leaves sessile, linear, or ovato-lanceolate, acute; the margin revolute, fascicled in the axillas. Verticillasters lax, distant. Teeth of the upper lip of the calyx lanceolate; segments of the lower subulate, ciliated. Native of the south of Europe. Cult. in kitchen-gardens. Very common. Fl. purple. July, Aug. Perennial. Benth. 342.

2. ! *T. Serpyllum*. (L. sp. 825.) *Wild Thyme*. Hills and dry pastures. Common. Fl. purple. July, Aug. Perennial. H. 278., Benth. 343.

α. ! *vulgare*. (Benth.) Leaves small, with very prominent veins. *T. Serpyllum*. (E. B. 1514.)

"Lemon Thyme is the *Thymus citriodorus* of Schreb.; but only introduced as a synonyme of *T. Serpyllum* var. *vulgare* by Mr. Bentham."

β. *montanum*. (Benth.) Leaves larger, less rigid. *Cunila thymoides*. (L. sp. 31.) Mountains of England and Scotland.

XI. SATUREIA. (L. gen. n. 707., Benth. lab. 351.)

Calyx campanulate, 10-nerved, equal, 5-dentate, or obscurely bilabiate; *fauces* naked, or with a few hairs. Tube of the *corolla* as long as the calyx; *limb* bilabiate; upper *lip* erect, flat, entire, or emarginate; lower *lip* spreading, trifid; the *lobes* flat, equal. *Stamens* 4, suberect, diverging; the lower longest, exsert. *Anthers* bilocular.

1. *S. hortensis*. (L. sp. 795.) *Summer Savory*. Annual, erect, pubescent. Verticillasters secund, remote, or somewhat spiked above. Native of the south of Europe. Cult. in kitchen-gardens. Common. Fl. whitish. June, Aug. Annual. Benth. 352.

. *S. montana*, *Winter Savory*, is suffruticose, and occasionally cultivated.

XII. HYSSOPUS. (L. gen. n. 709., Benth. lab. 356.)

Calyx tubular, 15-nerved, equal or suboblique, 5-dentate; *fauces* naked. Tube of the *corolla* as long as the calyx; *limb* bilabiate; upper *lip* erect, flat, emarginate; lower one patent, trifid; the middle *lobe* largest. *Stamens* 4, exsert, divergent, didynamous; the lower ones longest. *Anthers* 2-celled; the *cells* linear, divaricating.

1. *H. officinalis*. (L. sp. 796.) *Hyssop*. Native of the south of Europe.

α. latifolius. Cult. in gardens. Common. Fl. purple. July, Aug. Perennial. Benth. l. c.

Tribe V. MELISSINEÆ. (Benth. lab. p. 365.)

Calyx 13- (rarely 10-) nerved, 5-dentate, bilabiate; the upper *lip* tridentate; the lower bifid, rarely equal. Tube of the *corolla* generally exsert, exannulate; *limb* bilabiate; upper *lip* straight, entire, or emarginato-bifid; flat, or rarely helmet-shaped; lower one patent; the middle *lobe* generally the broadest. *Stamens* ascending, didynamous; the upper ones shorter, sometimes abortive.

XIII. MELISSA. (L. gen. n. 728., Benth. lab. 383.)

Calyx tubular, 13-nerved, generally striated, bilabiate; upper *lip* patent, tridentate; the lower bifid; *fauces* naked or villous. Tube of the *corolla* straight or bent, naked within, generally exsert; *fauces* inflated; *limb* bilabiate; the upper *lip* erect, flat; the lower patent. *Stamens* 4, didynamous, generally approximated in pairs; upper ones sometimes sterile. *Filaments* edentulous. *Anthers* free, 2-celled. *Connective* often thickened. *Achenes* dry, smooth.

Flowers in loose lateral racemes

corolla not twice as long as the calyx; hairs of } 1. *M. NEPETA*.
the *fauces* prominent - - - }

corolla more than twice as long as the calyx; } 2. *M. CALAMINTHA*.
hairs of the *fauces* not prominent - - }

Flowers in whorls (verticillasters)

throat of the calyx very villous - - - 3. *M. ACINOS*.

throat of the calyx naked or very slightly hairy

whorls many-flowered; bractæas subulate - 4. *M. CLINOPODIUM*.

whorls few-flowered, secund; bractæas ovate - 5. *M. OFFICINALIS*, clt.

1. ! *M. Nepeta*. (L. sp. 828.) *Lesser Calamint*. Dry banks on a chalky soil. Common. Fl. whitish or pale purple. Aug. Perennial. Benth. 387. Thym. Nep. (E. B. 1414.) Calam. Nep. (H. 284.)

2. ! *M. Calamintha*. (L. sp. 827.) *Common Calamint*. Borders of fields and way sides, on chalky or gravelly soils. Fl. whitish or pale purple. July, Aug. Perennial. Benth. 388. Thym. Calam. (E. B. 1676.) Calam. offic. (H. 284.)

3. ! *M. Acinos*. (Benth.) *Basil Thyme*. Cultivated fields on chalky or gravelly soils. Fl. bluish purple. Aug. Annual. Benth. 389. Thym. Acyn. (L. sp. 826., E. B. 411.) *Acynos vulgaris*. (H. 283.)

4. ! *M. Clinopodium*. (Benth.) *Wild Basil*. Hills and dry bushy places. Common. Fl. rose-purple. Aug. Perennial. Benth. 392. Clin. vulg. (L. sp. 821., E. B. 1401., H. 284.)

5. *M. officinalis*. (L. sp. 827.) *Balm*. Herbaceous, erect, branched. Leaves broadly ovate, crenate, cordate, or truncate at the base. Verticillasters axillary, loose, secund. Bractæas few, ovate. Corolla longer than the calyx. Native of the south of Europe. Cult. Common. Fl. whitish or cream-coloured. June, Sept. Perennial. Benth. 393.

β. villosa. (Benth.) *Roman Balm*. Flowers sessile. *M. romana*. (Mill.)

Tribe VI. SCUTELLARINEÆ. (Benth. lab. p. 416.)

Calyx bilabiate; the upper *lip* truncate, entire, or subtridentate. Tube of the *corolla* exsert, ascending; with a ring internally, or naked; upper *lip* arched. *Stamens* 4, ascending beneath the upper *lip*; didynamous; lower ones the longest.

XIV. PRUNELLA. (L. gen. n. 735., Benth. lab. 416.)

Calyx tubular, campanulate, irregularly 10-nerved, and reticulate, bilabiate; the upper *lip* broad, slightly tridentate; the lower semibifid, with lanceolate

segments; *fauces* naked. Tube of the *corolla* large, subexsert, with a ring of hairs or short scales near the base; the upper *lip* erect, helmet-shaped, slightly crested, entire; lower one pendent; the lateral *lobes* deflexed; the middle round, concave, crenulate. Filaments of the *stamens* edentulous at the base, glabrous, slightly bidentate at the apex; the lower *tooth* antheriferous. *Anthers* approximated in pairs beneath the upper lip; free, bilocular; the *cells* distinct, divaricate. *Gynophorus* straight. *Achenes* oblong, dry, smooth.

1. ! *P. vulgaris*. (L. sp. 837.) *Self-heal*. Moist and barren pastures. Common. Fl. violet blue. July, Aug. Perennial. E. B. 961., H. 285., Benth. 417.

XV. SCUTELLARIA. (L. gen. n. 734., Benth. lab. 419.)

Calyx campanulate, bilabiate; the *lips* entire, closed after flowering, and ultimately becoming cleft to the base; upper *lip* enclosed by a dilated scale, deciduous at maturity; the lower persistent. Tube of the *corolla* exsert, generally curved at the base; *fauces* dilated; *limb* bilabiate; the upper *lip* entire or emarginate; the lower convex, notched; its lateral *lobes* generally united to the upper lip. *Anthers* approximated, ciliated; dimidiate in the lower *stamens*; 2-celled in the upper ones, cordate, the *cells* subdivaricating; upper lobe of the *style* very short; the lower bearing the stigma at the apex. *Ovary* supported on an incurved gynophorus. *Achenes* dry, tubercular, glabrous or hairy.

Leaves lanceolate, cordate at the base, crenate; corolla	} 1. <i>S. GALERICULATA</i> .
more than $\frac{1}{2}$ inch long	
Leaves oblong-ovate, cordate at the base, entire; co-	} 2. <i>S. MINOR</i> .
rolla about $\frac{1}{2}$ inch long	

1. ! *S. galericulata*. (L. sp. 835.) *Common Skull-cap*. Banks of rivers. Common. Fl. blue, downy. July, Aug. Perennial. E. B. 523., H. 285., Benth. 437.

2. ! *S. minor*. (L. sp. 835.) *Lesser Skull-cap*. Moist ditches and heathy places. Common. Fl. pale red, with a bluish tinge. July. Perennial. E. B. 524., H. 285., Benth. 439.

Tribe VII. NEPETÆ. (Benth. lab. p. 462.)

Calyx equal, or oblique, or subbilabiate; upper *teeth* the largest. *Corolla* included or exsert; the *fauces* generally inflated; upper *lip* arched; the lower one spreading. *Stamens* 4, didynamous; the upper the longest, ascending or diverging.

XVI. NEPETA. (L. gen. n. 710., Benth. lab. 464.)

Calyx tubular, 13—15-nerved, generally incurved; the *mouth* oblique, 5-dentate, rarely ovate, straight; the *teeth* equal. *Fauces* of the *corolla* naked, dilated; *limb* bilabiate; the upper *lip* straight, subconcave, notched, or bifid; the lower patent, trifid; the middle *lobe* largest. *Stamens* didynamous; the lower ones the shortest. *Anthers* approximated in pairs, bilocular; the *cells* diverging and becoming divaricate. *Achenes* dry, smooth, naked.

Stem erect; whorls many-flowered	- - -	1. <i>N. CATARIA</i> .
Stem creeping; whorls 3-flowered	- - -	2. <i>N. GLECHOMA</i> .

1. ! *N. cataria*. (L. sp. 796.) *Cat Mint*. Hedges and waste places; especially on a chalky soil. Fl. white, tinged and spotted with pink. July, Aug. Perennial. E. B. 137., H. 283., Benth. 477.

2. ! *N. glechoma*. (Benth.) *Ground Ivy*. Hedges and waste places. Common. Fl. blue. May. Perennial. Benth. 485. *Glechoma hederacea*. (L. sp. 807., E. B. 853., H. 283.)

Tribe VIII. STACHYDÆ. (Benth. lab. p. 503.)

Calyx irregularly veined, or 5—10-nerved, equal, oblique, or rarely subbilabiate; 3—10-dentate. Tube of the *corolla* included or exsert, often with a ring internally; *limb* bilabiate; upper *lip* helmet-shaped or flat, entire or notched; lower one variously trifid. *Stamens* 4, ascending, didynamous; the upper ones the shortest, generally all fertile. *Achenes* dry.

XVII. MELITTIS. (L. gen. n. 731., Benth. lab. 503.)

Calyx campanulate, membranous, irregularly veined, subbilabiate; the upper *lip* broad, round, obscurely 2-lobed, or slightly 2—3-dentate; the lower *lip* bifid; the *lobes* round. Tube of the *corolla* large, exsert, exannulate

within; *limb* bilabiate; the upper *lip* orbicular, entire, subconcave, patent; the lower 3-lobed, patent. Filaments of *stamens* exappendiculated. *Anthers* approximated in pairs, 2-celled; the *cells* distinct, diverging. *Achenes* dry, smooth, or finely reticulated.

1. ! *M. Melissophyllum*. (L. sp. 832.) *Bastard Balm*. Woods and coppices in the south of England. Fl. white or reddish; the lower lip often spotted with purple. May, June. Perennial. E. B. 577., H. 284., Benth. 503. *M. grandiflora*. (Sm., E. B. 636.)

XVIII. LAMIUM. (L. gen. n. 716., Benth. lab. 507.)

Calyx tubular, campanulate, 5-nerved; the *mouth* generally oblique, 5-dentate, awned. *Corolla* generally exsert; *limb* bilabiate; the upper arched or helmet-shaped, generally narrow at the base; *fauces* dilated; lower *lip* 3-lobed; the middle *lobe* broad, notched, contracted at the base, substipitate; lateral ones small. *Anthers* approximated in pairs, bilocular; the *cells* becoming divaricate, smooth, or hairy, at the back. *Achenes* dry, triquetrous, truncated at the apex, with sharp angles, smooth or tuberculated.

Flower reddish or white; anthers hirsute

tube of the corolla straight

leaves ovate; whorls approximated

leaves crenate

leaves incised, lobed

leaves orbicular, floral ones amplexicaule;

whorls distinct

tube of the corolla twice bent

Flowers yellow; anthers glabrous

- 1. L. PURPUREUM.

- 2. L. INCISUM.

- 3. L. AMPLEXICAULE.

- 4. L. VULGATUM.

- 5. L. GALEOBDOLON.

1. ! *L. amplexicaule*. (L. sp. 809.) *Henbit Nettle*. Waste places and sandy fields. Fl. deep rose-colour. April, June. Annual. E. B. 770., H. 282., Benth. 511.

2. ! *L. purpureum*. (L. sp. 809.) *Red Dead Nettle*. Waste ground. Common. Fl. purple. May, Sept. Annual. E. B. 1933., H. 281., Benth. 512.

3. ! *L. incisum*. (Willd.) *Cut-leaved Dead Nettle*. Cultivated and waste ground. Fl. purple. May, Aug. Annual. E. B. 1933., H. 281., Benth. 512.

4. ! *L. vulgatum*. (Benth.) *Common Dead Nettle*. Leaves ovato-cordate or truncate at the base, rugose; generally villous. Teeth of the calyx terminating in long awns, glabrous or villous. Tube of the corolla large, with a ring of hairs on the inside; bent, and exsert; *fauces* subdilated; helmet oblong; the lateral lobes with a long awn. *Anthers* hairy. Benth. 514.

α. ! *rubrum*. (Benth.) Flowers red. Bayswater, &c. Doubtful native. *L. maculatum*. (L. sp. 809., E. B. 36., H. 281.)

β. ! *album*. (Benth.) Flowers white. Ditches and waste places. Common. June, July. Perennial. *L. album*. (L. sp. 809., E. B. 768., H. 281.)

5. ! *L. Galeobdolon*. (Crantz.) *Yellow Weasel Snout, or Archangel*. Woods and shady places. Common. Fl. yellow. May, June. Perennial. Benth. 516. *Galeopsis Galeobdolon*. (L. sp. 810.) *Galeobdolon luteum*. (E. B. 787., H. 280.)

XIX. LEONURUS. (L. gen. n. 722., Benth. lab. 517.)

Calyx 5-nerved, turbinate, subequal, truncate; *teeth* 5, subulate, subspinous, spreading when in fruit. Tube of the *corolla* generally included; *limb* bilabiate; the upper *lip* oblong, entire, flat, or helmet-shaped; lower *lip* spreading, trifid; the lateral *lobes* oblong, the middle one obcordate. *Stamens* 4, ascending, didynamous. *Anthers* approximated in pairs, bilocular; the *cells* parallel, transverse, rarely diverging; the *valves* naked. *Achenes* dry, smooth, triquetrous, truncate at the apex, with sharp angles.

1. *L. Cardiaca*. (L. sp. 817.) *Motherwort*. Hedges and waste places. Fl. white, with a reddish tinge. Aug. Perennial. E. B. 286., H. 280., Benth. 518.

XX. GALEOPSIS. (L. gen. n. 717., Benth. lab. 522.)

Calyx tubular, campanulate, 5-nerved; *limb* regular, with 5 subspinous teeth. Tube of the *corolla* exsert, straight; *fauces* dilated, naked; *limb* bilabiate; upper *lip* ovate, entire, arched; lower one patent, trifid; the lateral *lobes* ovate; the middle one obcordate or subtrifid. *Palate* with an elevated tooth in the sinuses of the lobes. *Stamens* 4, didynamous. *Anthers* bilocular;

the cells opposite, dehiscing transversely by 2 valves; the inner one being round and ciliated, the outer larger and naked.

Stem not swollen below the joints

down of the calyx glandular; stem decumbent

hairs of calyx not glandular; stem erect

Stem swollen below the joints

- 1. *G. OCHROLEUCA.*

- 2. *G. LADANUM.*

- 3. *G. TETRAHIT.*

1. ! *G. ochroleuca.* (Lam.) *Trailing Hemp-nettle.* Sandy corn fields in the north and middle of England. Rare. Fl. large pale yellow. July, Aug. Annual. Benth. 523. *G. villosa.* (E. B. 2353., H. 280.)

2. ! *G. Ladanum.* (L. sp. 810.) *Red Hemp-nettle.* Corn fields, &c., on gravelly and chalky soils. Common. Fl. purplish rose-coloured or white. Aug. Annual. E. B. 884., H. 280., Benth. 523.

3. ! *G. Tetrahit.* (L. sp. 810.) *Common Hemp-nettle.* Corn fields and waste places. Common. Fl. purplish or white. Aug. Annual. Benth. 524.

α. parviflora. (Benth.) Corolla 2—3 times longer than the calyx. *G. Tetrahit.* (E. B. 207., H. 280.)

β. grandiflora. (Benth.) Corolla 3—4 times longer than the calyx. *G. versicolor.* (E. B. 667., H. 281.)

XXI. STACHYS. (L. gen. n. 719., Benth. lab. 525.)

Calyx tubular, campanulate, 5- or 10-nerved; the limb even or oblique; the teeth equal, or the upper the longest; rarely subbilabiate. Tube of the corolla cylindrical, included, or exsert; often bent at the upper part; fauces not dilated; limb bilabiate; the upper lip erect, somewhat helmet-shaped, entire, or slightly notched; rarely flat, elongated, deeply notched; lower lip generally longer, patent, 3-lobed; the middle lobe very large, entire, or notched. *Stamens* 4, ascending, didynamous; the lower longest, often deflexed to the sides of the fauces after flowering. *Filaments* naked. *Anthers* approximated, bilocular; the cells distinct, parallel, diverging, or divaricate. *Achenes* dry, obtuse, not truncate.

Bracteas as long as the calyx; whorls many-flowered

leaves green, somewhat hairy

leaves densely covered with white silky wool

Bracteas minute; whorls 6-, rarely 10-flowered

flowers purplish or white, with a red tinge, but not cream-coloured

perennial; stem erect, strong

tube of the corolla exsert; whorls 6-flowered;

leaves cordate

tube scarcely exsert; whorls generally 8—10-flowered;

erect; leaves linear, lanceolate

annual; stem weak, decumbent

flowers cream-coloured; teeth of the calyx subspinous

- 1. *S. BETONICA.*

- 2. *S. GERMANICA.*

- 3. *S. SYLVATICA.*

- 4. *S. PALUSTRIS.*

- 5. *S. ARVENSIS.*

- 6. *S. ANNUA.*

1. ! *S. Betonica.* (Benth.) *Betony.* Herbaceous, erect, rather hairy; lower leaves on long petioles, ovate-oblong, obtuse, crenate, cordate at the base; upper ones remote, sessile oblong, lanceolate, acute, dentate; ultimate floral ones linear, entire, as long as the calyx. Verticillasters many-flowered, approximated into a subinterrupted oblong spike; the lowest being generally distinct. Bracteas ovate, mucronate, as long as the calyx. Corolla twice as long as the calyx. Woods and thickets. Common. Fl. purple. July, Aug. Perennial. Benth. 532. *Betonica offic.* (L. sp. 810., E. B. 1142., H. 282.)

2. ! *S. germanica.* (L. sp. 812.) *Downy Woundwort.* Waysides and fields on chalky soils. Cult. in gardens. Common. Fl. rose-purple. Sept. Perennial. E. B. 829., H. 282., Benth. 536.

3. ! *S. sylvatica.* (L. sp. 811.) *Hedge Woundwort.* Woods and shady places. Common. Fl. purple. July, Aug. Perennial. E. B. 416., H. 282., Benth. 541.

4. ! *S. palustris.* (L. sp. 811.) *Marsh Woundwort.* Watery places. Common. Fl. rose-purple. Aug. Perennial. E. B. 1675., H. 282., Benth. 542.

β. hybrida. (Benth.) Leaves on longer petioles. Corolla subexsert. *S. ambigua.* (E. B. 2089., H. 282.)

5. ! *S. arvensis.* (L. sp. 814.) *Corn Woundwort.* Dry corn fields. Common. Fl. pale purple. July, Aug. Annual. E. B. 1154., H. 283., Benth. 550.

6. ! *S. annua.* (L. sp. 813.) *Pale Annual Woundwort.* Field between Gads-hill and Rochester. Fl. cream-coloured. Aug. Annual. E. B. 2669., H. 283., Benth. 554.

XXII. MARRUBIUM. (L. gen. n. 721., Benth. lab. 585.)

Calyx tubular, 5—10-nerved, equal; *teeth* 5—10, subspinous, generally patent after flowering. Tube of the *corolla* included; *limb* bilabiate; upper *lip* erect, flat, or concave; entire, or slightly bifid; lower one patent, trifid; the middle *lobe* broader, and generally notched. *Stamens* 4, didynamous, included within the tube of the *corolla*. *Anthers* bilocular; the *cells* divaricate, subconfluent, all subuniform. *Achenes* dry, obtuse, not truncate.

1. ! *M. vulgare*. (L. sp. 816.) *White Horehound*. Waste places, especially on a chalky soil. Fl. white. Aug. Perennial. E. B. 410., H. 288., Benth. 591.

XXIII. BALLOTA. (L. gen. n. 720., Benth. lab. 592.)

Calyx nearly funnel-shaped; *tube* 10-nerved; *teeth* 5—10, dilated at the base, or connate into a spreading orbicular limb. Tube of the *corolla* subincluded, transversely hairy within, ringed; *limb* bilabiate; upper *lip* erect, oblong, subconcave, notched at the apex; lower one trifid; the middle *lobe* emarginate. *Stamens* 4, ascending, didynamous. *Anthers* exsert from the tube, approximated in pairs, bilocular; the *cells* becoming divaricate, subdistinct. *Achenes* dry, obtuse, not truncate.

1. ! *B. nigra*. (L. sp. 814.) *Black Horehound*. Waste places. Common. Fl. purple. July, Aug. Perennial. E. B. 46., H. 280., Benth. 597.

XXIV. PHLOMIS. (L. gen. n. 723., Benth. lab. 620.)

Calyx tubular, 5- or 10-striated, generally plicate, 5-dentate. Tube of the *corolla* scarcely, if at all, exsert; generally annulate within; *limb* bilabiate; the upper *lip* helmet-shaped, keeled, compressed, broad. *Stamens* 4, ascending; upper *filaments* adnate, mostly appendiculated at the base; lower ones naked. *Anthers* approximated in pairs beneath the helmet, subbilocular; the *cells* divaricate, obtuse, confluent at the apex. Upper lobe of the *style* very short. *Achenes* dry, triquetrous, obtuse at the apex.

1. *P. fruticosa*. (L. sp. 818.) *Jerusalem Sage*. Fruticose. Branches tomentose. Leaves ovate or oblong, rugose; green above, white beneath. Whorls many-flowered. Bractees ovate, broad or narrow, acute, ciliated. Teeth of the calyx subulate, recurved, or patent. Native of the south of Europe. Cult. Common. Fl. large, yellow. July, Aug. Small shrub. Bot. mag. 1843. Benth. 627.

Tribe IX. AJUGOIDEÆ. (Benth. lab. p. 657.)

Upper lip of the *corolla* very short, or cleft, the segments deflexed; very rarely erect, arched; lower *lip* elongated. *Stamens* 2 or 4, ascending, generally exsert opposite the lip. *Achenes* more or less reticulate, and rugose.

XXV. TEUCRIUM. (L. gen. n. 706., Benth. lab. 660.)

Calyx tubular or campanulate, rarely inflated. *Teeth* 5, equal, or the upper one broader. Tube of the *corolla* short, exannulate; upper *segments* of the *limb* 4, subequal, or the 2 central ones broader and longer; either oblong and deflexed, or very short and erect; lowest *segment* very large, round or oblong, generally concave. *Stamens* 4, exsert between the upper segments, didynamous; the lower the longest. Cells of the *anthers* confluent. *Achenes* more or less rugose.

- | | | |
|--|---|--------------------|
| Flowers in unilateral racemes; upper tooth of calyx the broadest | } | 1. T. SCORODONIA. |
| Flowers axillary, terminal or distant; teeth of calyx nearly equal | | |
| stem procumbent, tetragonal; leaves sessile | } | 2. T. SCORDIUM. |
| leaves wedge-shaped at the base, narrow or roundish; flowers generally 2—4 in the axilla | | |
| leaves cordato-amplexicaule at the base; flowers generally 6 in the axilla | } | 3. T. SCORDIOIDES. |
| stem erect, or slightly procumbent at the base, terete; leaves tapering into a footstalk | | |
| Flowers crowded into a terminal capitule | } | 4. T. CHAMEDRYS. |
| | | |
| | | 5. T. POLIUM, clt. |

1. ! *T. Scorodonia*. (L. sp. 789.) *Wild Germander*. Woods and heaths. Common. Fl. yellowish white. July, Aug. Perennial. E. B. 1543., H. 278. (Benth. 676.)

2. *T. Scordium*. (L. sp. 790.) *Water Germander*. Wet meadows in Cambridgeshire and Oxfordshire; also in Ireland. Rare. Fl. pale purple. July, Aug. Perennial. H. 279., Benth. 679.

3. *T. scordioides*. (Schreb.) *Bastard Water Germander*. Herbaceous, woolly. Leaves ovate-oblong, crenate; cordato-amplexicaule at the base; green on both sides; verticillasters 6-flowered, axillary. Teeth of the calyx short, subequal. Marshy meadows; Cambridgeshire. Fl. pale purple. July, Aug. Perennial. Benth. 679. *T. Scordium*. (E. B. 828.)

4. *T. Chamædryas*. (L. sp. 790.) *Wall Germander*. On walls and stony places; Winchelsea Castle, Norwich; also Scotland and Ireland. Fl. reddish purple. July. Perennial. E. B. 680., H. 279., Benth. 680.

5. *T. Polium*. (L. sp. 792.) *Common Poly*. Suffrutescent, hoary, tomentose. Leaves wedge-shaped or oblong, linear, with the margin revolute; verticillasters few, collected into a capitule. Calyx tubular, campanulate, with equal teeth. Native of the south of Europe. Cult. Fl. white, yellow, or purple. July, Sept. Undershrub. Benth. 685.

XXVI. AJUGA. (L. gen. n. 705., Benth. lab. 690.)

Calyx campanulate, subequal, 5-fid or 5-dentate. Tube of the *corolla* generally with a ring of hairs inside; upper *lip* very short, slightly notched; lower one elongated, patent, trifid; the lateral *segments* oblong; the middle one broader, notched or bifid. *Stamens* 4, ascending, generally exsert, didynamous; the lower the longest. *Anthems* subbilocular; the *cells* divergent or divaricate at the base, becoming confluent at the apex.

Whorls 6- or many-flowered; flowers blue

stolons, or suckers, from the collet - - - 1. *A. REPTANS*.

stolons none

floral leaves subentire, subimbricate - - - 2. *A. PYRAMIDALIS*.

floral leaves more or less dentate, remote - - - 3. *A. GENEVENSIS*.

Whorls 2-flowered; flowers yellow - - - 4. *A. CHAMÆPITYS*.

1. ! *A. reptans*. (L. sp. 785.) *Common Bugle*. Moist pastures and woods. Common. Fl. blue, sometimes white. May, June. Perennial. E. B. 489., H. 279., Benth. 692.

2. *A. pyramidalis*. (L. sp. 785.) *Pyramidal Bugle*. Highland pastures. Rare. Fl. blue. June. Perennial. E. B. 1270., H. 279., Benth. 693.

3. *A. genevensis*. (L. sp. 785.) *Distant-flowered Bugle*. Mountains of Derbyshire, and the north of England and Scotland. Rare. Fl. blue. June. Perennial. Benth. 694. *A. alpina*. (E. B. 477., H. 279.)

4. ! *A. Chamæpitys*. (Schreb.) *Ground Pine, or Yellow Bugle*. Chalky or gravelly fields. Fl. yellow. May, June. Annual. E. B. 77., H. 279., Benth. 699. *Teucrium Chamæpitys*. (L. sp. 787.)

Order LXXV. VERBENACEÆ. (Juss., D. C. bot. gal. p. 377.)

Calyx tubular, persistent. *Corolla* hypogynous, gamopetalous, tubular, deciduous, generally irregular. *Stamens* generally 4, didynamous; rarely 2 or 6. *Ovary* free, 2-4-celled. *Ovules* erect, solitary or in pairs. *Style* 1. *Stigmas* simple or bilobed. *Pericarp* drupaceous or baccate, containing 1-4 monospermous nuts (pyrena), which are sometimes enclosed in an utricular membrane. *Embryo* straight. *Radicle* inferior. *Albumen* none. — Herbs, shrubs, or trees, with opposite exstipulate leaves.

I. VERBENA. (L. gen. n. 32., D. C. bot. gal. 377.)

Calyx 5-fid. Limb of the *corolla* 5-lobed, unequal, subbilabiate. *Stamens* 4, didynamous. *Seeds* 4, enclosed in an utricular tissue.

Flowers purple

flowers large, in a subcapitate corymb; leaves } 2. *V. ERINOIDES*, clt.
3-5-partite, laciniate - - - }

flowers small, spicate; leaves serrato-pinnati- } 1. *V. OFFICINALIS*.
fid, incised - - - }

Flowers scarlet - - - - - 3. *V. CHAMÆDRYFOLIA*, clt.

1. ! *V. officinalis*. (L. sp. 29.) *Common Vervain*. Road sides and waste ground. Common. Fl. small, purple. July. Perennial. E. B. 767., H. 291.

2. *V. erinoides*. (Lamarck.) *Dwarf Purple Vervain*. Stem diffuse, pilose. Leaves 3—5-partite, laciniate. Corymbs subcapitate, pedunculate. Calyx with hispid hairs. Segments of the corolla patent, emarginate. Native of Chili. Cult. Common. Fl. purple. July, Sept. Perennial. Lam. illust. i. p. 57., Don syst. iv. *V. multifida*. (Flor. peruv., Bot. reg. 1766.)

3. *V. chamaedryfolia*. (Juss. ann. mus.) *Scarlet Verbena*. Stem procumbent, pilose. Leaves oblong, lanceolate, coarsely serrated, hispid, as well as the calyx. Flowers corymbose. The segments of the corolla emarginate. Native of Buenos Ayres. Cult. in borders. Fl. bright scarlet. July, Sept. Perennial. Bot. mag. 3333. *V. Melindres*. (Gillies.)

Order LXXVI. LENTIBULARIÆ. (Rich., D. C. bot. gal. p. 378.)

Calyx divided, persistent. *Corolla* gamopetalous, hypogynous, irregular, spurred, bilabiate. *Stamens* 2, included, inserted into the base of the corolla. *Anthers* simple, sometimes contracted in the middle. *Ovary* 1-celled. *Style* 1, very short. *Stigma* bilabiate. *Capsule* 1-celled, many-seeded, with a large central placenta. *Seeds* small, exalbuminous. *Embryo* dicotyledonous, or sometimes undivided. — Marsh or water plants.

Calyx 5-fid - - - - - 1. PINGUICULA.
Calyx 2-partite; the lips equal, undivided - - - 2. UTRICULARIA.

I. PINGUICULA. (L. gen. n. 30., D. C. l. c.)

Calyx campanulate, 5-fid. *Corolla* bilabiate; the upper lip 3-lobed; the lower 2-lobed, short, spurred at the base. *Stigma* bilamellate.

Flowers deep purple or purplish blue; spur as long as the corolla

limb of the corolla not veined; segments all entire - 1. *P. VULGARIS*.

limb of the corolla veined; middle segment of the }
 lower lip notched - - - - - } 2. *P. GRANDIFLORA*.

Flowers yellowish or purplish yellow; spur shorter than the corolla

limb of the corolla unequal; scape glabrous - - 3. *P. ALPINA*.

limb of the corolla subequal; scape hairy - - 4. *P. LUSITANICA*.

1. ! *P. vulgaris*. (L. sp. 25.) *Common Butterwort*. Bogs and moist banks; especially in the north of England. Peaty bog, Chiselhurst, Kent. (Cooper.) Fl. purple. June. Perennial. E. B. 70., H. 9.

2. *P. grandiflora*. (Willd.) *Large-flowered Butterwort*. South of Ireland. Fl. purplish blue, large. May. Perennial. E. B. 2184., H. 9.

3. *P. alpina*. (L. sp. 25.) *Alpine Butterwort*. Bogs in Scotland. Rare. Fl. yellowish. June. Perennial. E. B. 2747., H. 9.

4. *P. lusitanica*. (L. sp. 25.) *Pale Butterwort*. Marshy places, in the west of England and Scotland; also in Ireland. Fl. yellowish purple. July, Aug. Perennial. E. B. 145., H. 10.

II. UTRICULARIA. (L. gen. n. 31., D. C. bot. gal. p. 379.)

Calyx 2-partite; the lips equal, undivided. *Corolla* personate; the lower lip spurred at the base. *Stamens* 2; the filaments antheriferous on the inner face at the apex. *Stigma* bilabiate. — Aquatic plants, with vesicular leaves.

Spur conical; the throat closed

upper lip of the corolla as long as the palate, reflexed }
 at the sides - - - - - } 1. *U. VULGARIS*.

upper lip of the corolla flat, twice as long as the palate 2. *U. INTERMEDIA*.

Spur very short, obtuse; the throat open - - - 3. *U. MINOR*.

1. ! *U. vulgaris*. (L. sp. 26.) *Greater Bladderwort*. Ditches and deep pools. Not common. Fl. yellow. June, July. Perennial. E. B. 253., H. 10.

2. *U. intermedia*. (Hayne.) *Intermediate Bladderwort*. Pools in Ireland and Scotland: perhaps overlooked as *U. vulgaris*. Fl. yellow, smaller. June, July. Perennial. E. B. 2489., H. 10.

3. ! *U. minor*. (L. sp. 26.) *Lesser Bladderwort*. Ditches and pools. Rare in England; more common in Scotland. Fl. yellow. June, July. Perennial. E. B. 254., H. 11.

Order LXXVII. PRIMULACEÆ. (Vent., D. C. bot. gal. p. 379.)

Calyx gamosepalous, persistent, 4—5-lobed. *Corolla* gamopetalous, hypogynous, regular, staminiferous; the *limb* more or less deeply divided. *Stamens* inserted into the corolla, equal in number to its lobes, and opposite to them. *Ovary* free. *Style* 1. *Stigma* simple. *Capsule* 1-celled, many-seeded; the *placenta* central, free. *Embryo* straight, within a fleshy albumen; the *radicle* inferior.

Leaves pectinate	-	-	-	-	-	1. HOTTONIA.
Leaves not pectinate						
stamens 4	-	-	-	-	-	3. CENTUNCULUS.
stamens 5—6						
capsule, when ripe, dehiscing transversely by a circular fissure	-	-	-	-	-	4. ANAGALLIS.
capsule dehiscing at the apex	-	-	-	-	-	
corolla rotate	-	-	-	-	-	2. LYSIMACHIA.
corolla not rotate						
limb of the corolla reflexed	-	-	-	-	-	7. CYCLAMEN.
limb of the corolla not reflexed						
stem none or very short	-	-	-	-	-	6. PRIMULA.
stem more or less elongated						
corolla none, calyx coloured	-	-	-	-	-	8. GLAUX.
corolla present, calyx green	-	-	-	-	-	9. SAMOLUS.
stamens 7	-	-	-	-	-	5. TRIENTALIS.

I. HOTTONIA. (L. gen. n. 203., D. C. bot. gal. 379.)

Calyx 5-partite; tube of the *corolla* short; the *limb* flat, 5-lobed. *Stamens* 5, subsessile. *Capsule* globose, crowned by the long persistent style.

1. ! *H. palustris*. (L. sp. 208.) *Water Violet*. Ditches and pools. Not uncommon. Battersea fields; Tottenham marshes. Fl. pale purple, large. June. Perennial. E. B. 364., H. 108.

II. LYSIMACHIA. (L. gen. n. 205., D. C. Bot. gal. p. 380.)

Calyx 5-partite. *Corolla* 5-partite, rotate; the *tube* very short. *Stamens* 5, rarely 6; the *filaments* sometimes united at the base. *Capsule* globose, 5—10-valved, dehiscing at the apex, and many-seeded.

Flowers in panicles or racemes						
panicle terminal; lobes of the corolla oval	-	-	-	-	-	2. L. VULGARIS.
racemes lateral; lobes of the corolla linear	-	-	-	-	-	1. L. THYRSIFLORA.
Peduncles 1-flowered, axillary						
stem erect; flowers whorled	-	-	-	-	-	3. L. PUNCTATA.
stem procumbent; flower solitary						
calycine segments linear; stamens smooth	-	-	-	-	-	4. L. NEMORUM.
calycine segments ovate; filament of stamens	-	-	-	-	-	5. L. NUMMULARIA.
glandular	-	-	-	-	-	

1. ! *L. thyrsoflora*. (L. sp. 209.) *Tufted Loosestrife*. Wet marshes in Yorkshire and Hertfordshire. Very rare. Fl. yellow, spotted with orange. July. Perennial. E. B. 176., H. 106.

2. ! *L. vulgaris*. (L. sp. 209.) *Great Loosestrife*. Sides of rivers and wet shady places. Fl. yellow. July. Perennial. E. B. 761., H. 106.

3. *L. punctata*. (L. sp. 210.) *Four-leaved Loosestrife*. Skerne River, near Darlington. Doubtful native. Fl. yellow. July. Perennial. H. 106.

4. ! *L. nemorum*. (L. sp. 211.) *Yellow Pimpernel*. Woods. Common. Fl. yellow. May, Sept. Perennial. E. B. 527., H. 106.

5. ! *L. Nummularia*. (L. sp. 211.) *Moneywort*. Shady places and wet pastures. Fl. yellow. June, July. Perennial. E. B. 528., H. 107.

III. CENTUNCULUS. (L. gen. n. 145., D. C. Bot. gal. p. 380.)

Calyx 4-lobed. *Corolla* rotate, 4-lobed. *Stamens* 4. *Capsule* globose, dehiscing in the centre by a circular fissure.

1. ! *C. minimus*. (L. sp. 169.) *Small Chaff-weed*; *Bastard Pimpernel*. Gravelly hollows. Fl. pale rose-coloured. June, Sept. Annual. E. B. 531. H. 71.

IV. ANAGALLIS. (L. gen. n. 206., D. C. bot. gal. p. 381.)

Calyx 5-partite. *Corolla* rotate, 5-lobed. *Capsule* globose, dehiscent transversely, when ripe, by a circular fissure.

Leaves sessile; segments of the calyx as long as the corolla 1. *A. ARVENSIS*.

Leaves petiolate; segments of the calyx much shorter than the corolla } 2. *A. TENELLA*.

1. ! *A. arvensis*. (L. sp. 211.) *Poor Man's Weather-glass*; *Scarlet Pimpernel*. Corn fields. Common. Fl. scarlet. June, July. Annual. E. B. 529., H. 105.

β. ! *cærulea*. (Hook.) Margin of the corolla toothed, scarcely glandulose. Fl. blue. *A. cærulea*. (E. B. 1823.)

*** *A. indica* much resembles var. β., but is larger: it is a handsome annual, and much cultivated.

2. ! *A. tenella*. (L. mant. 335.) *Bog Pimpernel*. Wet mossy bogs. Not uncommon. Fl. pink or rose-coloured. June, Aug. Perennial. E. B. 550., H. 106.

V. TRIENTALIS. (L. gen. n. 461., D. C. bot. gal. p. 381.)

Calyx 7-partite. *Corolla* rotate, 7-partite. *Stamens* 7. *Berry* dry, dehiscent by the sutures.

1. *T. europæa*. (L. sp. 488.) *Chickweed Winter-green*. Woods in Yorkshire and Durham. Rare. More common in Scotland. Fl. white. June. Perennial. E. B. 15., H. 176.

VI. PRIMULA. (L. gen. n. 197., D. C. bot. gal. p. 383.)

Calyx more or less deeply 5-dentate. *Corolla* salver-shaped; the limb 5-lobed; the lobes generally emarginate; fauces dilated; the tube terete, as long as or longer than the calyx. *Anthems* generally acuminate. *Capsule* ovate, 5-10-valved; the valves dehiscent only at the apex. *Seeds* very small, numerous.

Scape 1-flowered - - - - - 1. *P. VULGARIS*.

Scape umbellate

leaves wrinkled, soft, not mealy

limb of the corolla flat - - - - - 2. *P. ELATIOR*.

limb of the corolla concave - - - - - 3. *P. VERIS*.

leaves smoothish, mealy beneath

leaflets of the involucre unequal, ovate, obtuse; } 4. *P. AURICULA*, clt.
leaves thick, obtuse - - - - - }

leaflets of the involucre linear, lanceolate, acuminate

segments of the corolla nearly as long as the }
tube; capsule broadly obovate; stigma ca- } 5. *P. FARINOSA*.
pitate - - - - - }

segments of the corolla half the length of the }
tube; capsule globose; stigma with 5 } 6. *P. SCOTICA*.
points - - - - - }

1. ! *P. vulgaris*. (Huds.) *Common Primrose*. Woods and hedge banks. Common. Fl. sulphur-yellow. April, May. Perennial. E. B. 4., H. 107. *P. grandiflora*. (Bot. gal. 384.) — Herbs. Sometimes an umbellate scape arises, together with the single-flowered peduncles, from the same plant. *P. vulgaris* becomes double, and varies in colour, by cultivation.

2. ! *P. elatior*. (With.) *Oxlip Primrose*. Woods and thickets; but rare. Fl. sulphur-yellow. April, May. Perennial. E. B. 513., H. 107.

*** This and the next species are the origin of all the cultivated polyanthuses.

3. ! *P. veris*. (L. sp. 204.) *Common Cowslip*. Meadows and pastures. Common. Fl. yellow. April, May. Perennial. E. B. 5., H. 107.

4. *P. Auricula*. (L. sp. 205.) *Garden Auricula*. Leaves ovato-spathulate, sessile, glabrous, glaucescent, farinaceous. Scape mealy. Leaflets of the involucre obtuse ovate. Calyx 5-lobed, the segments ovato-lanceolate, subobtusely, much shorter than the tube of the corolla. Native of the Alps. Much cult. in gardens. Fl. of every hue. May. Perennial. Bot. gal. 384.

5. *P. farinosa*. (L. sp. 205.) *Bird's-eye Primrose*. Mountainous districts of Yorkshire. Fl. pale lilac purple, with a yellow eye. June, July. Perennial. E. B. 6., H. 108.

6. *P. scotica*. (Hook.) *Scotch Primrose*. On the sandy shores of the north

of Scotland. Fl. deep purplish blue, with a yellow eye. July, Perennial. E. B. 2608., H. 108.

*** The *Chinese Primrose*, *P. prænitens* (Ker), *P. sinensis* (Hook.), is a very showy plant, much cultivated in green-houses; but will not bear our winter in the open air. It is distinguished by its lobed and incised hairy leaves, and its inflated conical calyx, which is subconcave at the base.

VII. CYCLAMEN. (L. gen. n. 201., D. C. bot. gal. p. 385.)

Calyx campanulate, 5-fid. Tube of the *corolla* dilated above; the *limb* 5-partite, reflexed. *Stamens* 5, inserted into the base of the tube. *Anthers* sessile. *Capsule* coriaceous or subcarnose, globose, many-seeded.

1. *C. hederifolium*. (Willd.) *Ivy-leaved Sowbread*. Bramfield, Suffolk; Sandhurst; Goudhurst, Kent. Doubtful native. Often cult. in gardens. Fl. white or flesh-coloured. Scapes spirally twisted after flowering. April. Perennial. H. 107. *C. europæum*. (E. B. 548.)

*** *C. europæum*, with reniform leaves; and *C. coum*, with round leaves; are also cultivated.

The *DODECATHEON Meadia*, distinguished by its umbel of 10—12 flowers, with their lobes reflexed, might have been here introduced; but its cultivation does not appear sufficiently common to warrant its insertion.

VIII. GLAUX. (L. gen. n. 291., D. C. bot. gal. p. 385.)

Calyx campanulate, 5-fid coloured. *Corolla* none. *Stamens* 5, hypogynous. *Stigma* capitate. *Capsule* 1-celled, 5-valved. *Seeds* attached to a central globose placenta. *Embryo* straight, parallel to the umbilicus.

1. ! *G. maritima*. (L. sp. 301.) *Sea Milkwort*. Sea shores. Common. Gravesend, &c. Fl. rose-coloured. July. Perennial. E. B. 13., H. 124.

Professor Don considers *Glaux* a transition genus from *Primulacæ* to *Plantagineæ*.

IX. SAMOLUS (L. gen. n. 222., D. C. bot. gal. 385.)

Calyx semi-adherent, persistent. *Corolla* salver-shaped, 5-lobed; with 5 filiform introflexed scales, which arise from the sinuses of the corolla (abortive stamens, R. Brown). *Stamens* 5, inserted into the base of the corolla. *Ovary* semi-inferior. *Capsule* half 5-valved. *Embryo* included. *Radicle* next the umbilicus.

1. ! *S. Valerandi*. (L. sp. 243.) *Brookweed*. Watery places on a sandy soil. Fl. white. July. Perennial. E. B. 703., H. 114.

Subclass IV. MONOCHLAMYDEÆ. (D. C. bot. gal. p. 387.)

Perigone simple; the *petals* being united with the calyx, or wanting.

Order LXXVIII. PLUMBAGINEÆ. (Juss., D. C. bot. gal. p. 387.)

Perigone double, persistent; the outer row (involucre, D. C.; calyx, R. Brown) gamosepalous, tubular, entire or dentate; the inner resembling a corolla; hypogynous, gamo- or poly-petalous. *Stamens* 5, inserted on the receptacle in the gamopetalous plants, but adnate to the base of the petals in the polypetalous ones. *Ovary* free, simple, 1-seeded. *Ovule* inverse, pendulous from the apex of the funiculus, which arises from the bottom of the ovary. *Styles* numerous, or 1, with many stigmas. *Capsule* 1-seeded. *Seeds* inverse. *Embryo* compressed, surrounded by a farinaceous albumen. — Herbs or shrubs, with simple entire leaves. Flowers hermaphrodite, capitate, or spicate.

I. STATICE. (L. gen. n. 388., D. C. bot. gal. p. 387.)

Outer *perigone* scarious, plicate, entire; inner one gamopetalous, or of 5 petals, coloured, persistent. *Stamens* 5, inserted into the petals. *Styles* 5. *Capsule* indehiscent, surrounded by the double perigone.

Flowers collected into a rounded head (*Armeria*, Lind.)

calyx teeth short; leaves linear; scales of the involucre scarious, obtuse } 1. *S. ARMERIA*.

calyx teeth long; leaves linear, lanceolate; scales of the involucre cuspidate } 2. *S. PLANTAGINEA*.

Flowers unilateral, on a paniculated scape

leaves with a subterminal or terminal mucro;

branches of panicle generally fertile

leaves petiolate, elliptic-lanceolate, with a single rib; calyx with plaited segments and intermediate teeth - - - } 3. *S. LIMONIUM*.

leaves spathulate, 3-nerved at the base; calyx with plain blunt segments, without intermediate teeth - - - } 4. *S. SPATHULATA*.

leaves without a terminal mucro; lower branches barren, numerous, entangled - - - } 5. *S. RETICULATA*.

1. ! *S. Armeria*. (L. sp. 394.) *Common Thrift*. Muddy sea shores, and upon the tops of the highest mountains. Fl. rose-coloured. July, Aug. Perennial. E. B. 226., H. 148., D. C. bot. gal. 389. *Armeria maritima*. (Lind. syn. 170.)

2. *S. plantaginea*. (Allion.) *Plantain-leaved Thrift*. Jersey; district of Queenvais. Fl. pale purple. June, July. Perennial. H. 148., D. C. bot. gal. 389. *Armeria plantaginea*. (Lind. syn. 326.)

3. ! *S. Limonium*. (L. sp. 394.) *Spreading-spiked Thrift, or Sea Lavender*. Muddy sea-shores. Common. Gravesend, &c. Fl. blue. July, Aug. Perennial. E. B. 102., H. 148.

4. *S. spathulata*. (Desf.) *Upright-spiked Thrift*. Different parts of the coast, but not common. Fl. bluish. Aug. Perennial. H. 149. *S. binervosa*. (E. B. 2663.)

5. *S. reticulata*. (L. sp. 394.) *Matted Thrift*. Muddy salt marshes in the east of England. Rare. Fl. purplish. July, Aug. Perennial. E. B. 328., H. 149.

Order LXXIX. PLANTAGINEÆ. (Juss., D. C. bot. gal. p. 390.)

Flowers hermaphrodite, rarely monœcious. *Perigone* double; the outer (? calyx) 4-partite, persistent; the inner (? corolla) gamopetalous, tubular, hypogynous, scariose, persistent, stamiferous at the base; the *limb* 4-partite. *Stamens* 4, inserted into the tube, and alternate with the segments; the *filaments* exsert. *Anthers* 2-celled; the *cells* dehiscing longitudinally. *Ovary* free, simple. *Style* 1, capillary. *Stigma* 1, hispid, undivided, rarely semibifid. *Capsule* dehiscing transversely by a circular fissure, divided into 2—4 cells by a longitudinal dissepiment. *Seeds* sessile, peltate, attached to the sides of the dissepiment. *Testa* mucilaginous. *Embryo* straight, within a subcorneous albumen. *Radicle* inferior.

Flowers monœcious; ovary 1-seeded - - - 1. LITTORELLA.

Flowers hermaphrodite; ovary 2- or many-seeded - - - 2. PLANTAGO.

I. LITTORELLA. (L. mant. 295., D. C. bot. gal. 390.)

Monœcious. *Male flower* pedicellated, 4-partite. *Stamens* inserted on the receptacle. *Female flower* sessile. *Outer perigone* 3-partite; inner one urceolate; the *mouth* contracted, and obsoletely dentate. *Ovary* 1-seeded.

1. ! *L. lacustris*. (L. mant. 160. and 295.) *Plantain Shore-weed*. Watery, sandy, and stony places. Battersea Common. Fl. brown, scariose. June. Perennial. E. B. 468., H. 406.

II. PLANTAGO. (L. gen. n. 142., D. C. bot. gal. p. 390.)

Flowers hermaphrodite. *Capsules* 2—4-celled, 2- or many-seeded.

Leaves entire

cells of the capsule many-seeded - - - 1. *P. MAJOR*.

cells of the capsule 1-seeded

leaves oval or lanceolate

spike cylindrical; scape rounded - - - 2. *P. MEDIA*.

spike ovate or ovato-lanceolate; scape angular - - - 3. *P. LANCEOLATA*.

leaves linear, fleshy - - - 4. *P. MARITIMA*.

Leaves pinnatifid - - - 5. *P. CORONOPUS*.

1. ! *P. major*. (L. sp. 163.) *Greater Plantain*. Pastures and road sides. Common. Fl. brownish, scariose. June, July. Perennial. E. B. 1558. H. 70.

2. ! *P. media*. (L. sp. 163.) *Hoary Plantain*. Meadows and pastures; especially on the chalk. Fl. silvery, scariose. Filaments dark purple. June, July. Perennial. E. B. 1559., H. 70.

3. ! *P. lanceolata*. (L. sp. 174.) *Ribwort Plantain*. Meadows and pastures. Very common. Fl. brownish, scariose. June, July. Perennial. E. B. 175., H. 70.

4. ! *P. maritima*. (L. sp. 165.) *Sea-side Plantain*. Sea-side and adjacent pastures. Fl. scariose. June, Sept. Perennial. E. B. 175., H. 71.

β. major. (Hook.) Leaves almost flat, dentate, glabrous. Island of Cumrae, Scotland.

γ. minor. (Hook.) Leaves linear, lanceolate, densely hairy. Orkney.

5. ! *P. Coronopus*. (L. sp. 166.) *Buck's horn Plantain*. Gravelly soils on the coast. Fl. brownish. June, July. Annual. E. B. 892., H. 71.

Order LXXX. NYCTAGINEÆ. (Juss., D. C. bot. gal. p. 393.)

Involucre caliciform, gamophyllous, 1- or many-flowered. *Perigone* gamotepalous, coloured, dilated at the base, contracted above the ovary, and then again dilating into a tube; persistent, not adherent to the ovary. *Stamens* definite, inserted into a glandular disk, which surrounds the ovary; the *filaments* inserted on the contracted part of the perigone. *Ovary* 1, covered by the perigone. *Style* 1. *Stigma* capitate. *Capsule* 1-seeded, indehiscent, covered by the stamiferous disk and the perigone. *Embryo* rolled round the farinaceous albumen. — Herbs or shrubs, with generally opposite leaves.

I. NYCTAGO. (Bot. gal. 393.) MIRABILIS. (L. gen. n. 243.)

Involucre campanulate, 5-lobed, 1-flowered. *Perigone* campanulate; the *limb* expanded, pentagonal, 5-lobed. *Stamens* 5. *Capsule* covered by the thick coriaceous base of the perigone; the upper part of which withers and is deciduous after flowering.

Leaves and pedunculated flowers glabrous - - - 1. N. JALAPA, clt.

Leaves and sessile flowers pubescent - - - 2. N. LONGIFLORA, clt.

1. *N. Jalapa*. (D. C.) *Marvel of Peru*. Flowers congested, pedunculated, glabrous, as are also the leaves. Native of Peru. Much cult. Fl. red, pink, white, or striped; opening in the evening. July, Sept. Perennial. Bot. gal. 393. *Mirabilis Jalapa*. (L. sp. 252.)

2. *N. longiflora*. (D. C.) *Long-tubed Marvel of Peru*. Flowers congested, sessile, pubescent, as are also the leaves. Native of the mountains of Mexico. Cult. in gardens. Fl. as above. Aug., Sept. Annual. Bot. gal. 393. *Mirabilis longiflora*. (L. sp. 252.)

Order LXXXI. AMARANTHACEÆ. (Juss., D. C. bot. gal. p. 393.)

Perigone (? calyx) free, gamosepalous, scariose, persistent 3—5-lobed, often coloured. *Stamens* 3 or 5, hypogynous, free, or monadelphous. *Ovary* 1, 1-celled (rarely 2-celled), 1- (rarely many-) ovuled. *Style* and *stigma* single or numerous. *Capsule* 1-celled, dehiscing transversely, or indehiscent. *Seed* solitary, or rarely numerous, attached to a central placenta. *Embryo* curved, encircling the farinaceous albumen. — Herbs, with alternate entire leaves. Flowers small, often surrounded by coloured scales; spiked, paniced, or capitate, generally of distinct sexes.

Flowers monœcious - - - - - 1. AMARANTHUS.

Flowers hermaphrodite

nectariferous membrane very short - - - 2. CELOSIA, clt.

nectariferous membrane as long as the perigone - 3. GOMPHRENA, clt.

I. AMARANTHUS. (L. gen. 1064., D. C. bot. gal. p. 393.)

Monœcious. *Perigone* 3—5-lobed. — Male flower. *Stamens* 3 or 5. — Female flower. *Styles* 3. *Stigmas* 3. *Capsule* 1-seeded, 3-rostrate, dehiscing transversely.

Flowers glomerate, triandrous

leaves oblong, lanceolate, coloured, in stripes } 1. A. TRICOLOR, clt.

of white, yellow, and red - - -

leaves entirely green - - - 2. A. BLITUM.

Flowers racemose, pentandrous

racemes compound, erect -

4. *A. HYPOCHONDRIACUS*, cit.

racemes doubly compound, pendulous -

3. *A. CAUDATUS*, cit.

1. *A. tricolor*. (L. sp. 1403.) *Three-coloured Amaranth*. Glomerules sessile. Leaves oblong, lanceolate, coloured. Fl. greenish. July, Sept. Annual. Native of India. Cult. on account of its variegated foliage.

2. ! *A. Blitum*. (L. sp. 1405.) *Wild Amaranth*. Low waste grounds near towns; Battersea common, &c. Fl. greenish. Aug. Annual. E. B. 2212., H. 408.

3. *A. caudatus*. (L. sp. 1406.) *Love lies bleeding*. Racemes decompound, pendulous. Leaves lanceolate, ovate. Stem nodding. Native of Asia and South America. Cult. in gardens. Common. Fl. purplish red. Aug., Sept. Annual.

4. *A. hypochondriacus*. (L. sp. 1407.) *Prince's Feather*. Racemes compound, compact, erect. Leaves oblong, lanceolate, mucronate. Native of North America. Fl. purple. Aug., Sept. Annual.

II. CELOSIA. (L. gen. n. 289.)

Hermaphrodite. *Perigone* deeply divided, having the appearance of a 5-petalous corolla; with 2—3 external bracts. *Stamens* 5, inserted into a nectariferous, 5-fid, folded membrane at the base of the corolla. *Anthers* versatile. *Capsule* dehiscent transversely. *Styles* 2—3-fid. — Leaves opposite.

1. *C. cristata*. (L. sp. 297.) *Cockscomb*. Leaves oblong or ovate. Peduncles terete, striate. Spikes oblong. Native of Asia. Cult. in gardens. Common. Fl. red or straw-coloured. July, Sept. Annual.

III. GOMPHRENA. (L. gen. n. 314.)

Hermaphrodite. *Perigone* 5-partite, coloured. *Segments* villous and coarse; having 2 large conniving keeled bracts externally. *Stamens* with short filaments, arising from a 5-dentate cylindrical body surrounding the ovary. *Capsule* dehiscent transversely in the middle, 1-seeded. *Style* semibifid. — Flowers in a capitule.

1. *G. globosa*. (L. sp. 326.) *Globe Amaranth*. Stem erect. Leaves ovate, lanceolate. Capitules solitary. Peduncles 2-leaved. Native of India. Cult. in gardens. Fl. red or silvery. Aug., Sept. Annual.

Order LXXXII. CHENOPODEÆ. (Vent., D. C. bot. gal. p. 394.)

Perigone free, gamotepalous, 5-partite, imbricate in æstivation. *Stamens* inserted into the base of the perigone, and equal in number to its segments. *Ovary* 1. *Styles* 1 or many. *Fruit* indehiscent; either a many-celled, many-seeded berry, or a cariopsis covered by the membranous perigone, or naked. *Albumen* generally farinaceous, central; the *embryo* spirally or circularly twisted round it. *Radicle* inferior. — Herbs or shrubs, with simple alternate leaves, destitute of stipules or sheaths. Fl. small, greenish.

Stamens 1—2 - - - -

1. SALICORNIA.

Stamens 5 (rarely 3—4)

flowers hermaphrodite; perigone generally, 5-partite

styles 2, 3, or 1, deeply bifid

perigone increasing after inflorescence, with sca-

riose appendages at the back - - -

2. SALSOL.

perigone not increasing, nor with appendages

fruit loose in the perigone - - -

3. CHENOPODIUM.

fruit adhering to the perigone at the base - - -

6. BETA.

styles 4 - - - -

5. SPINACIA, cit.

flowers polygamous or monœcious; female perigone

2-partite - - - -

4. ATRIPLEX.

I. SALICORNIA. (L. gen. n. 10., D. C. bot. gal. p. 395.)

Perigone tubular, ovoid, compressed, scarcely 5-dentate. *Stamens* 1—2, exsert. *Style* 1, short. *Stigmas* 2, exsert, papillose. *Utricle* covered by the perigone. *Seed* solitary, cochleate.

- | | | | | |
|---|---|---|---|-----------------|
| Stem herbaceous; spikes cylindrical, slightly tapering at the extremity | - | - | - | 1. S. HERBACEA. |
| Stem woody; spikes oblong-obtuse | - | - | - | 2. S. RADICANS. |

1. ! *S. herbacea*. (L. sp. 5.) *Jointed Glasswort*. Salt marshes. Common. Gravesend, &c. Fl. green. Aug., Sept. Annual. H. 1. S. annua. (E. B. 415.)

β. *procumbens*. Stem procumbent. S. procumbens. (E. B. 2475.)

*. A large state of this plant, 1—2 feet high, with a woody stem, and much resembling *S. fruticosa*, L., occurs in the salt marshes near Portsmouth. Professor Don, however, considers it merely as a form of *S. herbacea*.

2. *S. radicans*. (Smith.) *Creeping Glasswort*. Muddy sea shores; Isle of Sheppey and Sussex Coast; also abundant near Cumberland Fort, and Anglesea; Portsmouth. Fl. green. Aug., Sept. Perennial. E. B. 763, H. 2.

II. SALSOLA. (L. gen. n. 311., D. C. bot. gal. p. 396.)

Perigone 5-partite, persistent; the segments having a scariose appendage on the back after flowering. *Stamens* 5. *Stigmas* 2—3. *Seed* solitary. *Embryo* peripheric.

1. *S. Kali*. (L. sp. 322.) *Prickly Saltwort*. Sandy sea shores. Common. Fl. green. July, Aug. Annual. E. B. 634., H. 143.

III. CHENOPODIUM. (L. gen. n. 309., D. C. bot. gal. p. 396.)

Perigone 5-partite (rarely 3—4-partite), persistent, not tubercular, nor increasing after flowering. *Stamens* 5, or fewer. *Style* bifid. *Stigmas* 2—4. *Seed* orbicular, covered with a double integument; the outer crustaceous.

Leaves undivided

leaves semicylindrical; flowers with 2 bracts each

- | | | | | |
|-------------------------|---|---|---|-------------------|
| stem shrubby, perennial | - | - | - | 1. C. FRUTICOSUM. |
| stem herbaceous, annual | - | - | - | 2. C. MARITIMUM. |

leaves flat; bracts none

- | | | | | |
|---|---|---|---|--------------------|
| leaves green on both sides, not pulverulent | - | - | - | 4. C. POLYSPERMUM. |
| leaves pulverulent, fetid | - | - | - | 3. C. OLIDUM. |

Leaves angled, lobed, or dentate

leaves deltoid, rhomboidal or ovate

- | | | | | |
|--------------------------------------|---|---|---|-----------------------|
| leaves green on both surfaces | - | - | - | - |
| leaves deltoid, entire, or subentire | - | - | - | 5. C. BONUS HENRICUS. |

leaves distinctly dentate

- | | | | | |
|--------------------------------|---|---|---|------------------|
| leaves 2—3-dentate at the base | - | - | - | 10. C. HYBRIDUM. |
|--------------------------------|---|---|---|------------------|

leaves dentate along the whole margin

- | | | | | |
|-------------------------------------|---|---|---|---------------|
| leaves shining on the upper surface | - | - | - | 9. C. MURALE. |
|-------------------------------------|---|---|---|---------------|

- | | | | | |
|---------------------------------|---|---|---|----------------|
| leaves not shining, light green | - | - | - | 6. C. URBICUM. |
|---------------------------------|---|---|---|----------------|

leaves with a glaucous or white powder on the under surface

leaves triangular

- | | | | | |
|--|---|---|---|---------------|
| leaves distinctly dentate along the whole margin | - | - | - | 7. C. RUBRUM. |
|--|---|---|---|---------------|

- | | | | | |
|-------------------------|---|---|---|-------------------|
| leaves scarcely dentate | - | - | - | 8. C. BOTRYOIDES. |
|-------------------------|---|---|---|-------------------|

leaves ovate or rhomboid

- | | | | | |
|--------------|---|---|---|--------------------|
| seeds dotted | - | - | - | 12. C. FICIFOLIUM. |
|--------------|---|---|---|--------------------|

- | | | | | |
|--------------------------|---|---|---|---------------------|
| seeds smooth, not dotted | - | - | - | 11. C. LEIOSPERMUM. |
|--------------------------|---|---|---|---------------------|

- | | | | | |
|--------------------------------------|---|---|---|-----------------|
| leaves all oblong, sinuated, dentate | - | - | - | 13. C. GLAUCUM. |
|--------------------------------------|---|---|---|-----------------|

1. *C. fruticosum*. (Schr.) *Shrubby Sea-side Goosefoot*. East and south coast. Rare. Fl. greenish. July, Aug. Perennial. *Salsola fruticosa*. (L. sp. 324., E. B. 635., H. 141.)

2. ! *C. maritimum*. (L. sp. 321.) *Annual Sea-side Goosefoot*. Sea shores. Common. Fl. greenish. July, Aug. Annual. E. B. 633., H. 141.

3. ! *C. olidum*. (Curt.) *Stinking Goosefoot*. Waste places; Battersea. Fl. greenish. Aug. Annual. E. B. 1034., H. 141. *C. vulvaria*. (L. sp. 321., Bot. gal. 396.)

4. ! *C. polyspermum*. (L. sp. 321.) *Many-seeded Goosefoot*. Waste places, and among rubbish. Common. Fl. greenish. Aug., Sept. Annual. H. 141.

α. *prostratum*. Stem all prostrate. Leaves obtuse. Spikes cymose, leafless. *C. polyspermum*. (E. B. 1480.)

β. acutifolium. Stem erect. Leaves acute. Spikes leafy, scarcely cymose. *C. acutifolium*. (E. B. 1481.)

5. ! *C. Bonus Henricus*. (L. sp. 318.) *Mercury Goosefoot, or Good King Henry*. Waste places and way-sides. Common. Fl. greenish. Aug. Perennial. E. B. 1033., H. 142.

6. ! *C. urbicum*. (L. sp. 318.) *Upright Goosefoot*. Waste places about towns. Fl. greenish. Aug. Annual. E. B. 717., H. 142.

7. ! *C. rubrum*. (L. sp. 318.) *Red Goosefoot*. Dunghills, and under walls. Fl. greenish. Aug., Sept. Annual. E. B. 1711., H. 142.

8. *C. botryoïdes*. (Smith.) *Many-spiked Goosefoot*. Yarmouth, Norfolk. Rare. Fl. greenish. Aug., Sept. Annual. (E. B. 2247., H. 142.)

9. ! *C. murale*. (L. sp. 318.) *Nettle-leaved Goosefoot*. Waste places near towns. Fl. greenish. Aug. Annual. E. B. 1722., H. 142.

10. ! *C. hybridum*. (L. sp. 319.) *Maple-leaved Goosefoot*. Waste places and cultivated fields, &c. Not common. Fl. greenish. Aug. Annual. E. B. 1919., H. 142.

11. ! *C. leiospermum*. (D. C.) *Smooth-seeded Goosefoot*. Waste places and dunghills. Common. Fl. greenish. July, Aug. Annual. Bot. gal. 397. *C. album*. (L. sp. 319., E. B. 1723., H. 143.)

β. viride. Leaves green, more entire. Spikes elongated, more branched. *C. viride*. (L. sp. 319.)

12. ! *C. ficifolium*. (Smith.) *Fig-leaved Goosefoot*. Dung-hills and waste ground. Fl. greenish. Aug., Sept. Annual. (E. B. 1724., H. 143.)

13. ! *C. glaucum*. (L. sp. 320.) *Oak-leaved Goosefoot*. Waste ground on a sandy soil. Fl. greenish. Aug. Annual. E. B. 1434., H. 143.

IV. ATRIPLEX. (L. gen. n. 1153., D. C. bot. gal. 397.)

Polygamous, or generally monœcious. Hermaphrodite flower. *Perigone* 5-partite. *Stamens* 5. *Pistil* defective, rarely perfect. — Female flower. *Perigone* 2-partite; the segments adpressed, becoming larger after flowering, and covering the seed. *Style* bifid. *Seed* erect, with a double integument; the outer crustaceous.

Stem shrubby - - - - - 1. *A. PORTULACOÏDES*.

Stem herbaceous

stem spreading, prostrate

leaves silvery, very mealy beneath; whole } 2. *A. LACINIATA*.

plant hoary - - - - - }

leaves glabrous, or slightly glaucous; upper ones entire

leaves subglaucous, deltoid - - - 3. *A. PATULA*.

leaves green, not glaucous; partially lobed } 4. *A. ANGUSTIFOLIA*.

stem erect or zigzag

leaves more or less dentate, or angular; female

flowers nearly sessile

leaves triangular - - - - - 8. *A. HORTENSIS*, clt.

leaves ovate, lanceolate - - - - - 5. *A. ERECTA*.

leaves linear - - - - - 6. *A. LITTORALIS*.

leaves entire, obovate; female flowers pedunculated } 7. *A. PEDUNCULATA*.

1. ! *A. portulacoïdes*. (L. sp. 1493.) *Shrubby Orache; Sea Purslane*. Muddy Sea shores. Fl. yellowish. July, Aug. Small shrub. E. B. 261., H. 443.

2. ! *A. laciniata*. (L. sp. 1494.) *Frosted Sea Orache*. Sandy sea shores. Fl. yellowish. Aug. Annual. E. B. 165., H. 443.

3. ! *A. patula*. (L. sp. 1494.) *Spreading halbert-leaved Orache*. Cultivated and waste ground, and in salt marshes. Fl. greenish yellow. July. Annual. E. B. 936., H. 443.

4. ! *A. angustifolia*. (Smith.) *Spreading narrow-leaved Orache*. Cultivated and waste ground. Fl. greenish. July. Annual. E. B. 1774., H. 443.

5. ! *A. erecta*. (Huds.) *Upright spear-leaved Orache*. Waste grounds. Rare. Near Battersea Fields. Fl. greenish. Aug. Annual. E. B. 2223., H. 443. *A. littoralis* var. *β. erecta*. (Bot. gal. 399.)

6. *A. littoralis*. (L. sp. 1494.) *Grass-leaved Sea Orache*. Muddy salt marshes on the east coast. Fl. greenish, mealy. July. Annual. E. B. 708., H. 443.

7. *A. pedunculata*. (L. sp. 1675.) *Stalked Sea Orache*. East and south coast, in muddy salt marshes. Fl. greenish, mealy. Aug., Sept. Annual. E. B. 232., H. 444.

8. *A. hortensis*. (L. sp. 1493.) *Garden Orache*. Stem erect, herbaceous. Leaves triangular. Native of Tartary. Cultivated occasionally as a potherb. Fl. greenish. July, Aug. Annual. β . *rubra*, *Red Orache*. Leaves red.

V. SPINACIA. (L. gen. n. 1112., D. C. bot. gal. 399.)

Diœcious. — Male flower. *Perigone* 5-partite. *Stamens* 5. — Female flower. *Perigone* 2—4-partite. *Styles* 4, *Fruit* covered by the persistent perigone, which becomes enlarged after flowering.

Leaves oblong-ovate; fruit unarmed - - - 1. *S. INERMIS*, clt.

Leaves sagittate; fruit tuberculated - - - 2. *S. SPINOSA*, clt.

1. *S. inermis*. (Mœnch.) *Smooth Spinach*. Cult. in gardens. Native country unknown. Fl. green. July. Annual. Biennial. Bot. gal. 399.

2. *S. spinosa*. (Mœnch.) *Rough Spinach*. Cult. in gardens. Fl. green. July. Annual. Biennial. Bot. gal. 399.

VI. BETA. (L. gen. n. 310., D. C. bot. gal. 399.)

Perigone 5-partite, semiadherent to the base of the ovary. *Stamens* 5. *Styles* 2. *Fruit* reniform, enveloped in the base of the perigone.

Stem erect; flowers 3—4 in a cluster - - - 1. *B. VULGARIS*, clt.

Stem prostrate at the base; flowers solitary, or in pairs 2. *B. MARITIMA*.

1. *B. vulgaris*. (L. sp. 322.) *Common Beet*. Cult. in gardens and fields. Common. Fl. greenish. Aug., Sept. Biennial. Bot. gal. 399.

**Mangel wurtzel* is merely a coarse cultivated variety of *B. vulgaris*.

2. *B. maritima*. (L. sp. 322.) *Sea Beet*. Sea shores. Common. Fl. greenish. Aug. Perennial. E. B. 285., H. 143.

Order LXXXIII. POLYGONEÆ. (Juss., D. C. bot. gal. p. 400.)

Perigone free, simple, persistent, gamotepalous, deeply divided; the *segments* imbricate in æstivation, disposed in a double row; the inner opposite the sides of the ovary, the outer opposite the angles. *Stamens* definite, inserted into the base of the perigone. *Anthers* 2-celled, 4-furrowed, dehiscing laterally by a double chink. *Ovary* 1, free. *Styles* numerous, or *stigmas* numerous, sessile. *Cariopsis*, or *nut*, 1-seeded, generally triangular, more or less covered by the perigone. *Embryo* generally lateral, sometimes central, often curved. *Albumen* farinaceous. *Radicle* distant from the hilum. — Herbs, with nodose stems and alternate sheathing leaves, or with an interfoliaceous sheath or ochrea. Leaves revolute when young.

Involucel, beneath the flower, 3-bracteate - - - 1. RUMEX.

Involucel none

segments of the perigone becoming enlarged after } 2. OXYRIA.
flowering - - - - - }

segments of the perigone not becoming enlarged
perigone generally 4—5-partite; stamens generally 8, } 4. POLYGONUM.
styles 2—3 - - - - - }

perigone 6-partite; stamens 9; styles none; stigmas 3 3. RHEUM, clt.

I. RUMEX. (L. gen. n. 451., D. C. bot. gal. 400.)

Involucel funnel-shaped or campanulate, 3-bracteate. *Perigone* 6-partite; the 3 inner segments becoming enlarged after flowering, the 3 outer adnate to the bracts of the involucel. *Stamens* 6. *Styles* 3, reflexed. *Stigmas* 3, fringed. *Cariopsis*, or *nut*, sharply 3-angled. *Embryo* on one side. *Radicle* superior.

Plants not acid (Docks)

inner segments of the perigone becoming
dentate; acuminate or subacute at the
apex; never cordate at the base

all the inner segments equally tuberculated
teeth of segments very long, almost } 1. R. MARITIMUS.
spinous - - - - - }

teeth short or obscure		
leaves linear, lanceolate	-	2. <i>R. PALUSTRIS.</i>
leaves oblongo-cordate, pointed	-	5. <i>R. ACUTUS.</i>
one of the segments principally tuberculated		
leaves oblong, lanceolate, wavy	-	8. <i>R. PRATENSIS.</i>
root leaves panduriform (fiddle-shaped);	}	3. <i>R. PULCHER.</i>
stem spreading		
root leaves ovato-cordate; stem scabrous		4. <i>R. OBTUSIFOLIUS.</i>
inner segments not dentate, obscurely cordate at the base; obtuse at the apex		
segments without tubercles	-	10. <i>R. AQUATICUS.</i>
one, or all the segments, tuberculated		
flowers monœcious	-	11. <i>R. ALPINUS.</i>
flowers hermaphrodite		
segments all bearing large tubercles	-	9. <i>R. HYDROLAPATHUM.</i>
one segment principally tuberculated		
leaves lanceolate, waved	-	7. <i>R. CRISPUS.</i>
leaves lanceolate, subcordate; veins	}	6. <i>R. SANGUINEUS.</i>
bright red, or green		
Plants acid (Sorrels)		
flowers diœcious		
leaves sagittate	-	12. <i>R. ACETOSA.</i>
leaves hastate	-	13. <i>R. ACETOSELLA.</i>
flowers hermaphrodite	-	14. <i>R. SCUTATUS, clt.</i>

1. *R. maritimus.* (L. sp. 478.) *Golden Dock.* Marshes, especially near the sea. Fl. bright yellow, almost orange-colour. July, Aug. Perennial. E. B. 723., H. 173.

2. ! *R. palustris.* (Smith.) *Yellow Marsh Dock.* Marshy places, remote from the sea. Fl. greenish yellow, tinged with red. July. Perennial. E. B. 1932., H. 173.

3. ! *R. pulcher.* (L. sp. 477.) *Fiddle Dock.* Pastures and way-sides. Fl. greenish. Aug. Perennial. E. B. 1576., H. 172.

4. ! *R. obtusifolius.* (L. sp. 478.) *Broad-leaved Dock.* Way-sides and waste places. Fl. greenish, red at the base. July. Perennial. E. B. 1999., H. 173.

5. ! *R. acutus.* (L. sp. 478.) *Sharp Dock.* Moist places. Common. Fl. greenish. July. Perennial. E. B. 724., H. 172.

6. ! *R. sanguineus.* (L. sp. 476.) *Veined Dock.* Shady pastures, woods, and road sides. Fl. greenish. July. Perennial. H. 172.

α. ! *sanguineus.* Leaves with bright red veins. *R. sanguineus.* (L., E. B. 1533.

β. ! *viridis.* Leaves with green veins. *R. viridis.* (Sibth.) *R. Nemolapathum.* (Bot. gal. ? 401., Lind. 219.)

7. ! *R. crispus.* (L. sp. 476.) *Curled Dock.* Way-sides, &c. Common. Fl. greenish, with orange-coloured tubercles. June, July. Perennial. E. B. 1998., H. 171.

8. ! *R. pratensis.* (Mert. and Koch.) *Meadow Dock.* Marshes of the Adur and Arun, Sussex; Essex side of the Thames. Fl. greenish, tipped with red. June, July. Perennial. E. B. 2757., H. 171.

9. ! *R. Hydrolapathum.* (Huds.) *Great Water Dock.* Ditches and river sides. Common. Fl. greenish. July, Aug. Perennial. H. 171. *R. aquaticus.* (E. B. 2104., Bot. gal. 401.)

10. *R. aquaticus.* (L. sp. 479.) *Grainless Water Dock.* Moist places, near Ayr. Fl. greenish. July. Perennial. E. B. 2698., H. 172.

11. *R. alpinus.* (L. sp. 480.) *Alpine Dock, or Monk's Rhubarb.* Glen Luss, Scotch Highlands. Fl. greenish. July. Perennial. E. B. 2694., H. 172.

12. ! *R. Acetosa.* (L. sp. 481.) *Common Sorrel.* Meadows and pastures. Common. Cultivated under the name of narrow-leaved sorrel. Fl. purplish. June, July. Perennial. E. B. 127., H. 173.

13. ! *R. Acetosella.* (L. sp. 481.) *Sheep's Sorrel.* Dry pastures and heaths. Common. Fl. reddish. May, July. Perennial. E. B. 1674., H. 173.

14. *R. scutatus.* (L. sp. 480.) *French, or broad-leaved, Sorrel.* Stem herbaceous, terete. Leaves cordate, hastate, obtuse, with long petioles. Verticels few-flowered. Flowers hermaphrodite; the inner segments becoming cordato-orbicular, obtuse, entire. Native of France. Cult. in gardens as a potherb. Fl. light green. July, Aug. Perennial. Bot. gal. 402.

II. OXYRIA. (Hill., D. C. bot. gal. p. 403.)

Flowers hermaphrodite. Involucel none. Perigone 4-partite; the segments becoming larger after flowering. Styles 2, reflexed. Cariopsis 2-edged. Embryo central.

1. *O. digyna*. (Campd.) *Kidney-shaped Mountain Sorrel*. Alpine situations; England and Scotland. Fl. greenish, tipped with red. July, Aug. Perennial. Bot. gal. 403. *O. reniformis*. (Hook. 170.) *Rumex digynus*. (L. sp. 480., E. B. 910.)

III. RHEUM. (L. gen. n. 506.)

Perigone gamotepalous, 6-fid, persistent. Stamens 9, inserted into the base of the perigone. Anthers 2-celled, long, obtuse. Ovary 1. Style very short. Stigmas 3, reflexed, plumose. Cariopsis 1, triangular, acute, with membranous margins. Embryo central; the radicle superior.

Leaves subvillous; petioles flat, not furrowed - 1. *R. UNDULATUM*.

Leaves glabrous above; petioles obsoletely furrowed - 2. *R. HYBRIDUM*.

1. *R. undulatum*. (L. sp. 531.) *Waved Garden Rhubarb*. Leaves subvillous; the petioles equal. Native of Siberia and China. Cult. in kitchen-gardens. Fl. whitish. July. Perennial.

2. *R. hybridum*. (Ait. hort. kew. ii. p. 24.) *Large Garden Rhubarb*. Leaves glabrous above, rather hairy beneath, sublobed, acute, with the sinus of the base narrowed. Petioles flat, obsoletely furrowed above the margin, rounded. Native of northern Asia. Cult. in kitchen-gardens. Very common. Fl. whitish. June, July. Perennial. The Goliath rhubarb is a variety of this species.

** *R. compactum* and *R. palmatum* are also occasionally cultivated. The leaves of *R. compactum* are very glabrous, and not palmate nor undulated. The trivial name of *R. palmatum*, dependent on the form of its leaves, sufficiently characterises the species.

IV. POLYGONUM. (L. gen. n. 495., D. C. bot. gal. p. 403.)

Perigone 4—6-partite, persistent. Stamens 5—9, generally 8. Ovary with 2—3 styles, and as many stigmas. Cariopsis, or nut, ovate or triangular. Embryo lateral or central; the radicle superior.

Leaves ovato-lanceolate, or linear-lanceolate

flowers in spikes or in a panicle

spike solitary, terminal

styles 2; root not tortuous - 4. *P. AMPHIBIUM*.

styles 3; root more or less tortuous

leaves ovate, prolonged on the petiole - 2. *P. BISTORTA*.

leaves lanceolate, linear, revolute - 1. *P. VIVIPARUM*.

spikes numerous, or flowers in a panicle

styles 3 - 3. *P. ORIENTALE*, clt.

styles 2

stamens 5; leaves cordate at the base - 4. *P. AMPHIBIUM*.

stamens 6; leaves not cordate at the base

spikes erect

spikes dense; styles forked or quite

distinct

sheaths fringed by the projection

of the nervures; flowers rose- } 6. *P. PERSICARIA*.

coloured

sheaths not fringed; flowers gene- } 7. *P. LAPATHIFOLIUM*.

rally greenish

spikes slender; styles undivided - 8. *P. MINUS*.

spikes lax, filiform, drooping; styles } 5. *P. HYDROPIPER*.

forked

flowers 2—3, axillary - 9. *P. AVICULARE*.

Leaves cordato-sagittate

stem erect - 10. *P. FAGOPYRUM*.

stem twining

stem angular or striated - 11. *P. CONVULVULUS*.

stem terete, not striated - 12. *P. DUMETORUM*.

1. *P. viviparum*. (L. sp. 516.) *Viviparous Alpine Bistort*. Mountain pastures. Fl. very pale flesh-colour. June. Perennial. E. B. 669., H. 185.

2. ! *P. Bistorta*. (L. sp. 516.) *Bistort or Snakeweed*. Moist meadows. Common in Battersea Fields. Fl. flesh-coloured. June. Perennial. E. B. 509., H. 185.

3. *P. orientale*. (L. sp. 519.) *Red or White Persicaria*. Stems erect, very tall, villous, ramose above. Stipules sheathing, salver-shaped, truncate, ciliate. Leaves ovate, acuminate, pubescent, petiolate. Spikes elongated, dense, nodding. Cariopsides smooth, shining. Native of Asia. Cult. in gardens. Fl. red or white. July. Annual. Bot. gal. 404.

4. ! *P. amphibium*. (L. sp. 517.) *Amphibious Persicaria*. Ponds and lakes. Common. Fl. bright rose-coloured. July, Aug. Perennial. E. B. 436., H. 186.

α. ! *aquaticum*. (Hook.) Leaves floating, broad, lanceolate, glabrous. Spikes oblong.

β. ! *terrestre*. (Hook.) Nearly erect. Leaves narrow, lanceolate, rough, with short, rigid, adpressed hairs on both sides. Spikes ovate.

5. *P. Hydropiper*. (L. sp. 517.) *Water Pepper; Biting Persicaria*. Sides of lakes and ditches. Common. Fl. reddish. Aug., Sept. Annual. E. B. 989., H. 186.

6. ! *P. Persicaria*. (L. sp. 518.) *Spotted Persicaria*. Moist ground and waste places. Common. Fl. greenish, tipped with rose. Aug. Annual. E. B. 756., H. 186.

β. ! *incana*. (Duby) Stem suberect. Leaves not spotted; the older ones incano-pubescent beneath. *P. incanum*. (Willd.)

7. ! *P. lapathifolium*. (L. sp. 517.) *Pale-flowered Persicaria*. Fields and dunghills. Common. Fl. pale green, white, or of a reddish tint. Aug. Annual. E. B. 1382., H. 186. *P. Persic.* var. *lapathifol.* (Bot. gal. 404.)

8. ! *P. minus*. (Huds.) *Small creeping Persicaria*. Gravelly watery commons. Fl. pale rose-coloured. Sept. Annual. E. B. 1043., H. 187. *P. pusillum*. (Bot. gal. 405.)

9. ! *P. aviculare*. (L. sp. 519.) *Knot Grass*. Waste places. Very common. Fl. pale rose-coloured. Fruit rough at the angles. May, Sept. Annual. E. B. 1252., H. 185.

β. ! *maritimum*. Fruit longer than the perigone; quite smooth on the surface. *P. maritimum*. (L. sp. 519., Bot. gal. 405.)

10. ! *P. Fagopyrum*. (L. sp. 522.) *Buckwheat*. About cultivated land. A doubtful native. Cult. as food for pheasants. Fl. pale red. July, Aug. Annual. E. B. 1044., H. 186.

11. ! *P. Convolvulus*. (L. sp. 522.) *Climbing Buckwheat*. Corn fields. Common. Fl. greenish. July, Aug. Annual. E. B. 941., H. 186.

12. ! *P. dumetorum*. (L. sp. 522.) *Hedge climbing Buckwheat*. Stem climbing, terete. Stipules short, amplexicaule, subacute. Leaves ovate, acuminate, cordate at the base, petiolate. Racemes axillary, leafy, verticillate, remote, pedicellated. Nuts triquetrous, smooth and glossy, pendulous, closely surrounded by the 3-winged persistent perigone. Wimbledon Common, by Mr. Hankey. Reigate, Surrey, by Mr. Luxford; between Bristol and Bath, by Mr. Babington. Fl. greenish. July, Aug. Annual. Bot. gal. 403.

Order LXXXIV. THYMELEÆ. (Juss., D. C. bot. gal. p. 405.)

Perigone free, coloured, gamopetalous, tubular; the limb 4- (rarely 5-) fid, imbricated in æstivation. *Stamens* definite, inserted on the fauces or tube; double the number of the segments of the perigone. *Anthers* 2-celled; the cells longitudinally dehiscing in the middle. *Ovary* 1, with a single pendulous ovule. *Style* 1, often lateral. *Stigma* 1. *Fruit* single, 1-seeded, covered by the perigone; dry or baccate. *Albumen* none, or thin, fleshy. *Embryo* straight. *Radicls* superior, short. *Cotyledons* plano-convex. — Shrubs, with simple, entire, exstipulate leaves.

I. DAPHNE (L. gen. n. 485., D. C. bot. gal. p. 406.)

Perigone 4-lobed. *Stamens* 8. *Styles* short, terminal. *Berry* 1-celled, 1-seeded.

Flowers axillary or lateral

flowers pink or white, appearing before the deciduous leaves	} 1. D. MEZEREUM.
flowers yellowish green; leaves evergreen	

2. D. LAUREOLA.

Flowers terminal

flowers rose-coloured - - -

flowers yellowish - - -

- 4. *D. CNEORUM*, clt.

- 3. *D. INDICA*, clt.

1. *D. Mezereum*. (L. sp. 509.) *Common Mezereum*. In woods, in different parts of England, but rare. Much cult. in gardens. Fl. pink or white, fragrant. March. Shrub. E. B. 1381., H. 184.

2. ! *D. Laureola*. (L. sp. 510.) *Spurge Laurel*. Woods and thickets on a clayey or chalky soil. Fl. yellowish green. March. Shrub. E. B. 119., H. 184.

3. *D. indica*. (L. sp. 511.) *Indian Daphne*. Capitule pedunculated, terminal. Leaves opposite, oblong-ovate, glabrous. Native of China. Cult. in parterres. Fl. yellowish, very fragrant. Spring and summer. Shrub. Pers. syn. i. p. 435.

4. *D. Cneorum*. (L. sp. 511.) *Trailing Daphne*. Leaves elliptico-lanceolate, obtuse, mucronate, shining, coriaceous, glabrous. Flowers fasciculate, terminal, sessile; the tube pubescent; the segments ovato-lanceolate. Native of the Alps, &c. Cult. in gardens. Fl. rose-coloured, fragrant. Spring and autumn. Shrub. Bot. gal. 406.

Order LXXXV. LAURINEÆ. (D. C. bot. gal. p. 407.)

Perigone free, gamotepalous, persistent, 6-fid or 6-partite; imbricated in æstivation. *Stamens* inserted at the base of the segments; either 6 in a single row, or 9—12 in a double row; the inner row often partially sterile. *Anthers* adnate to the filaments, dehiscing by a longitudinal persistent valve from the base to the apex. *Glands* at the base of the inner filaments. *Ovary* 1. *Style* 1. *Stigma* simple or divided. *Drupe*, or *berry*, 1-celled, 1-seeded. *Albumen* none. *Embryo* inverted. *Radicle* superior. — Trees or shrubs, with alternate leaves.

I. LAURUS. (L. gen. n. 503., D. C. bot. gal. p. 407.)

Perigone 4—6-fid, equal. *Stamens* 6—9—12, in a double row; the outer ones all fertile, the inner ones alternately sterile and fertile, and with 2 appendages, or 2 glands, at the base. *Drupe* fleshy.

1. *L. nobilis*. (L. sp. 529.) *Bay Tree*. Leaves lanceolate, veined, evergreen; flowers 4-fid, diœcious. Native of the south of Europe. Cult. in pleasure-grounds. Common. Fl. yellowish. June. Small tree. Bot. gal. 407.

* * *L. Sassafras* bears the winter of our climate, and may be readily distinguished by the varying shape of the leaves; some being entire, while others are deeply 3-lobed.

Order LXXXVI. SANTALACEÆ. (R. Brown, D. C. bot. gal. p. 408.)

Perigone adherent to the ovary, 4—5-fid, somewhat coloured; valvate in æstivation. *Stamens* 4—5, inserted into the base of the segments of the perigone, and opposite to them. *Ovary* 1-celled, 2—4-seeded. *Ovules* pendulous, attached to the top of the central placenta. *Style* 1, often lobed. *Fruit* 1-seeded, hard and dry, or drupaceous. *Albumen* fleshy. *Embryo* central, terete, inverted. — Herbs, shrubs, or trees, with alternate, or subopposite, undivided, exstipular leaves. Flowers small.

I. THESIUM. (L. gen. n. 292., D. C. bot. gal. p. 408.)

Perigone 4—5-fid. *Stamens* 4—5, opposite the lobes of the perigone. *Capsules* 1-seeded, indehiscent, crowned with the persistent perigone.

1. ! *T. linophyllum*. (L. sp. 301.) *Bastard Toadflax*. Chalky pastures. Rammar hills, near Dorking; and Hampshire. Fl. white. July. Perennial. E. B. 247., H. 124.

Order LXXXVII. ELEAGNEÆ. (R. Brown, D. C. bot. gal. p. 409.)

Flowers diœcious, rarely hermaphrodite. — Male flower subamentaceous, with 3—4—8 stamens. *Anthers* introrse, subsessile, bilocular. — Female flower.

Perigone tubular, gamotepalous, persistent; the *limb* entire, or 2—4-fid (the *fauces* sometimes crowned with a prominent glandular disk). *Ovary* arising from the bottom of the perigone, and not united to it; 1-celled, 1-ovuled. *Ovule* ascending, subpedicellated. *Style* very short. *Stigma* tongue-shaped. *Fruit* crustaceous, enclosed within the pulpy perigone. *Seed* erect. *Albumen* fleshy, thin. *Embryo* straight; the *radicle* inferior. *Cotyledons* flat, fleshy. — Trees or shrubs, with exstipulate entire leaves.

I. HIPPOPHAE. (L. gen. n. 1106., D. C. bot. gal. p. 409.)

Flowers diœcious. — *Male flower* amentaceous, tetrandrous. — *Female flower* axillary solitary. *Perigone* tubular, bifid at the apex, closed: *disk* none. *Fruit* consisting of the baccate perigone, and an achene.

1. *H. rhamnoides*. (L. sp. 1452.) *Sea Buckthorn*; *Sallowthorn*. Sand hills and cliffs on the east and south-east coast of England. Fl. brown, spotted. May. Shrub. E. B. 425., H. 439.

Order LXXXVIII. ARISTOLOCHIEÆ. (Juss., D. C. bot. gal. p. 410.)

Flowers hermaphrodite. *Perigone* adherent to the ovary, gamotepalous; the *limb* either 3-lobed or tubular and irregularly dilated at the upper part; valvate in æstivation. *Stamens* definite, generally in ternary numbers, free and distinct, or adherent to the style and stigma, and epigynous. *Ovary* 3—6-celled. *Style* short. *Stigma* divided. *Capsule* or *berry* coriaceous, 3—6-celled, many-seeded; the *placentas* lateral. *Embryo* very small, at the base of a cartilaginous albumen. — Generally climbing herbs or shrubs, with alternate simple, petiolate leaves.

erigone tubular, the limb dilated into a ligula; sta-	} 1. ARISTOLOCHIA.
mens 6	
Perigone campanulate, 3-lobed; stamens 12	2. ASARUM.

I. ARISTOLOCHIA. (L. gen. n. 1022., D. C. bot. gal. p. 410.)

Perigone tubular, ventricose at the base, dilated at the apex, and extended into a ligula. *Anthers* 6, subsessile, inserted on the style. *Stigma* 6-fid. *Capsule* 6-angled, 6-celled.

1. *A. Clematitis*. (L. sp. 1364.) *Birthwort*. Among ruins in the south of England. Not common. Fl. pale yellow. July, Aug. Perennial. E. B. 398., H. 382.

II. ASARUM. (L. gen. n. 589., D. C. bot. gal. p. 411.)

Perigone campanulate, 3-lobed. *Stamens* 12, inserted on the ovary. *Anthers* adnate to the middle of the filaments. *Style* short. *Stigma* stellate, 6-lobed. *Capsule* 6-celled.

1. *A. europæum*. (L. sp. 633.) *Asarabacca*. Woods in the north of England. Fl. purplish brown. May. Perennial. E. B. 1083., H. 219.

Order LXXXIX. EUPHORBIACEÆ. (Juss., D. C. bot. gal. p. 411.)

Flowers monœcious or diœcious. *Perigone* gamotepalous; the *segments* definite (sometimes none), very often increased on the inside by various squamiform or glandular appendages. — *Male flower*. *Stamens* indefinite, or generally definite, distinct, or monadelphous; sometimes inserted into the centre of the flower, beneath the rudiments of the pistil. *Anthers* 2-celled; the *cells* sometimes distinct, dehiscing longitudinally on the outer side. — *Female flower*. *Ovary* superior, sessile, or stipitate, 2—3- or many-celled; the *cells* arranged in a circle round the central placenta. *Ovules* solitary, or in pairs; suspended from the inner angle beneath the apex. *Styles* as many as the cells; either distinct, or united, or none. *Stigmas* compound or single, and many-lobed. *Capsule* of 2—3 distinct *cells*, bivalved, bursting elastically. *Seeds* solitary or in pairs, with an arillus, and attached above to the central placenta. *Embryo* surrounded by a fleshy albumen; the *cotyledons* flat. *Radicle* superior. — Herbs or shrubs, generally lactescent, mostly with alternate

stipulate leaves. Flowers axillary or terminal, with bracts or with an involucre.

Capsule 3-celled

perigone 3—10-lobed; male and female flowers distinct

stamens numerous - - - - - 1. RICINUS, clt.

stamens 4 - - - - - 2. BUXUS.

perigone none; stamens 10—36, crowded round the
solitary pedicellated ovule, and surrounded by an } 3. EUPHORBIA.
involucre - - - - - }

Capsule 2-celled - - - - - 4. MERCURIALIS.

I. RICINUS. (L. gen. n. 1085., D. C. bot. gal. p. 412.)

Monœcious. — Male flower. *Perigone* 5-fid. *Stamens* numerous, united, and subramose. — Female flower. *Perigone* 3-partite. *Styles* 3, bifurcate. *Capsule* rough with spinous tubercles; 3-celled; the cells 1-seeded.

1. *R. communis*. (L. sp. 1430.) *Castor Oil Plant*. Leaves peltato-palmate; the lobes lanceolate, serrated. Stem herbaceous, pruinose. Stigmas 3, bifid at the apex. Capsule covered with spines. Native of India and Barbary. Cult. in gardens. Fl. greenish yellow, or purplish. Aug., Sept. Annual.

II. BUXUS. (L. gen. n. 1053., D. C. bot. gal. p. 412.)

Monœcious. *Perigone* 3-partite. — Male flower. *Scale* 2-lobed. *Stamens* 4, inserted into the rudiments of the germen. — Female flower. *Scales* 3, very small. *Styles* 3. *Stigmas* 3, obtuse. *Capsule* with 3 horns, 3-celled; the cells 2-seeded.

1. *B. sempervirens*. (L. sp. 1394.) *Common Box*. Chalk hills, south of London; Box Hill, &c. Fl. straw-coloured. April. Large shrub. E. B. 1431., H. 407.

III. EUPHORBIA. (L. gen. n. 243., D. C. bot. gal. p. 412.)

Flowers monœcious; the males and females in the same heads, and surrounded by a gamophyllous 5-fid involucre; the segments being entire or ciliated; outside of which are 5 glands, alternating with the primary segments. — *Male flowers* numerous (10—36), in a verticillated umbel; articulated with the persistent pedicels; monandrous by abortion. *Female flower* solitary, central, without a perigone. *Ovary* pedicellated. *Stigmas* 3, bifurcate. *Capsule* exsert, 3-celled, the cells 1-seeded.

Leaves stipulated; glands of the involucre externally supported by membranous processes } 1. E. PEPLIS.

Leaves without stipules; glands of the involucre without membranous processes

glands of the involucre entire, subrotund; flowering branches generally trifid

capsules smooth; seeds reticulated - - - 2. E. HELIOSCOPIA.

capsules generally warted; seeds smooth

capsules warted, but not hairy

bracteas cordate; leaves obovato-lanceolate, serrulate; glands of the involucre oval } 3. E. PLATYPHYLLA.

bracteas and leaves elliptical, entire; glands of the involucre 4, reniform, with intermediate lobes } 4. E. HIBERNA.

capsules hairy; bracteas broadly oval - - - 5. E. PILOSA.

glands of the involucre pointed or angular, generally crescent-shaped; flowering branches mostly bifid

bracteas or leaves of the flowering branches free (not connate)

umbels of 5 or more principal branches

umbels of more than 5 principal branches

leaves oblongo-lanceolate - - - 6. E. ESULA.

leaves linear, numerous - - - 7. E. CYPARISSIAS.

umbels of about 5 principal branches

seeds smooth; leaves imbricated - - - 8. E. PARALIAS.

seeds dotted; leaves not imbricated - - - 9. E. PORTLANDICA.

- umbels of 3 (rarely 4) principal branches
 leaves scattered
 leaves broadly obovate - - - 11. *E. PEPLUS.*
 leaves lineari-lanceolate - - - 10. *E. EXIGUA.*
 leaves in whorls of 4 - - - 12. *E. LATHYRIS.*
 bracteas or leaves of the flowering branches
 connate
 leaves broadly lanceolate; capsule glabrous 13. *E. AMYGDALOÏDES.*
 leaves lineari-lanceolate; capsule woolly }
 when young - - - - - } 14. *E. CHARACIAS.*
1. *E. Peplis.* (L. sp. 652.) *Purple Spurge.* Sandy coasts of Devon and Cornwall. Fl. yellowish. July, Sept. Annual. E. B. 2002., H. 387.
 2. ! *E. Helioscopia.* (L. sp. 658.) *Sun Spurge.* Waste and cultivated ground. Common. Fl. yellowish. July, Aug. Annual. E. B. 883., H. 387.
 3. ! *E. platyphylla.* (L. sp. 660.) *Broad-leaved warted Spurge.* Corn fields, near Henfield, Sussex; Essex, Kent, &c. Fl. yellowish. July, Aug. Annual. H. 387.
 - β. stricta.* Involucre generally hairy. Whorls 5- (rarely 3-) fid. Ovary warted, smooth, or pilose. *E. stricta.* (E. B. 333.)
 4. ! *E. hiberna.* (L. sp. 662.) *Irish Spurge.* Between Feversham and Sittingbourne, Kent; and south of Ireland. Fl. yellowish. June. Perennial. E. B. 1337., H. 387.
 5. *E. pilosa.* (L. sp. 659.) *Hairy Spurge.* Slinfold, Sussex, in the hedges. Fl. yellowish. July. Perennial. H. 388.
 - β. procera.* (Hook.) Capsules dotted with minute brown warts, glabrous, or obsoletely hairy. *E. procera.* (Bab., E. B. 2787.)
 - γ.* Capsules quite smooth and glabrous.
 6. *E. Esula.* (L. sp. 660.) *Leafy-branched Spurge.* Slinfold, Sussex; and about Edinburgh. Fl. yellowish. July. Perennial. E. B. 1399., H. 388.
 7. *E. Cyparissias.* (L. sp. 661.) *Cypress Spurge.* Staffordshire, Bedfordshire, and Northumberland; in groves and thickets. Fl. yellowish. June, July. Perennial. E. B. 840., H. 388.
 8. *E. Paralias.* (L. sp. 657.) *Sea Spurge.* Sandy sea coast of south of England. Fl. yellowish. Aug., Sept. Perennial. E. B. 195., H. 389.
 9. *E. portlandica.* (L. sp. 656.) *Portland Spurge.* Sandy sea coast, south of England; Isle of Man; Ireland. Fl. yellowish. Aug. Perennial. E. B. 441., H. 389. *E. segetalis, γ. maritima.* (Bot. gal. 415., Lind. syn. 222.)
 10. ! *E. exigua.* (L. sp. 654.) *Dwarf Spurge.* Corn fields. Fl. yellowish. July. Annual. E. B. 1336., H. 389.
 11. ! *E. Peplus.* (L. sp. 653.) *Petty Spurge.* Cultivated and waste ground. Common. Fl. yellow. July, Aug. Annual. E. B. 959., H. 389.
 12. ! *E. Lathyrus.* (L. sp. 655.) *Caper Spurge.* Thickets, about Upton, near Reading; Woods at Selbourne. Fl. yellowish. June, July. Biennial. E. B. 2255., H. 389.
 13. ! *E. amygdaloïdes.* (L. sp. 662.) *Wood Spurge.* Woods and thickets, on a clayey or chalky soil. Common. Fl. yellow. March, April. Perennial. E. B. 256., H. 389. *E. sylvatica.* (Bot. gal. 416.)
 14. *E. Characias.* (L. sp. 662.) *Red shrubby Spurge.* Needwood Forest, Staffordshire. Fl. yellowish. March, April. Large shrub. E. B. 442., H. 390.

IV. MERCURIALIS. (L. gen. n. 1125., D. C. Bot. gal. p. 417.)

Dioecious, or rarely monœcious. *Perigone* 3-partite. — Male flower. *Stamens* 9—12. — Female flower. *Ovary* double, 2-furrowed; having 2 sterile filaments proceeding from each furrow. *Styles* 2, bifurcate. *Capsule* 2-celled; the cells 1-seeded.

- Stem quite simple; leaves rough; root creeping, peren- }
 nial - - - - - } 1. *M. PERENNIS.*
 Stem much branched; leaves smooth; root fibrous, }
 annual - - - - - } 2. *M. ANNUA.*

1. ! *M. perennis.* (L. sp. 1465.) *Perennial, or Dog's Mercury.* Hedges and thickets. Common. Fl. greenish. April, May. Perennial. E. B. 1872., H. 441.
2. ! *M. annua.* (L. sp. 1465.) *Annual Mercury.* Waste places and cultivated grounds. Common. Fl. green. Aug. Annual. E. B. 559., H. 441.

Order XC. EMPETREÆ. (Nuttal gen. ii. p. 233.) EMPETRACEÆ.
(Lind. nat. syst. p. 117.)

Flowers diœcious. *Perigone* free, composed of imbricated scales, in 2 rows. *Stamens* equal in number to the inner scales, and alternate with them. *Anthers* roundish, 2-celled; the *cells* distinct, dehiscing longitudinally. *Ovary* free, on a fleshy disk, 3—6- or 9-celled. *Ovules* solitary, ascending. *Style* 1. *Stigma* radiating; the *rays* as many as the cells of the ovary. *Fruit* fleshy, surrounded by the persistent calyx, with 3—9 osseous cells. *Seeds* solitary, ascending. *Embryo* terete, in the centre of the albumen. *Radicle* inferior.—Undershrubs, with evergreen, narrow, exstipulate leaves.

I. EMPETRUM. (L. gen. n. 1100.)

Diœcious. *Perigone* of 6 pieces, in 2 rows. — Male flower. *Stamens* 3, with long filaments. — Female flower. *Style* very short. *Stigma* of 6—9 rays. *Berry* orbiculato-depressed, 6—9-celled.

1. *E. nigrum*. (L. sp. 1450.) *Crakeberry*, or *Crowberry*. Mountainous heaths. Common. Fl. purplish. May. Perennial. E. B. 526., H. 438.

Order XCI. URTICEÆ. (Juss., D. C. bot. gal. p. 417.)

Flowers small, greenish, monœcious or diœcious, solitary, amentaceous, or surrounded by a gamophyllous involucre. *Perigone* gamotepalous, 3—5-lobed, persistent. — Male flower. *Stamens* definite, inserted into the base of the perigone. — Female flower. *Ovary* simple, free. *Styles* 2 or 1, and bifurcate. *Fruit* an achene, surrounded by the persistent, membranous, or fleshy perigone; or inserted into a fleshy receptacle, which is dilated, and often concave. *Seed* pendulous, with or without albumen. *Embryo* straight, curved, or spiral. *Radicle* generally superior (always pointing to the hilum. Lind.). — Herbs or trees, usually with hispid and spathulate leaves. Flowers capitate or racemose.

Herbs

flowers always diœcious, pentandrous - - - 1. CANNABIS, clt.

flowers polygamous or monœcious, rarely diœcious,
tetrandrous

perigone of the fertile flowers 4-partite - - - 2. PARIETARIA.

perigone of the fertile flowers 2-valved - - - 3. URTICA.

Climbing shrub - - - - - 4. HUMULUS.

Trees

juice not milky; flowers spiked, or in short catkins - 5. MORUS, clt.

juice milky; flowers enclosed in a fleshy receptacle - 6. FICUS, clt.

Tribe I. URTICEÆ. (D. C. bot. gal. p. 417.)

Flowers solitary, amentaceous, or spiked. *Fruit* never fleshy. *Albumen* none. *Embryo* generally straight.

I. CANNABIS. (L. gen. n. 1115., D. C. bot. gal. p. 417.)

Diœcious. — Male flower. *Perigone* 5-partite. *Stamens* 5. — Female flower. *Perigone* oblong, cleft at the side. *Ovary* 1. *Styles* 2. *Capsule* crustaceous, 2-valved; the *valves* subglobose, covered by the perigone. *Embryo* incurved.

1. *C. sativa*. (L. sp. 1457.) *Hemp*. Native of India. Cult. in fields. Leaves digitate, petiolate. Fl. greenish. July, Aug. Annual. Bot. gal. 418.

II. PARIETARIA. (L. gen. n. 1152., D. C. bot. gal. p. 418.)

Flower polygamous, surrounded by a multipartite involucre. *Hermaphrodite* flower. *Perigone* 4-partite. *Stamens* 4; the *filaments* at first bent down, but becoming erect and dehiscing elastically. *Ovary* 1. *Style* 1. *Stigma* 1. *Seed* covered by the elongated perigone, which is connivent above. — Female flower. *Stamens* none. In other respects, as in hermaphrodite flowers.

1. ! *P. officinalis*. (L. sp. 1492.) *Pellitory of the Wall*. Old walls. Common. Fl. purplish green. June, Sept. Perennial. E. B. 879., H. 72.

III. URTICA. (L. gen. n. 1054., D. C. bot. gal. p. 418.)

Monœcious, rarely diœcious. — Male flower racemose. *Perigone* 4-partite. *Stamens* 4. *Filaments* curved before the dehiscence of the anthers. — Female

flower capitato-racemose. *Perigone* 2-valved. *Ovary* 1. *Stigma* 1. *Seed* 1, surrounded by the perigone.

Flowers monœcious; leaves oval or elliptical

fertile flowers in globular capitules

fertile flowers in loose racemes

Flowers generally diœcious; leaves cordate

- - 1. *U. PILULIFERA*.

- - 2. *U. URENS*.

- - 3. *U. DIOICA*.

1. *U. pilulifera*. (L. sp. 1395.) *Roman Nettle*. Under walls, and among rubbish near the sea. Norfolk and Suffolk. Fl. greenish. June, July. Annual. E. B. 148., H. 407.

2. ! *U. urens*. ! (L. sp. 1396) *Small Nettle*. Waste places and cultivated ground. Common. Fl. green. June, Oct. Annual. E. B. 1236., H. 407.

3. ! *U. dioica*. (L. sp. 1396.) *Common Nettle*. Waste places and hedges. Common. Fl. greenish. July, Aug. Perennial. E. B. 1750., H. 407.

IV. HUMULUS. (L. gen. n. 1116., D. C. bot. gal. p. 419.)

Diœcious. — Male flower. *Perigone* 5-partite. *Stamens* 5. — Female flower. *Catkins*, or *cones*, consisting of large, concave, persistent scales, having a single flower in the axilla of each. *Ovary* 1. *Styles* 2. *Seed* 1, having an arillus. *Embryo* spirally contorted.

1. ! *H. Lupulus*. (L. sp. 1457.) *Common Hop*. In hedges; and cultivated. Fl. greenish yellow. July. Perennial. Climbing shrub. E. B. 427., H. 440.

Tribe II. ARTOCARPEÆ. (D. C. bot. gal. p. 419.)

Flowers on a common receptacle. *Fruit* fleshy. *Seeds* albuminous. *Embryo* curved.

V. MORUS. (L. gen. n. 1055., D. C. bot. gal. p. 419.)

Monœcious. *Catkins* unisexual. *Perigone* 4-lobed; the lobes concave. — Male flower. *Stamens* 4, alternate with the segments of the perigone. — Female flower. *Ovary* free. *Stigma* 2. *Seeds* 1—2, covered by the pulpy perigone.

Leaves smooth, thin; fruit white or reddish

Leaves scabrous, thickish; fruit dark purple

- - 1. *M. ALBA*, clt.

- - 2. *M. NIGRA*, clt.

1. *M. alba*. (L. sp. 1398.) *White Mulberry*. Leaves deeply cordate, unequal at the base; ovate or lobed, serrated, smooth; fruit white or reddish. Native of Asia. Cult., in many parts of England, for its leaves as a food for silkworms. Fl. greenish. May. Tree. Bot. gal. 419.

2. *M. nigra*. (L. sp. 1398.) *Black Mulberry*. Leaves cordate, ovate, lobed, or unequally dentate; rough and thickish. Fruit dark purple. Native of Persia or China. Cult. for its fruit. Fl. greenish. May. Tree. Bot. gal. 419.

VI. FICUS. (L. gen. n. 1168., D. C. bot. gal. p. 419.)

Monœcious. *Flowers* numerous, pedicellated, enclosed within a fleshy receptacle, which is umbilicated, and nearly closed at the apex, hollow within. *Perigone* 3—5-lobed; the lobes acuminate. — Male flower near the umbilicus or orifice. *Stamens* 3—5. — Female flower. *Ovary* free. (Desf.) Semi-adnate. (Gært.) *Style* 1. *Stigmas* 2. *Drupe*, or *utricle*, 1-seeded, sunk in the pulpy receptacle. Coat of the nut fragile, crustaceous.

1. *F. Carica*. (L. sp. 1513.) *Common Fig*. Leaves cordate, palmate; scabrous above, pubescent beneath. Native of Asia and the south of Europe. Cult. Fl. receptacle green. June. Small tree. Bot. gal. 419.

Order XCII. JUGLANDEÆ. (D. C. bot. gal. p. 420.)

Flowers monœcious. — Male flower amentaceous. *Perigone* scaly, 2—6-lobed. *Stamens* hypogynous, indefinite in number; the filaments very short, and free; the anthers 2-celled, innate. — Female flower. *Perigone* double or single, adherent to the ovary; the outer 4-divided; the inner, when present, 4-tepalous. *Ovary* 1-celled; the ovule erect. *Styles* 1—2, very short, with 2 thick stigmas; or none, and then the stigma is large discoid, 4-lobed. *Drupe* fleshy, containing a 2—4-partitioned nut. *Seed* with cerebriform convolutions, more or less 4-lobed; covered by a membranaceous integument. *Embryo* large,

exalbuminous. *Cotyledons* fleshy, 2-lobed; the *radicle* superior. — Trees, with alternate imparipinnate leaves. Stipules none. *Female flower* terminal, 1—3, or more, in a loose spike. *Male flower* remote, closely spiked.

I. JUGLANS. (L. gen. n. 1071., D. C. bot. gal. p. 420.)

Male flower. Catkin imbricated. *Perigone* simple, 5—6-partite, adnate to the bractea. *Stamens* numerous (14—36.); the *anthers* thick. — *Female flower.* *Perigone* double. *Styles* 2, very short. *Stigmas* 2, large. *Drupe* containing a hard nut, which is rugose, and irregularly furrowed on the outside.

1. *J. regia*. (L. sp. 1415.) *Common Walnut*. Leaflets about 9; oval, glabrous, subserrate, subequal. Fruit globose. Native of Persia. Cult. in England. Fl. straw-coloured. May, June. Large tree. Bot. gal. 420.

Order XCIII. AMENTACEÆ. (Juss., D. C. bot. gal. p. 420.)

Flowers diœcious, monœcious, or rarely hermaphrodite. — *Male flower* capitate, or in a catkin; furnished with a scale or squamiferous perigone. *Stamens* inserted on the scale, very rarely monadelphous; the *anthers* 2-celled. — *Female flower* solitary, fasciculated or amentaceous; furnished with a scale, or perigone. *Ovary* 1 (rarely more), free. *Stigmas* numerous. *Pericarps* as many as the ovaries, osseous or membranaceous. *Albumen* none, or thin. *Embryo* straight or curved, flat; the *radicle* generally superior. — Trees or shrubs, with alternate leaves, which are stipulate when young.

Flowers hermaphrodite	-	-	-	1. ULMUS.
Flowers monœcious or diœcious				
leaves palmatilobed	-	-	-	11. PLATANUS, clt.
leaves simple or pinnatilobed				
seeds covered with a cottony down				
stamens 2—5	-	-	-	4. SALIX.
stamens 8—30	-	-	-	5. POPULUS.
seeds not downy				
2 stigmas in each flower				
fruit drupaceous	-	-	-	12. MYRICA.
fruit not drupaceous				
fruit surrounded by an involucre				
involucre calyciform, with a lacerated				
margin	-	-	-	9. CORYLUS.
involucre squamiform, 3-lobed	-	-	-	10. CARPINUS.
fruit not surrounded by an involucre				
female catkin elongato-cylindrical; nu-				
culæ 1-celled	-	-	-	2. BETULA.
female catkin ovato-globose; nuculæ 2-				
celled	-	-	-	3. ALNUS.
3—6 stigmas in each flower				
involucres hispid, closed				
involucre covered with slender spines; nut				
triangular	-	-	-	6. FAGUS.
involucre rough with hard spines; nut				
subrotund	-	-	-	7. CASTANEA.
involucre not closed, forming a cup, rarely				
hispid	-	-	-	8. QUERCUS.

Tribe I. BETULINEÆ. (Rich., D. C. bot. gal. p. 421.)

Flowers hermaphrodite, polygamous or monœcious. *Perigone* free campanulate, 4—5-lobed. *Stamens* 4—12, generally as many as the lobes of the perigone, and then opposite to them, or double or treble their number; free, inserted into the base of the perigone. *Ovary* 1, simple. *Stigmas* 2, distinct from the apex of the ovary. *Pericarp* indehiscent, 2-celled, membranaceous or subcoriaceous; compressed, sometimes expanded into a wing at the sides. *Seed* solitary in each cell, pendulous and exalbuminous. *Radicle* turned towards the hilum. *Cotyledons* flat, foliaceous. — Trees or shrubs, with alternate, petiolated, simple, penninerved leaves.

Subtribe I. ULMÆ. (Mirb., D. C. bot. gal. p. 421.)

Flowers loosely aggregated in small capitules, pedicellated, hermaphrodite, or (by abortion) polygamous.

I. ULMUS. (L. gen. n. 316., D. C. bot. gal. l. c.)

Hermaphrodite. *Perigone* campanulate, 4—5-dentate, coloured, persistent. *Stamens* 3—6. *Ovary* compressed. *Stigmas* 2. *Fruit* (a samara) suborbicular, with a broad membranaceous margin; 1-seeded.

Leaves scabrous on the upper surface

branches with corky excrescences

young branches pubescent or hairy

leaves rhomboid, ovato-acuminate, wedge-shaped, doubly and irregularly serrated } 1. U. CAMPESTRIS.

leaves suborbicular, acute, doubly and regularly serrated } 2. U. SUBEROSA.

young branches nearly smooth - - - 3. U. MAJOR.

branches nearly smooth, or not corky

leaves simply crenate or serrate, slightly oblique at the base } 4. U. CARPINIFOLIA.

leaves doubly and coarsely serrated, nearly equal at the base } 7. U. MONTANA.

Leaves smooth on the upper surface

branches wiry, weeping; leaves ovato-lanceolate - 5. U. GLABRA.

branches rigid, erect, very compact - 6. U. STRICTA.

1. ! *U. campestris*. (L. sp. 327.) *Common small-leaved Elm*. Hampshire, Sussex, Norfolk. Common. Fl. reddish purple. March, April. Large tree. E. B. 1886., H. 144.

*** This and the 2 following species are considered by De Candolle, in Bot. gal., as mere varieties of a single species, under the names *U. camp. α. microphylla*, *β. suberosa*, *γ. major*.

2. ! *U. suberosa*. (Ehrh.) *Common Cork Elm*. Hedges. Common. Doubtful native. Fl. as above. E. B. 2161., H. 144.

3. ! *U. major*. (Smith.) *Dutch Cork Elm*. Hedges. A doubtful native. Fl. as above. E. B. 2542., H. 145.

4. *U. carpinifolia*. (Lind.) *Hornbeam-leaved Elm*. Four miles from Stratford on Avon, on Alcester road. Fl. as above. H. 145.

5. ! *U. glabra*. (Mill.) *Smooth-leaved Elm*. Woods and hedges in Essex. Fl. as above. E. B. 2248., H. 145.

β. glandulosa. (Lind.) Leaves very glandular beneath. Near Ludlow.

γ. latifolia. (Lind.) Leaves oblong, acute, very broad. Claybury, Essex.

6. *U. stricta*. (Lind.) *Cornish Elm*. Cornwall and north Devon.

β. parviflora, with smaller leaves. Fl. as above. H. 145.

7. ! *U. montana*. (Bauh.) *Wych Elm*. Woods and hedges. Common. Fl. as above. E. B. 1887., H. 145.

*** The *Weeping Elm*, *Chichester Elm*, and *Giant Elm*, are varieties of *U. montana*. (Lind. syn. 227.)

Subtribe II. BETULÆ. (D. C. bot. gal. p. 422.)

Flowers amentaceous; the scales bearing 1—3 sessile flowers in their axilla; monœcious in distinct catkins.

II. BETULA. (L. gen. n. 1052., D. C. bot. gal. p. 422.)

Monœcious. *Catkins* elongato-cylindrical. — Male flower. *Scales* ternate the middle one stamiferous. — Female flower. *Scales* 3-lobed, membranous, deciduous. *Styles* 2. *Ovary* compressed; 2-celled, one of the cells abortive. *Nuts* with a membranous margin, compressed, 1-celled.

Leaves ovato-deltoid, acute, doubly serrated - - - 1. B. ALBA.

Leaves orbicular, crenate - - - 2. B. NANA.

1. *B. alba*. (L. sp. 1393.) *Common Birch*. Woods, in heathy mountainous soils. Much cult. Fl. catkins green. April, May. Large tree. E. B. 2198., H. 411.

β. pendula. *Drooping Birch*, with pendent branches; in the Highlands. *B. pendula*. (Roth, Lind. syn. 229.)

2. *B. nana*. (L. lapp.) *Dwarf Birch*. Highlands of Scotland. Fl. as in *B. alba*. May. Small shrub. E. B. 2326., H. 412.

III. ALNUS (Tourn., D. C. bot. gal. p. 422.)

Monœcious. — Male flower. *Catkins* elongato-cylindrical. *Scales* pedicel-
lated, cordiform, staminiferous at the base, and furnished with three smaller
scales beneath. — Female flower. *Catkins* ovato-globose, with branching pedi-
cels. *Scales* 2-flowered, coriaceous, persistent. *Ovary* compressed. *Stigmas* 2.
Fruit (*Nucula*) compressed, ovate, naked, 2-celled, 2-seeded.

1. ! *A. glutinosa*. (Gærtn.) *Common Alder*. Moist grounds near rivers.
Common. Fl. catkins green. March, April. Tree. H. 407. *Betula Alnus*.
(L. sp. 1394., E. B. 1508.)

Tribe II. SALICINÆ. (Rich., D. C. bot. gal. p. 423.)

Flowers diœcious, solitary in the axilla of each scale, amentaceous. — Male
flowers disposed in a cylindrical catkin. *Perigone* small, having the appear-
ance of a gland. *Stamens* 2—30, subadnate to the glands; generally free, rarely
monadelphous. — Female flower in a dense ovate or cylindrical catkin. *Peri-
gone* free, simple, often persistent, or very small. *Ovary* 1-celled. *Style* simple.
Stigmas 2, often bifid. *Capsule* 1-celled, 2-valved; the *cells* many-seeded; the
seeds small, pendulous, exalbuminous, entirely covered with silky or cottony
down, or only downy at the apex. *Embryo* straight. *Radicle* directed towards
the umbilicus. *Cotyledons* flat, foliaceous. — Trees or shrubs, with alternate
simple leaves. *Stipules* foliaceous, sometimes small or wanting.

IV. SALIX. (L. gen. n. 1098., D. C. bot. gal. p. 423.)

Flowers diœcious, or rarely monœcious; amentaceous; the *scales* imbricated;
a gland surrounding the stamens or ovary. — Male flower. *Stamens* 2,
rarely 3 or 5; sometimes the 2 united into one, and then the anther is 4-
celled. — Female flower. *Seeds* covered with down. *Radicle* inferior.

* Catkins lateral

† scales of the catkins of a single colour (yel-
lowish green)

† scales deciduous - - - - - § FRAGILES.

stamens more than 2

capsules subsessile; stamens generally 5 1. S. PENTANDRA.

capsules pedicellated; stamens generally 4 2. S. CUSPIDATA.

stamens 2

stipules semicordate; capsules subpedi-
cellated

stipules rather obtuse; leaves glabrous
ovaries loose, glabrous, pedicellated 3. S. FRAGILIS.

ovaries crowded; branches slender,
pendulous 4. S. BABYLONICA, cit.

stipules tapering; leaves silky white
young 5. S. RUSSELLIANA.

stipules lanceolate; capsules subsessile;
leaves silky on both sides 6. S. ALBA.

†† scales persistent; flowers triandrous - - - § AMYGDALINÆ.

style very short; stigma subsessile; scales
glabrous 7. S. AMYGDALINA.

styles as long as the linear bifid stigma;
scales villous 8. S. UNDULATA.

†† scales of the catkins discoloured at the point 9. S. ACUTIFOLIA.

† anthers, after flowering, becoming black - - - § PURPUREÆ.

monandrous; styles short; stigma ovate;
leaves flat 10. S. PURPUREA.

monadelphous; style long; stigma linear
or filiform; leaves subrevolute 11. S. RUBRA.

†† anthers, after flowering, yellow or brown

§ capsules sessile or subsessile

|| catkins sessile

leaves cuspidate, acuminate, serrate - § PRUINOSÆ.

leaves entire, or scarcely subdentate - § VIMINALES.

- stipules lanceolate, linear, small; capsule sessile } 12. *S. VIMINALIS*.
 stipules semicordate or reniform, large; capsule pedicellate
 leaves lanceolate, linear; capsule on short pedicels } 13. *S. STIPULARIS*.
 leaves oblong-lanceolate; capsules on pedicels as long as the glands } 14. *S. ACUMINATA*.
 ||| catkins stalked when in fruit; the stalks leafy } § *FRIGIDÆ*.
 leaves downy, white on the under surface
 leaves wrinkled, dark green above; stipules semicordate, recurved at the point } 27. *S. LIMOSA*.
 leaves silky on both sides; stipules ovate-acute, straight } 28. *S. GLAUCA*.
 leaves glabrous, or subpilose
 leaves glaucous beneath; capsules silky } 29. *S. PRUNIFOLIA*.
 leaves shining, of the same colour on both sides; capsules densely woolly } 30. *S. MYRSINITES*.
 §§ capsules pedicellated; the pedicels twice the length of the glands
 || tall, erect, or arborescent, shrubs - § *CAPRÆÆ*.
 style very short or none; stigma sessile or subsessile
 stipules semi-ovate; leaves lanceolate tapering, finely serrated } 15. *S. HOLOSERICA*.
 stipules reniform; leaves elliptical or obovate; waved or bluntly serrated
 catkins sessile
 buds hoary; leaves obovate or elliptical, glaucous above, hairy beneath } 16. *S. CINEREA*.
 buds glabrous; leaves ovate, elliptical, glabrous above, glaucous or downy beneath } 17. *S. CAPRÆA*.
 catkins, when in fruit, pedicellated; stalk leafy
 stigmas emarginate; leaves hairy beneath, rugose and downy above } 18. *S. AURITA*.
 stigmas bifid; leaves, when full grown, glabrous beneath, green and shining above } 19. *S. LIVIDA*.
 style long
 stipules straight at the point
 catkins sessile, or becoming slightly stalked; leaves hoary beneath } 20. *S. PHYLICIFOLIA*.
 catkins on leafy stalks; leaves glabrous } 21. *S. HASTATA*.
 stipules oblique at the point } 22. *S. ARBUSCULA*.
 ||| low shrubs, with a creeping decumbent stem } § *ARGENTÆÆ*.
 leaves linear or oblong; lanceolate, tapering } 24. *S. ROSMARINIFOLIA*.
 leaves elliptical oval, lanceolate, with recurved points
 stigma bifid; stipules lanceolate, acute } 23. *S. REPENS*.
 stigma emarginate; stipules semi-ovate, straight } 25. *S. AMBIGUA*.

**** Catkins terminal**

catkins sessile on the point of the branchlets; } § CHRYSANTHEÆ.
leaves below the catkins, proceeding from }
the sides of the branchlets - } 26. *S. LANATA*.

catkins originating in terminal buds, on a }
leafy peduncle having new buds; peduncle } § GLACIALES.
persistent, continuing the branchlet - }
leaves entire, coriaceous, glaucous beneath; } 31. *S. RETICULATA*.
ovary sessile, downy - }
leaves serrated, glabrous, shining on both } 32. *S. HERBACEA*.
sides, pedicellated, glabrous - }

1. ! *S. pentandra*. (L. sp. 1442.) *Sweet bay-leaved Willow*. Banks of rivers and watery places. Fl. yellowish; appearing with the leaves. May, June. Small tree. E. B. 1805., H. 420.

2. *S. cuspidata*. (Schultz.) *Spear-shaped Willow*. Brough, Westmoreland. Fl. yellow; appearing with the leaves. March. Small tree. Lind. syn. 230., *S. Meyeriana*. (Willd., H. 421.)

3. ! *S. fragilis*. (L. sp. 1443.) *Crack Willow*. Banks of rivers and marshy ground. Common. Fl. yellow; appearing with, or after, the leaves. April, May. Tree. E. B. 1807., H. 421.

Subsp. 1. *S. decipiens*. (Hoffm.) *White Welsh, or varnished Willow*. Petioles somewhat glandular. Germens tapering, pedicellated, glabrous. Style longer than the cloven stigmas. Branches smooth, highly polished. Moist hedges and osier grounds. Fl. as above. E. B. 1937., H. 421.

4. *S. babylonica*. (L. sp. 1443.) *Weeping Willow*. Branches elongated, flexible, pendulous. Leaves linear, lanceolate or oblong, entire or sub-serrated, acuminate, glabrous. — Female catkins subpedunculated, elongated. Ovaries crowded. Native of Persia. Much cult. on the banks of ponds and rivers. The female plant is alone known in Europe. All the British plants, it is said, have been propagated by cuttings from Pope's Willow, at Twickenham.

5. ! *S. Russelliana*. (Smith.) *Bedford Willow*. Marshy woods and osier grounds. Common. Fl. yellow; appearing with the leaves. April, May. Large tree. E. B. 1808., H. 422.

6. ! *S. alba*. (L. sp. 1449.) *Common White Willow*. River sides and moist woods. Fl. yellow; appearing with, or after, the leaves. May. Large tree. E. B. 2430., H. 422.

β. *cærulea*. *Blue Willow*. Under surface of the leaves less silky, often quite glabrous. *S. cærulea*. (E. B. 2431., Lind.)

Subsp. 1. ! *S. vitellina*. (L. sp. 1442.) *Yellow Willow, or golden Osier*. Branches of a bright yellow. Leaves also yellowish. Habitat and flower as above. E. B. 1389., H. 423.

7. ! *S. amygdalina*. (L. sp. 1443.) *Almond-leaved Willow*. Banks, ditches, and rivers in the east of England. Fl. yellowish; appearing with the leaves. Small tree. E. B. 1936., H. 420.

Subsp. 1. *S. triandra*. (L. sp. 1442.) *Long-leaved triandrous Willow*. Leaves oblong-lanceolate, green, or sub-glaucous, beneath. Twigs not furrowed. Capsule oblong-ovate, glabrous, as well as the retuse scale. Stigma sessile, retuse. Habitat and flower as above. E. B. 1435., H. 419.

Subsp. 2. *S. Hoffmanniana*. (Sm.) *Short-leaved triandrous Willow*. Leaves shortly and broadly lanceolate, acute; slightly rounded at the base; sub-glaucous beneath. Twigs not furrowed. Sides of streams in Sussex and Cambridgeshire. Fl. as above. Large shrub. E. B. 2620., H. 420.

8. ! *S. undulata*. (Ehrh.) *Sharp-leaved triandrous Willow*. Near Lewes, Sussex; and Angushire. Doubtful native. Fl. yellow; appearing with the leaves. April, May. Small tree. H. 419. *S. lanceolata*. (E. B. 1436.)

*. *S. petiolaris* (E. B. 1147.) According to Dr. Lindley, it is not a British species. Sir W. Hooker says, "it is a very distinct species, with dark branches, and greyish green dusky leaves; silky, with short soft hairs: in a young state even, silvery beneath." Found in Angushire, according to Mr. G. Don. Fl. April. Small tree.

9. *S. acutifolia* (Willd.) *Violet Willow*. Leaves lanceolate, acuminate, unequally and obtusely serrated, glabrous, glaucous beneath; branches pruinose; Native of the Caspian shores. According to Dr. Lindley, common in gardens. Fl. yellow. May. Large shrub. Pers. syn. ii. p. 600.

10. ! *S. purpurea*. (L. sp. 1444.) *Bitter Purple Willow*. Decumbent. Meadows between Thorpe and Norwich. Fl. yellowish; appearing about the same time as the leaves. March, April. Large shrub. E. B. 1388., H. 417. *S. monandra*. (Bot. gal. 425.)

Subsp. 1. *S. Doniana*. (Sm.) *Don's Willow*. Leaves partly opposite, obovato-lanceolate, acute, slightly serrated, even, livid, and somewhat silky beneath. Stipules linear. Branches erect. Catkins erect, cylindrical. Capsules stalked, silky, longer than the obovate scale. Scotland. Fl. as above. May. Small shrub. E. B. 2599., H. 424.; where it is placed near *S. repens* of the $\frac{1}{2}$ *Argentæ*, the *Fuscæ* of Borrer.

Subsp. 2. ! *S. Lambertiana*. (Sm.) *Boyton Willow*. Erect. Leaves lanceolate, broadest upwards, serrated, glabrous. Capsule shortly ovate, very pubescent, sessile. Stigmas ovate, emarginate. Young shoots purplish, glaucous. Banks of rivers at Boyton, Wilts; at Staines, and Henley on Thames. Fl. as above. E. B. 1359., H. 417.

Subsp. 3. ! *S. Helix*. (L. sp. 1444.) *Rose Willow*. Erect. Leaves lanceolate, broadest upwards, attenuated below, serrated, glabrous. Capsule oblong-ovate, very pubescent, sessile. Style short. Stigma almost linear, emarginate. Marshes and banks of rivers. Fl. March, April. Large shrub. E. B. 1343., H. 417.

Subsp. 4. ! *S. Woolgariana*. (Hook.) Erect. Leaves cuneato-lanceolate. Capsule ovate, pubescent, sessile. Stigma subsessile. Kingston-upon-Thames. Fl. May. Large shrub. E. B. 2651., H. 417.

11. ! *S. rubra*. (Huds.) *Green-leaved Osier*. Low meadows and osier holts; Windsor, Maidenhead, &c. Fl. yellowish. April, May. Small tree. E. B. 1145., H. 418. *S. fissa*. (Bot. gal. 425.)

Subsp. 1. ! *S. Forbyana*. (Smith.) *Fine Basket Osier*. Leaves lanceolate, oblong, serrated, glabrous. Style equal in length to the linear divided stigmas. Osier holts in the eastern counties. Fl. as above. Small tree. E. B. 1344., H. 418.

12. ! *S. viminalis*. (L. sp. 1448.) *Common Osier*. Osier grounds. Common. Fl. yellow; appearing with the leaves. April, May. Large shrub. E. B. 1898., H. 427.

13. ! *S. stipularis*. (Sm.) *Auricled Osier*. Osier holts; Bury St. Edmunds. Fl. yellow; appearing rather before the leaves. March. Large shrub. E. B. 1214., H. 427.

14. ! *S. acuminata*. (Sm.) *Long-leaved Willow*. Moist woods and hedges. Common. Fl. yellow; appearing with the leaves. April. Large shrub. E. B. 1434., H. 428.

Subsp. 1. ! *S. Smithiana*. (Willd.) Leaves narrow, obscurely crenate. Stipules very small, narrow, acute. About Bury. Fl. yellow; appearing with the leaves. H. 427. *S. mollissima*. (E. B. 1509.)

15. *S. holosericea*. (Willd.) *Soft shaggy flowered Willow*. About Lewes, Sussex. Fl. yellow; appearing with the leaves. April, May. Large shrub. H. 428.

16. ! *S. cinerea*. (L. sp. 1449.) *Grey Sallow*. Banks of rivers, and in moist woods. Common. Fl. yellow; before the leaves. April. Small tree. E. B. 1897., H. 428.

Subsp. 1. *S. aquatica*. (Sm.) *Water Sallow*. Leaves elliptical obovate, subglaucous beneath. Stipules rounded, dentate. Wet hedgerows and swampy places. Fl. yellow. April. Large shrub. E. B. 1437., H. 428.

Subsp. 2. *S. oleifolia*. (Smith.) *Olive-leaved Sallow*. Leaves obovate, lanceolate. Stipules small, notched, rounded. Catkins oval; nearly half as broad as long. About Tunbridge, and in Norfolk. Fl. yellow; before the leaves. March. Large shrub. E. B. 1402., H. 429.

Subsp. 3. ! *S. ferruginea*. (Hook.) *Rust Sallow*. Leaves very narrow, and somewhat ferrugineous; hairy on both sides. Stipules semi-ovate. Banks of the Thames. Fl. yellow; before the leaves. April. Large shrub. E. B. 2665., H. 428.

17. ! *S. caprea*. (L. sp. 1448.) *Great round-leaved Sallow*. Woods and dry pastures. Common. Fl. yellow; before the leaves. April, May. Small tree. E. B. 1488., H. 429.

Subsp. 1. *S. sphacelata*. (Sm.) *Withered-pointed Sallow*. Leaves quite entire, discoloured at the point, downy on both sides. Loch Tay. Fl. yellow; before the leaves. April, May. Large shrub. E. B. 2333., H. 429.

18. ! *S. aurita*. (L. sp. 1446.) *Round-eared Sallow*. Moist woods and thick-

ets. Common. Fl. yellow; before the leaves. May. Large shrub. E. B. 1487., H. 429.

19. *S. livida*. (Wahl.) *Livid Sallow*. Highlands of Scotland; in Glenlyon. Fl. yellow. April, July. Large shrub. *S. bicolor*. (Ehrh. ? H. 435.)

20. *S. phylicifolia*. (L. sp. 1442.) *Tea-leaved Willow*. Breadalbane Mountains. Fl. yellowish; before the leaves. May. Large shrub. ? Sm., E. B. 1958. ? *S. radicans*. (H. 433.)

Subsp. 1. *S. Andersoniana*. (Smith.) *Anderson's Willow*. Leaves elliptic-oblong; pubescent above, glaucous beneath. Branches minutely downy. Capsules glabrous. Banks of the Tyne, Newcastle; and on the Breadalbane Mountains. Fl. yellow. May, June. Large shrub. E. B. 2343., H. 430.

Subsp. 2. *S. damascena*. (Forbes.) *Damson-leaved Willow*. Leaves ovate or rhomboidal, becoming nearly naked and green on both sides. Catkins, in flower, longer than the floral leaves. Capsules glabrous. South of Scotland. Fl. yellow; with the young leaves. April. Large shrub. E. B. 2709., H. 431.

Subsp. 3. *S. nigricans*. (Sm.) *Dark-leaved Willow*. Leaves elliptical, lanceolate, acute, crenate, glabrous; with a downy rib above; glaucous beneath. Capsules downy. Wrongay Fen, Norfolk. Fl. yellow. April. Large shrub. E. B. 1213., H. 430.

Subsp. 4. *S. rupestris*. (Don.) *Silky Rock Sallow*. Stem trailing. Leaves obovate; silky on both sides. Capsules silky. Near Blanchland, Northumberland; and rocks of Craigalleach, Scotland. Fl. yellow. May. Large shrub. E. B. 2432., H. 431.

Subsp. 5. *S. Forsteriana*. (Sm.) *Glaucous Mountain Sallow*. Stem erect. Branches minutely downy. Leaves elliptic-obovate, slightly downy, glaucous beneath. Stipules vaulted. Catkins elongated. Capsule silky. Banks of the Tyne; and in Scotland, on Breadalbane Mountains, &c. Fl. yellowish. May, June. Large shrub. E. B. 2344., H. 431.

Subsp. 6. *S. hirta*. (Sm.) *Hairy-branched Sallow*. Erect. Branches densely hairy. Leaves elliptico-cordate; downy on both sides. Norfolk; Yorkshire. Fl. yellowish. April, May. Large shrub. E. B. 1404., H. 430.

Subsp. 7. *S. cotinifolia*. (Sm.) *Quince-leaved Sallow*. Leaves elliptic-orbicular; downy above, glaucous and veiny beneath. Norfolk and Scotland. Fl. yellowish. April, May. Small shrub. E. B. 1403., H. 430.

Subsp. 8. *S. Borreriana*. (Sm.) *Borrer's Willow*. Leaves broadly lanceolate, with shallow subequal serratures; very glabrous; glaucous beneath. Capsules glabrous. Highland mountain valleys. Fl. yellowish; before the leaves. April, and again in July. Large shrub. E. B. 2619., H. 433.

21. *S. hastata*. (L. sp. 1443.) *Apple-leaved Willow*. Near Dundee, Scotland. Fl. May. Large shrub. H. 438. *S. malitolia*. (E. B. 1617.)

Subsp. 1. *S. Davalliana*. (Sm.) *Davall's Willow*. Leaves obovato-lanceolate, sharp-pointed, subdentate; naked on both sides; glaucous beneath. Capsule silky. Scotland. Fl. yellow. May. Large shrub. E. B. 2701., H. 433.

Subsp. 2. *S. Wulfeniana*. (Willd.) Leaves more distinctly serrated. Lind. syn. 235.

22. *S. arbuscula*. (Wahl., not Lin.) *Shrubby Willow*. Meadows, heaths, and mountains. Fl., April, May. Large shrub. Lind. syn. 235. ? *S. phylicifolia*. (? Sm., E. B. 1958.)

Subsp. 1. *S. tetrapla*. (Walker.) *Four-ranked Willow*. Leaves elliptic-oblong, acute, subglabrous, glaucous, with prominent veins beneath. Young shoots pubescent. Capsules glabrous, with hairy pedicels. Breadalbane Mountains. Fl. May. Large shrub. E. B. 2702., H. 433.

Subsp. 2. *S. Dicksoniana*. (Sm.) *Dickson's Willow*. Leaves elliptical, acute, glabrous. Young branches very glabrous. Capsules silky. Scotland. Fl., April. Large shrub. E. B. 1390., H. 435.

Subsp. 3. *S. petræa*. (Hook.) *Dark green Rock Sallow*. Young shoots densely hairy. Leaves oblong, serrated, carinate, twisted; reticulated with deeply sunken veins; beneath hairy, glaucous, becoming pale green. Capsules naked, wrinkled towards the point. Breadalbane Mountains. Fl. May. Large shrub. E. B. 2725., H. 431.

Subsp. 4. *S. laxiflora*. (Borr.) *Loose-flowered Willow*. Young shoots slightly pubescent. Leaves broadly obovate, naked; glaucescent beneath. Catkins loose. Capsules naked. Killin; Breadalbane. Fl. April. Large shrub. E. B. 2749., H. 432.

Subsp. 5. *S. phillyreæfolia*. (Borr.) *Phillyrea-leaved Willow*. Leaves elliptico-lanceolate; acute at each end, strongly serrated, naked on both sides.

Capsule and pedicel glabrous. Highland valleys; Inverness-shire and Perthshire. Fl. April. Large shrub. E. B. 2660., H. 435.

Subsp. 6. *S. propinqua*. (Borr.) *Flat-leaved upright Willow*. Young shoots minutely pubescent. Leaves elliptical, flat, with slightly sunken veins; nearly naked, pale green beneath. Capsules silky towards the point. (E. B. 2729., H. 432.)

Subsp. 7. *S. Weigeliana*. (Willd.) *Weigel's Willow*. Leaves elliptico-rhomboid, or almost round; naked on both sides. Pedicel of the capsule hairy. Mountains of Yorkshire, Westmoreland, and Scotland. Fl. April, May. Large shrub. E. B. 2656., H. 434.

Subsp. 8. *S. tenuifolia*, according to Mr. Borrer, scarcely differs from *S. Weigeliana*.

Subsp. 9. *S. nitens*. (Anders.) *Shining-leaved Willow*. Leaves ovate, acute, nearly naked, with sunk veins on the upper surface. Scales oblong, hairy; longer than the hairy stalk of the capsule. Scotland and Teesdale. Fl. April. Large shrub. E. B. 2655., H. 434.

Subsp. 10. *S. tenuior*. (Borr.) *Narrow-leaved intermediate Willow*. Leaves on slender stalks, obovato-lanceolate, flat; naked on both sides. Stipules acute, glandulose. Catkins slender, lax. Scales longer than the silky stalk of the capsule. Banks of Lochy, near Killin. Fl. May. Large shrub. E. B. 2650., H. 432.

Subsp. 11. *S. laurina*. (Sm.) *Shining dark green Willow*. Leaves elliptico-oblong, acute, waved, nearly glabrous. Footstalks dilated at the base. Scales half as long as the downy long-stalked capsules. Woods and thickets in England. Fl. April, May. H. 432., E. B. 1806.

Subsp. 12. *S. Croweana*. (Sm.) *Crowean Willow*. Stamens half connate. Leaves elliptical, quite glabrous. Swampy meadows; Norfolk and north of England. Fl. April, May. Large shrub. E. B. 1146., H. 434.

23. ! *S. repens*. (L. sp. 1447.) *Creeping Willow*. On heaths. Common. Hampstead, &c. Fl. yellowish; before the leaves. May. Small shrub.

α. fusca. Stem much branched, upright, decumbent below. Leaves elliptico-lanceolate. *S. fusca*. (E. B. 1960., H. 424.)

β. ! repens. Stem depressed, with short upright branches. Leaves elliptico-lanceolate. *S. repens*. (E. B. 183., H. 425.)

γ. ! prostrata. Stem prostrate, with elongated straight branches. Leaves elliptico-oblong. *S. prostrata*. (E. B. 1959.)

δ. adscendens. Stem recumbent. Leaves elliptical. *S. adscendens*. (E. B. 1962.) Subvar. *parvifolia*. Leaves smaller. *S. parvifolia*. (E. B. 1961.) *S. foetida*. *β.* (H. 425.)

ε. incubacea. Stem procumbent. Leaves elliptico-lanceolate. *S. incubacea*. (L. sp. 1447. E. B. 2600., H. 425.)

ζ. ! argentea. Stem erect or spreading. Leaves elliptical, with a recurved point; very silvery beneath. *S. argentea*. (E. B. 1364., H. 425.)

24. *S. rosmarinifolia*. (L. sp. 1448.) *Rosemary-leaved Willow*. Moist and sandy ground. Fl. April. Small shrub. E. B. 1365., H. 423.

25. ! *S. ambigua*. (Ehrh.) *Ambiguous Willow*. Epping Forest. Fl. May; before the leaves. Small shrub. E. B. 2733., H. 425.

α. proteifolia. Stigmas sessile or subsessile. Leaves subpilose or silky. *S. proteifolia*. (Schl.) *S. ambigua*. (Ehrh.)

β. sericea. Leaves very silky on both sides. H. 425.

γ. spathulata. Styles elongated. Leaves oblong, moderately silky. *S. spathulata*. (Willd.) *S. versifolia*. (Bot. gal. 424.)

26. *S. lanata*. (L. sp. 1446.) *Woolly broad-leaved Willow*. Highlands. Rare. Fl. golden yellow; with the leaves. May. Small shrub. E. B. 2624., H. 438.

27. *S. limosa*. (Wahl.) *Downy Mountain Willow*. Highland mountains. Fl. yellowish. June. Lind. syn. 237. *S. arenaria*. (L. sp. 1447., E. B. 1809., H. 426.)

Subsp. 1. *S. Stuartiana*. (Sm.) *Small-leaved Shaggy Willow*. Leaves densely silky; shaggy above, subtomentose beneath. Breadalbane Mountains, Benlawers, &c. Fl. July, Aug.; after the leaves. E. B. 2586., H. 426.

28. *S. glauca*. (L. sp. 1446.) *Glaucous Mountain Willow*. Highlands. Fl. July. Small shrub. E. B. 1810., H. 426.

29. *S. prunifolia*. (Sm.) *Plum-leaved Willow*. Highlands. Common. Fl. April, June. Small shrub. E. B. 1361., H. 436.

Subsp. 1. *S. venulosa*. (Sm.) *Veiny-leaved Willow*. Leaves with prominent

veins. Stem erect, much branched. Highlands. Fl. April, June. Small shrub. E. B. 1362., H. 436.

Subsp. 2. *S. carinata*. (Sm.) *Folded-leaved Willow*. Leaves folded so as to form a keel. Stigma emarginate. Highlands. Fl. as above. Small shrub. E. B. 1363., H. 436.

Subsp. 3. *S. vaccinifolia*. (Sm.) *Bilberry-leaved Willow*. Stem decumbent. Leaves glabrous and even above; glaucous, silky beneath. Highlands. Fl. April, June. Small shrub. E. B. 2341., H. 436. *S. livida*. (Hook.)

30. *S. Myrsinites*. (L. sp. 1445.) *Green Whortle-leaved Willow*. Highlands. Rare. Fl. May, June. Small shrub. E. B. 1360., H. 436. *S. retusa*. (Dickson.)

β. arbutifolia. Leaves smaller, narrower. *S. arbutifolia*. (Smith.)

Subsp. 1. *S. procumbens*. (Forbes.) *Smooth-leaved Alpine Willow*. Leaves oval, rarely acute, quite glabrous. Germens subsessile. Style very short. Stigmas obtuse. Highlands. Fl. June. Small shrub. E. B. 2753., H. 437. *S. lævis*. (H. br. fl.) *S. retusa*. (With.)

31. *S. reticulata*. (L. sp. 1446) *Reticulated Willow*. Lofty mountains of England and Scotland. Fl. of a reddish, or purplish tinge. June, July. Small shrub. E. B. 1908., H. 426.

32. *S. herbacea*. (L. sp. 1445.) *Least Willow*. Lofty mountains in Wales, England, Scotland, and Ireland. Fl. June. Small shrub. E. B. 1907., H. 437.

V. POPULUS. (L. gen. 1123., D. C. bot. gal. p. 427.)

Diœcious. *Catkins* cylindrical; the *scales* lacerated at the apex. — Male flower. *Stamens* 8—30; arising from an obliquely truncated cup at the base of the scales. — Female flower. *Ovary* 1. *Stigmas* 4. *Capsule* sub-bilocular, from the rolling in of the margins of the valves; many-seeded; the *seeds* comose. *Radicle* superior.

Buds tomentose or rough, not clammy; stamens 8
leaves downy and hoary beneath

fertile catkins ovate; stigmas 4

fertile catkins cylindrical; stigmas 8

leaves glabrous on both sides

! Buds smooth and glabrous, clammy; stamens
12—30

branches spreading

leaves deltoid, glabrous on both surfaces

leaves ovate, white beneath; buds with bal-
samic odour

branches erect, fasciculated; leaves unequally
serrated

1. P. ALBA.

2. P. CANESCENS.

3. P. TREMULA.

4. P. NIGRA.

5. P. BALSAMIFERA, clt.

6. P. FASTIGIATA, clt.

1. ! *P. alba*. (L. sp. 1463.) *White Poplar*. Moist and mountain woods. Fl. April. Large tree. E. B. 1618., H. 440.

2. ! *P. canescens*. (Smith.) *Grey Poplar*. Wet turfy meadows, and dry heaths in Norfolk. Fl. March. Large tree. E. B. 1619., H. 440.

3. ! *P. tremula*. (L. sp. 1464.) *Aspen*. Moist woods. Common. Fl. March, April. Tree. E. B. 1909., H. 440.

4. ! *P. nigra*. (L. sp. 1464.) *Black Poplar*. Watery places and river banks. Fl. April. Large tree. E. B. 1910., H. 441.

5. *P. balsamifera*. (L. sp. 1464.) *Tacamahac Poplar*. Buds with a strong balsamic odour. Native of North America. Cult. in plantations. Fl. April. Large tree. Bot. gal. 427.

6. *P. fastigiata*. (Poir.) *Lombardy Poplar*. Native of the east. Much cult. about towns, in moist places. Fl. April. Large tree. Bot. gal. 428. *Populus dilatata*. (Hort. kew.)

Tribe III. QUERCINEÆ. (Juss., D. C. bot. gal. p. 428.)

Flowers monœcious. — Male flower in a cylindrical ament. *Perigone* small or squamiform. *Stamens* 5—20, adnate to the base of the perigone; the *filaments* free, rarely united at the base. — Female flower. *Involucre* various, 1- or many-flowered. *Perigone* many-toothed, adherent to the ovary. *Ovary* 1, many-celled, many-ovuled. *Styles* 2—3- or multifid, with distinct stigmas. *Involucre*, after flowering, becoming enlarged, and covering in part, or entirely,

the pericarps. *Pericarp* 1 or many. *Acorns*, or *nuts*, 1-celled, 1-seeded (by abortion). *Seed* pendulous, without albumen. *Embryo* straight; the *radicle* towards the umbilicus. *Cotyledons* thick or foliaceous. — Generally trees, with alternate simple leaves, and deciduous stipules.

Sect. I. *Involucre hispid, closed, becoming dehiscent.*

VI. FAGUS. (L. gen. n. 1072., D. C. bot. gal. p. 428.)

Monœcious. — Male flower. *Catkins* pendulous, globose, dense. *Perigone* 6-lobed. *Stamens* 8. — Female flowers 2 in a 4-lobed involucre, which is covered externally with soft spines. *Perigone* 6-lobed, tomentose, adnate to the ovary. *Stigmas* 3. *Ovary* 3-angled, 3-celled. *Nut* 3-angular; by abortion, 1-celled, 1—2-seeded.

1. ! *F. sylvatica*. (L. sp. 1416.) *Common Beech*. Woods, especially on a chalky soil. Fl. yellowish green. April, May. Large tree. E. B. 1846., H. 411.

β. *sanguinea*. (Pers.) *Copper Beech*. Leaves brown, inclining to dark red. Much cult. in pleasure-grounds.

VII. CASTANEA. (Tourn. D. C. bot. gal. p. 428.)

Polygamous. — Male flower. *Catkins* very long, cylindrical; the *flowers* in scattered clusters. *Perigone* 6-partite. *Stamens* 5—20. — Hermaphrodite flower. *Involucre* about 3-flowered, 4-lobed; covered on the outsides with hard branching spines. *Perigone* adnate to the ovary, 5—6-lobed; lined on the inside with a stiff down. *Stamens* 12, red, abortive. *Ovary* 6-celled; the *cells* 2-seeded (5 generally abortive). *Styles* 6. *Nut* subrotund, 1-celled. *Seeds* 1—3, rugose.

1. ! *C. vulgaris*. (Lam.) *Spanish Chestnut*. Woods in the south of England. Doubtful native. Fl. yellowish. May, June. Large tree. H. 411. *Fagus Cast.* (L. sp. 1416., E. B. 886.)

Sect. II. *Involucre open.*

VIII. QUERCUS. (L. gen. n. 1070., D. C. bot. gal. p. 428.)

Monœcious. — Male flower. *Catkins* lax and pendulous. *Perigone* lacerated. *Stamens* 5—10. — Female flower. *Involucre* scaly; the *scales* numerous, imbricated; combined into a coriaceous hemispherical cup. *Perigone* 6-lobed, adnate to the ovary. *Ovary* 3-celled; 2 of the *cells* being abortive. *Stigmas* 3. — Fruit an acorn, 1-celled, 1-seeded, surrounded at the base by the cup.

Leaves deciduous

cup of the fruit spinous - - - - 1. *Q. CERRIS*, clt.

cup not spinous

fruit on long peduncles; leaves subsessile - 2. *Q. ROBUR*.

fruit sessile or subsessile; leaves petiolated - 3. *Q. SESSILIFLORA*.

Leaves persistent, evergreen - - - 4. *Q. ILEX*, clt.

1. ! *Q. Cerris*. (L. sp. 1415.) *Turkey Oak*. Leaves oblong, pinnatifid; glabrous or rough beneath, tapering at the base; the lobes oblong, lanceolate, dentate. Cup hemispherical; the scales long, acute, spreading, spinous. Native of the south of Europe. Cult. Very common in plantations. Fl. May. Large tree. Bot. gal. 429.

2. ! *Q. Robur*. (L. sp. 1414.) *British Oak*. Woods and hedges. Fl. May. Large tree. E. B. 1342., H. 410. *Q. racemosa*. (Bot. gal. 429.)

3. ! *Q. sessiliflora*. (Salisb.) *Sessile-fruited Oak*. Woods, and hedges. Fl. May. Large tree. E. B. 1845., H. 410.

4. *Q. Ilex*. (L. sp. 1412.) *Evergreen Oak*. Bark entire. Leaves oblong, entire and serrated, acuminate; hoary beneath. Cups pedunculated, 3 or 4 times shorter than the oblong-ovate acorn. South of Europe. Cult. in pleasure-grounds. Fl. May. Large tree. Bot. gal. 429.

IX. CORYLUS. (L. gen. n. 1074., D. C. bot. gal. p. 429.)

Monœcious. — Male flower. *Catkins* cylindrical; the *scales* 3-lobed, deltoid; the middle lobe larger, and covering the 2 lateral ones. *Stamens* 8. *Anthers* 1-celled. — Female flowers numerous, enclosed in a scaly bud. *Stigmas* 2. *Ovary* 1, at first naked, but becoming covered by the gamophyllous, caliciform, lacerated involucre. *Nuts* ovate, smooth, 1-seeded.

1. ! *C. Avellana*. (L. sp. 1417.) *Hazel Nut*. Hedges and copses. Common. Fl. March, April. Large shrub. E. B. 723., H. 412.
β. maxima. (Pers.) *Filbert*. Involucre spreading, inciso-dentate. Nut depressed, ovate. Cult. Fl. March, April. Large shrub. Pers. ii. 571.

X. *CARPINUS*. (L. gen. n. 1073., D. C. bot. gal. p. 430.)

Monœcious. — Male flower. *Catkins* elongato-cylindrical; the *scales* ciliated at the base. *Stamens* 8—14, somewhat bearded at the apex. — Female flower. *Strobiles*, or *cones*, lax. *Involucre* squamiform, 3-lobed, 2-flowered. *Ovary* denticulated at the apex, 2-celled; one of the *cells* becoming abortive before maturity. *Stigmas* 2. *Nut* osseous, long.

1. ! *C. Betulus*. (L. sp. 1416.) *Hornbeam*. Woods and hedges. Very common. Fl. May. Small tree. E. B. 2032., H. 412.

Tribe IV. *PLATANÆ*. (Juss., D. C. bot. gal. p. 430.)

Flowers monœcious; densely aggregated into globose or oblong catkins, which are of different sexes. *Common involucre* none, or 4-leaved, at the base of the ament. — Male flower. *Scales* or pieces of the *perigone* linear, small, very numerous, intermixed with the stamens. — Female flower. *Scales* intermixed with the flowers, or none. *Perigone* adherent to the ovary; either cup-shaped, or terminating in very small pilose setæ; agglutinated or free. *Carpels* 1—2; unilocular; united to the perigone; oblong or subtrubinate; cornute at the apex, indehiscent or dehiscent, subcoriaceous. *Seed* solitary in each cell, pendulous, exalbuminous. *Embryo* straight. *Radicle* superior. *Cotyledons* flat, foliaceous. — Trees, with alternate, petiolated, palminerved, palmatilobed leaves. Buds hidden within the base of the petioles.

XI. *PLATANUS*. (L. gen. n. 1075., D. C. bot. gal. p. 430.)

Catkins naked at the base. — Female flower. *Scales* spathulate. *Ovaries* filiform; thickened at the apex, and terminated by a hooked stigma. *Carpels* solitary, club-shaped; pappose at the base.

Leaves 5-lobed, palmate; the segments lanceolate, } 1. *P. ORIENTALIS*, cit.
 sinuate; stipules subentire - - - - - }

Leaves 5-angular, obsoletely lobed, dentate; } 2. *P. OCCIDENTALIS*, cit.
 wedge-shaped at the base, pubescent beneath }

1. *P. orientalis*. (L. sp. 1417.) *Oriental Plane Tree*. Native of Asia. Cult. in pleasure-grounds. Common. Fl. green. June. Large tree. Bot. gal. 430.

2. *P. occidentalis*. (L. sp. 1418.) *American Plane Tree*. Native of North America. Cult. in pleasure-grounds, but not so commonly as the last. Fl. June. Large tree. Bot. gal. 430.

Tribe V. *MYRICEÆ*. (D. C. bot. gal. p. 430.)

Flowers rarely hermaphrodite, generally monœcious or diœcious, amentaceous; the *catkins* unisexual. *Scales* ovate, acute; with 1 flower in their axilla. — Male flower. *Scales* or pieces of the *perigone* 2, opposite. *Stamens* 4; one of them being sometimes incomplete, free. *Anthers* 2-celled, dehiscing longitudinally. — Female flower. *Scales* becoming enlarged after flowering. *Scales* of the *perigone* 3—6, very small. *Ovary* simple, free. *Stigmas* 2, filiform. *Drupe* sessile, globose, more or less covered on the outside with small grains of wax. *Ripe drupe* rather dry, surmounted by the persistent style, or blunt at the apex. *Nut* osseous, without valves. *Albumen* none, or fleshy. *Embryo* straight, inverted. *Radicle* superior. *Cotyledons* fleshy, plano-convex. — Aromatic shrubs, with resinous glands. Leaves alternate, simple.

XII. *MYRICA*. (L. gen. n. 1107., D. C. bot. gal. p. 431.)

Diœcious. *Catkins* ovate, with lunate scales. — Male flower. *Stamens* 4—6; the *anthers* 4-valved. — Female flower. *Ovary* 1. *Stigmas* 2. *Drupe* 1-celled, 1-seeded; the seeds without albumen.

1. ! *M. Gale*. (L. sp. 1453.) *Sweet Gale*. Bogs and moory ground. Common. Fl. green. May. Small shrub. E. B. 562., H. 439.

Order XCIV. CONIFERÆ. (Juss., D. C. bot. gal. p. 431.)

Flowers monœcious or diœcious, disposed in a catkin. — *Male flower.* *Scales* numerous, variously arranged; either supporting or covering the anthers. *Perigone* none. *Anthers* various in number, one or many-celled; either inserted on bracteiform scales, or supported by a pedicel. — *Female flower.* *Scales* bracteiform, variously arranged, sometimes becoming enlarged and succulent after flowering, or adnate to the fruit. *Cup* (cupula) generally double, rarely single, 1-flowered surrounding the ovary (? perigone, D. C.). *Ovary* 1 (spread open and having the appearance of a flat scale, destitute of style or stigma, and arising from the axil of a membranous bract. *Ovule* naked; in pairs on the face of the ovary, having an inverted position, and consisting of 1—2 membranes open at the apex, and of a nucleus. Lindl.) *Style* sessile, single, small. *Pericarp* indehiscent, 1-celled, coriaceous or osseous (the cups, or bracts, with which the pericarp is often adherent, and by which it is enclosed, not being taken into consideration). *Seed* 1, pendulous, albuminous. *Embryo* straight, in the axis of the fleshy and oily albumen. *Radicle* directed towards the umbilicus; often attenuated at the apex, and adnate to the albumen. *Cotyledons* 2, opposite; or many in a verticel. — Resinous trees or shrubs. Leaves generally acerose, persistent; often in spires.

- | | | |
|--|---|--------------------|
| 4—10 stamens in each floret | | |
| leaves alternate | - | 1. TAXUS. |
| leaves in threes, or imbricated | - | |
| scales of fruit becoming fleshy | - | 2. JUNIPERUS. |
| scales of fruit dry | - | |
| scales 1-flowered; galbule, or cone, angular | - | 3. CUPRESSUS, clt. |
| scales 2-flowered; galbules winged | - | 4. THUJA, clt. |
| 2 stamens in each floret | | |
| male ament racemose; scales of the cone ligneous, | | } 5. PINUS. |
| club-shaped | - | |
| male ament simple; scales of the cone thin, not | | |
| club-shaped | - | |
| cotyledons digitato-partite; leaves solitary in each | | } 6. ABIES, clt. |
| sheath | - | |
| cotyledons not lobed; leaves apparently in fasci- | | } 7. LARIX, clt. |
| culated tufts | - | |

Tribe I. TAXINEÆ. (Rich., D. C. bot. gal. p. 431.)

Floral buds 1. or rarely 2-flowered, consisting of numerous scales, cruciately opposite and imbricated. — *Female flowers* solitary naked.

I. TAXUS. (L. gen. n. 1135., D. C. bot. gal. p. 432.)

Flowers diœcious or monœcious, surrounded by numerous scales. — *Male flower.* *Stamens* 8—10; the *filaments* monadelphous. *Anthers* peltate, 6—8-celled; the *cells* dehiscing beneath. — *Female flower.* *Style* none. *Stigma* concave. *Drupe* succulent; gaping at the apex. *Nut* 1-seeded.

- | | | |
|---|---|-------------------|
| Leaves linear, distichous; fruit roundish | - | 1. T. BACCATA. |
| Leaves linear, scattered, crowded; fruit oblong | - | 2. T. FASTIGIATA. |

1. ! *T. baccata*. (L. sp. 1472.) *Yew*. Mountain woods; and cultivated. Very common. Fl. March. Tree. E. B. 746., H. 442.

2. *T. fastigiata*. (Lind. syn. 241.) *Irish, or Florence Court, Yew*. Near Lough Erne, and Giant's Causeway, Ireland. Fl. March, April. Tree.

Tribe II. CUPRESSINEÆ. (Rich., D. C. bot. gal. p. 432.)

Female catkins consisting of a few scales, and becoming changed into sub-globose cones (galbules) by the coagglutination of the scales. *Flowers* erect; the *stigma* being directed upwards.

Sect. I. *Scales becoming fleshy, constituting a spurious Berry.*

II. JUNIPERUS. (L. gen. n. 1134., D. C. bot. gal. p. 432.)

Diœcious, rarely monœcious. — *Male flower.* *Catkins* ovate; the *scales* verticillate, peltato-pedicellate. *Anthers* 4—8, unilocular. — *Female flower.*

Catkins globose; the 3 concave *scales* united. *Stigma* gaping. *Berry* composed of 3 bony 1-seeded nuts, surrounded by the united and fleshy scales.

Leaves ovate, convex, densely imbricated, erect, decur- } 1. *J. SABINA*, clt.
rent, opposite }
Leaves in threes, patent, mucronate, longer than the } 2. *J. COMMUNIS*.
berries } - - - - - }

1. *J. Sabina*. (L. sp. 1472.) *Savine*. Native of the Alps. Cult. in gardens. Fl. April. Small shrub. Bot. gal. 442.

2. ! *J. communis*. (L. sp. 1470.) *Juniper*. Woods and heaths. Common. Fl. May. Large shrub. E. B. 1100., H. 442.

β. nana. (Hook.) Small, procumbent. Leaves smaller. Common in mountains. E. B. 2743.

Sect. II. *Scales dry, constituting a dehiscent Galbulum.*

III. CUPRESSUS. (L. gen. n. 1079., D. C. bot. gal. p. 432.)

Monœcious. — Male flower. *Catkins* imbricated. *Anthers* 4, sessile. — Female flower. *Catkins* cone-like; the *scales* ligneous, 1-flowered, pedicellated. *Galbules*, or *cones*, angular.

1. *C. fastigiata*. (D. C.) *Common Cypress Tree*. Branches straight; quadrangular at the apex. Leaves in 4 rows, imbricated, obtuse. Scales of the cones blunt. Native of the south of Europe. Cultivated, but not so commonly as formerly. Fl. April. Large tree. Bot. gal. 433. *C. sempervirens α.* (L. sp. 1422.)

* * * *C. horizontalis* (Mill.), perhaps a variety of the former, with spreading branches, is also sometimes cultivated.

IV. THUYA. (L. gen. n. 1078., Pers. syn. ii. p. 579.)

Monœcious. — Male flower. *Catkins* imbricated. *Anthers* 4. — Female flower. *Catkins* cone-like. *Scales* 2-flowered. *Galbule*, or *cone*, surrounded by a winged margin.

Cones obovate; inner scales truncate, gibbous } 1. *T. OCCIDENTALIS*, clt.
below the apex - - - - - }

Cones squarrose; the scales acuminate, reflexed } 2. *T. ORIENTALIS*, clt.

1. *T. occidentalis*. (L. sp. 1421.) *Canadian Arbor Vitæ*. Branches 2-edged. Leaves in 4 rows, imbricated, ovato-rhomboid, adpressed, naked, tuberculated. Cones obovate; the inner scales truncate, gibbous below the apex. Native of Canada. Sometimes cultivated in parterres; but is not so common as the following species. Fl. April. Large shrub. Pers. ii. 579.

2. *T. orientalis*. (L. sp. 1422.) *Chinese Arbor Vitæ*. Cones squarrose; the scales acuminate, reflexed. Native of China. Much cultivated in pleasure-grounds. Fl. April. Large shrub. Pers. syn. ii. 579.

Tribe III. ABIETINÆ. (Rich., D. C. bot. gal. p. 433.)

Female *catkins* consisting of many scales; the *scales* imbricated, becoming distinct, and forming a cone. *Flowers* inverse; the *bracts* being adnate nearly throughout their whole length, and the *stigma* directed downwards.

V. PINUS. (L. gen. n. 1077., D. C. bot. gal. p. 433.)

Monœcious. — Male flower. *Catkins* racemose, compact, and terminal; squamose; the *scales* staminiferous at the apex. *Stamens* 2; the *anthers* 1-celled. — Female flower. *Catkins*, or *cones*, simple, imbricated with acuminate scales. *Ovaries* 2. *Stigmas* glandular. Scales of the *cone* oblong, club-shaped, woody; umbilicato-angular at the apex. *Nuts* in pairs, 1-seeded, covered with a sharp-pointed membrane. *Cotyledons* digitato-partite. — Leaves 2, or many, in the same sheath.

Leaves in pairs in each sheath - - - - - 1. *P. SYLVESTRIS*.
Leaves in fives in each sheath - - - - - 2. *P. STROBUS*, clt.

1. *P. sylvestris*. (Mill.) *Scotch Fir*. Leaves in pairs, rigid. Cones ovato-conical, acute; young ones stalked, recurved, as long as the leaves; generally in pairs. Crest of the anthers very small. Embryo 5-lobed. Highland mountains; and cult. in woods. Common. Fl. May, June. Large tree. E. B. 2460., H. 412.

2. *P. Strobilus*. (Lamb.) *Weymouth Pine*. Leaves in fives. Cones longer than the leaves, cylindrical, smooth. Crests of the anthers in pairs, subulate, very small. Native of Virginia. Cult. in woods. Fl. May, June. Large tree. Pers. syn. ii. p. 578.

VI. ABIES. (Tourn., D. C. bot. gal. p. 434. ; Pini species, Don.)

Monœcious. — Male flower. *Catkins* solitary, not racemose; the *scales* stamiferous at the apex. *Stamens* 2; the *anthers* 1-celled. — Female flower. *Catkins* simple. *Ovaries* 2. *Stigmas* glandular. Scales of the *cone* imbricated; thin at the apex, rounded (neither thickened, angular, nor umbilicated on the back). *Cotyledons* digitato-partite. — Leaves solitary in each sheath.

Cones pendulous; leaves scattered - - - 1. *A. EXCELSA*, clt.
Cones erect; leaves distichous - - - 2. *A. PICEA*, clt.

1. *A. excelsa*. (D. C.) *Spruce Fir*. Leaves tetragonal. Cones cylindrical; the scales rhomboid, flattened, jagged, and bent backwards at the margin. Native of the Alps. Very commonly cult. in woods. Fl. May, June. Large tree. Bot. gal. 434. *Pinus Abies*. (L. sp. 1421.)

2. *A. Picea*. *Silver Fir*. Leaves flat, emarginate. Cones with obtuse adpressed scales. Native of the Alps. Cult. in woods. Common. Fl. May. Large tree. Bot. gal. 434. *Pinus Picea*. (L. sp. 1420.) *A. pectinata*. (D. C.)

*** *P. balsamea*, the *Canadian Balsam Tree*, with the apex of the scales of the young cones reflexed, the leaves flat; and *P. alba*, with whitish bark, are often cultivated.

VII. LARIX. (Tourn., D. C. bot. gal. p. 434. ; Pini species, Don.)

Monœcious. *Character* as in *Abies*; but the *cotyledons* are simple, and never lobed. *Cones* lateral. — Leaves, when first expanding, in tufted fascicles; becoming somewhat solitary by the elongation of the new branch.

Leaves caducous; cones ovate-oblong, obtuse - - - 1. *L. EUROPEA*, clt.
Leaves persistent (evergreen); cones ovate, very }
obtuse, erect - - - - - } 2. *L. CEDRUS*, clt.

1. *L. europæa*. (D. C.) *Larch*. Native of the Alps. Cult. in woods. Common. Fl. reddish. May. Large tree. Bot. gal. 434. *Pin. Larix*. (L. sp. 1428.)

2. *L. Cedrus*. (Mill.) *Cedar*. Native of Lebanon and Syria. Cult. Common near London. Fl. May. Large tree. *Pin. Cedrus*. (L. sp. 1420.)

Several other species of pine are occasionally cultivated in parks; but the finest collection of *Coniferæ* in Europe is at Dropmore, the seat of the Lady Grenville, in Buckinghamshire. The order has also been illustrated in a work of peculiar splendour, which does high honour to its author, Aylmer Bourke Lambert, Esq.

Class II. MONOCOTYLEDONOUS, or ENDOGENOUS PHANEROGAMOUS PLANTS. (D. C. bot. gal. i. p. 435.)

Trunk destitute of a central pith, medullary rays, or true bark, composed of scattered fibres, and not arranged in concentric circles; harder on the outside than in the centre; usually cylindrical when a terminal bud is developed, becoming conical and branched when several are developed; increasing in width and length while the outside remains soft, afterwards only in length; sometimes abortive, subterranean, and root-like. *Leaves* often sheathing, entire, with simple nerves, or lobed with ramose nerves; never truly compound. *Flowers* distinct, and generally arranged in ternary numbers; the *integument* simple, in 2 rows, or (according to some authors) double; the pieces of each row being similar. *Embryo* with one cotyledon, or, if with 2, then the accessory one is imperfect and alternate with the other. *Radicle* generally enclosed within the substance of the embryo.

Order XCV. HYDROCHARIDÆ. (D. C. bot. gal. p. 435.)

Flowers enclosed in a spathe; diœcious, rarely hermaphrodite. — Male flower. *Spathe* sometimes 1-flowered; the *flower* sessile or pedunculated; or many-

flowered; the *flowers* pedunculated. — Female and hermaphrodite flower. *Spathe* 1-flowered; the *flower* sessile. *Perigone* 6-partite (in the female flower, adherent to the ovary); the outer *lobes* foliaceous; the inner ones petaloid, longer. *Stamens* 1—13, inserted on the ovary in hermaphrodite flowers; but on the site of the ovary in male flowers. *Anthers* 2-celled. *Ovary* inferior. *Style* often wanting. *Stigmas* 3—6, glandular within; often bifid. *Fruit* sometimes crowned by the persistent limb of the perigone, oblong, indehiscent. *Pericarp* fleshy, pulpy within; sometimes unilocular; sometimes submultilocular, by the greater or less prolongation of the dissepiments. *Seeds* numerous, attached either to the parietes or to the dissepiments; the *integuments* membranous, hard. *Embryo* cylindrical, straight. *Albumen* none. — Aquatic herbs, with sessile, or petiolated, entire, or slightly denticulated, leaves.

Stamens 20; leaves ensiform-triangular, aculeate - 1. STRATIOTES.
Stamens 12 (or by abortion, 9); leaves orbicular, petiolated 2. HYDROCHARIS.

I. STRATIOTES. (L. gen. n. 687., D. C. bot. gal. p. 436.)

Spathe compressed, persistent, deeply bi-partito-carinate, 1-flowered. *Perigone* tubular; the *limb* 6-partite; the 3 outer *segments* very small, and green; the 3 inner large, and coloured. *Stamens* about 20, inserted into the top of the tube, or the margin of the ovary. *Styles* 6, bifid. *Capsule* fleshy, attenuated at the apex, 6 angular, 6-celled. *Seeds* subangular, attached to the dissepiments of the valves.

1. ! *S. aloides*. (L. sp. 754.) *Water Soldier*. Lakes and ditches in the east of England; on Wandsworth Common, in the ponds, abundant. Fl. white. July. Perennial. E. B. 379., H. 265.

II. HYDROCHARIS. (L. gen. n. 1126., D. C. bot. gal. p. 436.)

Dicæcious. — Male flower. *Spathe* 2-partite, 3-flowered. *Perigone* 6-partite, petaloid; the 3 inner *segments* larger. *Stamens* 12 (by abortion, 9); inserted in a triple row of 3 stamens each on the abortive ovary. — Female flower. *Spathe* sessile, 1-flowered. *Perigone* adnate to the ovary, with 6 filiform appendages. *Stigmas* 6, wedge-shaped, bifid. *Capsules* coriaceous, ovoid, 6-celled, many-seeded.

1. ! *H. morsus ranæ*. (L. sp. 1466.) *Frog Bit*. Ditches and ponds. Common, &c. Fl. white. July. Perennial. E. B. 808., H. 441.

Order XCVI. ALISMACEÆ. (Juss., D. C. bot. gal. p. 437.)

Perigone free, 6-partite, coloured. *Stamens* 6—9, rarely more. *Ovaries*, *styles*, and *stigmas*, 3—6, or more. *Capsules* indehiscent, 1- or many-seeded, 2-valved. *Embryo* straight or incurved. *Albumen* none. — Aquatic herbs, with radical, alternate, sheathing leaves. Flowers in spikes or umbels; hermaphrodite, rarely monœcious.

Inner segments of the perigone petaloid, white or rose-coloured

stamens 6	-	-	-	-	-	2. ALISMA.
stamens 9	-	-	-	-	-	1. BUTOMUS.
stamens indefinite, about 24	-	-	-	-	-	3. SAGITTARIA.

Inner and outer segments of perigone herbaceous

anthers long, on capillary filaments; ovaries spread-	}	4. SCHEUCHZERIA.
ing		
anthers subsessile; ovaries connivent	-	5. TRIGLOCHIN.

Tribe I. BUTOMEÆ. (Rich., D. C. bot. gal. p. 437.)

Three inner segments of the *perigone* petaloid. *Follicles* many-seeded, either distinct and rostrate, or united in a single mass. *Seeds* numerous, attached to the whole inner surface of the fruit, distinct, or united. *Embryo* in the same direction as the seed.

I. BUTOMUS. (L. gen. n. 507., D. C. bot. gal. p. 437.)

Stamens 9, of which 3 are internal. *Pistils* 6, with very long beaks. *Capsule* dehiscing at the inner angle. *Seeds* linear-oblong, straight, longitudinally striated.

1. ! *B. umbellatus*. (L. sp. 532.) *Flowering Rush*. In ditches. Common. Fl. rose-coloured. June, July. Perennial. E. B. 651., H. 188.

Tribe II. ALISMOIDEÆ. (D. C. bot. gal. p. 437.)

Three inner segments of the *perigone* petaloid. *Capsules* indehiscent. *Seeds* 1—2, attached to the suture, erect or ascending. *Embryo* in the form of a horseshoe. *Radicle* turned towards the hilum.

II. ALISMA. (L. gen. n. 460., D. C. l. c.)

Stamens 6. *Ovaries* 6—25. *Capsules* distinct, often 1-seeded, caducous, indehiscent.

Capsules numerous (more than 6) 1—2-seeded.

capsules arranged circularly, as it were round a central axis

stem erect; flowerstalks much branched - 3. *A. PLANTAGO*.

stem floating; flowerstalks simple - 2. *A. NATANS*.

capsules arranged in a globose squarrose capitule 1. *A. RANUNCULOIDES*.

Capsules 6, diverging in a star-like form - 4. *A. DAMASONIUM*.

1. ! *A. ranunculoïdes*. (L. sp. 487.) *Lesser Water Plantain*. Ditches and turfy bogs in many parts of England. Fl. whitish. Aug., Sept. Perennial. E. B. 326., H. 176.

β. repens. (D. C.) Stem decumbent, rooting. Scape few-flowered. Lakes of North Wales. *A. repens*. (E. B. 2722., Lind syn. 253.)

2. *A. natans*. (L. sp. 487.) *Floating Water Plantain*. Lakes in Wales and Cumberland. Fl. whitish. July, Aug. Perennial. E. B. 775., H. 175.

3. ! *A. Plantago*. (L. sp. 486.) *Greater Water Plantain*. Margins of lakes and wet places. Common. Fl. white or pale rose-coloured. July. Perennial. E. B. 837., H. 175.

4. ! *A. Damasonium*. (L. sp. 486.) *Star Fruit*. Ditches and pools in the south of England. Wandsworth Common. Fl. white. June, July. Perennial. E. B. 1615. *Actinocarpus Damasonium*. (Br., H. 175.)

III. SAGITTARIA. (L. gen. n. 1067., D. C. bot. gal. p. 438.)

Monœcious. *Perigone* 6-partite; the 3 outer segments persistent, calicine; the 3 inner petaloid. — Male flower. *Stamens* about 24. — Female flower. *Ovaries* numerous; on a globose receptacle. *Capsules* compressed, marginate, 1-seeded.

1. ! *S. sagittifolia*. (L. sp. 1410.) *Arrow-head*. Ditches and margins of rivers. Not uncommon. Fl. whitish. July. Perennial. E. B. 84., H. 409.

Tribe III. JUNCAGINEÆ. (Rich., D. C. bot. gal. p. 438.)

Perigone subuniform, herbaceous, rarely none. *Seeds* 1 or 2, approximated at the base, erect. *Embryo* straight; the *radicle* directed towards the hilum. — Leaves linear, rigid. Flowers spiked, not coloured.

IV. SCHEUCHZERIA. (L. gen. n. 452., D. C. l. c.)

Stamens 6; the *anthers* long, upon capillary filaments. *Ovaries* 3—6. *Capsules* compressed, inflated, 2-valved, 1—2-seeded.

1. *S. palustris*. (L. sp. 482.) *Marsh Scheuchzeria*. Thorne Moor, and near Borough Bridge, Yorkshire. Rare. Fl. green. June. Perennial. E. B. 1801., H. 174.

V. TRIGLOCHIN. (L. gen. n. 453., D. C. l. c.)

Perigone caducous. *Stamens* 6, very short; the *anthers* extrorse, subsessile. *Styles* none. *Ovaries* 3—6, connivent. *Capsules* 3—6, erect, 1-seeded, connivent.

Capsule 6-celled, ovate, furrowed - - - 1. *T. MARITIMUM*.

Capsule 3-celled, ovato-linear, smooth - - - 2. *T. PALUSTRE*.

1. ! *T. maritimum*. (L. sp. 482.) *Sea-side Arrowgrass*. Salt marshes. Common. Gravesend, &c. Fl. greenish. May, Aug. Perennial. E. B. 255. H. 174.

2. ! *T. palustre*. (L. sp. 482.) *Marsh Arrowgrass*. Wet meadows and sides of rivers. Common. Fl. greenish. Aug. Perennial. E. B. 366., H. 174.

Order XCVII. POTAMEÆ. (Juss., D. C. bot. gal. p. 489.)

Flowers hermaphrodite, or of separate sexes. *Spathe*, or *perigone*, more or less deeply divided. *Ovaries* numerous, definite, inserted on a common receptacle, or on a central spadix. *Style* 1 or none. *Stigma* simple. *Stamens* definite in number, inserted on the receptacle or on the spadix. *Capsules* indehiscent, 1-celled, 1-seeded. *Seed* inverse, pendulous. *Albumen* none. *Embryo* straight or incurved. *Radicle* turned to the point opposite to the hilum. — Aquatic herbs, with simple, generally alternate, leaves.

- Flowers concealed in the base of the leaves - - 4. ZOSTERA.
 Flowers not concealed in the base of the leaves
 anthers 4, sessile
 perigone of 2 pieces - - - - 2. RUPPIA.
 perigone of 4 pieces - - - - 1. POTAMOGETON.
 stamen 1 - - - - 3. ZANNICHELLIA. }

I. POTAMOGETON. (L. gen. n. 174., D. C. l. c.)

Flowers hermaphrodite, inserted on a spadix, with 2 spathes at the base. *Perigone* 4-partite. *Anthers* 4, sessile, alternate with the segments of the perigone (opposite the sepals and petals, Lind.) *Ovaries* 4. *Nuts* 1-seeded, sessile.

- Leaves opposite; stipules none - - 1. P. DENSUS.
 Leaves alternate, stipulate
 leaves all submersed
 stipules adnate - - - - 2. P. PECTINATUS.
 stipules free
 leaves all linear
 leaves with 3 principal, and numerous
 close, parallel, intermediate nerves,
 occupying the whole surface
 spikes oval; peduncles short - 5. P. ACUTIFOLIUS.
 spikes cylindrical; peduncles long - 6. P. ZOSTERÆFOLIUS.
 leaves 3—5-nerved, with a few obscure
 connecting nervules
 peduncles elongated; leaves narrow, linear 3. P. PUSILLUS.
 peduncles short; leaves broadly linear, } 4. P. GRAMINEUS.
 obtus - - - - }
 leaves ovato-lanceolate, oblong, or cordate
 leaves ovato-lanceolate, more or less pe- } 9. P. LUCENS.
 tiolated - - - - }
 leaves cordate-ovate, amplexicaule, 7- } 8. P. PERFOLIATUS.
 nerved - - - - }
 leaves lanceolate or oblong, sessile or semi-
 amplexicaule
 leaves waved and serrated - - 7. P. CRISPUS.
 leaves smooth at the margin
 leaves oblong, semiamplexicaule - 10. P. PRÆLONGUS.
 leaves lanceolate, contracted at the } 12. P. LANCEOLATUS.
 base - - - - }
 upper leaves floating, coriaceous
 upper leaves petiolated; lower ones sessile
 upper leaves green
 upper leaves much broader than the lower } 11. P. HETEROPHYLLUS.
 ones - - - - }
 upper leaves scarcely broader than the } 12. P. LANCEOLATUS.
 lower ones - - - - }
 all the leaves of a reddish olive colour - 13. P. RUFESCENS.
 all the leaves on long petioles - 15. P. NATANS.
 all the leaves floating; leafless petioles none - 14. P. OBLONGUS.

1. ! *P. densus*. (L. sp. 182.) *Opposite-leaved Pondweed*. Ditches. Common. Fl. greenish. June, July. Perennial. E. B. 397., H. 75.

2. ! *P. pectinatus*. (L. sp. 183.) *Fennel-leaved Pondweed*. Rivers, lakes, and salt-water ditches. Fl. July. Perennial. E. B. 323., H. 75.

3. ! *P. pusillus*. (L. sp. 184.) *Small Pondweed*. Ditches and still waters. Fl. July. Perennial. E. B. 215., H. 75.

β. ! *compressus*. Stem more compressed. Leaves broader. Spikes sub-interrupted. *P. compressus*. (L. sp. 183.) *P. compressus* β. *cuspidatus*. (Bot. gal. 440.)

4. ! *P. gramineus*. (L. sp. 184.) *Grassy Pondweed*. Ponds and ditches, in several places. About Deptford. Fl. July. Perennial. E. B. 2253. H. 75. *P. compressus*. (Bot. gal. 440.)

5. *P. acutifolius*. (Link.) *Sharp-leaved Pondweed*. Sussex, near Lewes. Rare. Fl. July. Perennial. E. B. 2609., H. 76.

6. *P. zosteraefolius*. (Schumack.) *Grass-wrack-leaved Pondweed*. Yorkshire and Forfarshire. Rare. Fl. July. Perennial. E. B. 2685., H. 76.

7. ! *P. crispus*. (L. sp. 183.) *Curled-leaved Pondweed*. Ditches and rivers. Common. Fl. July. Perennial. E. B. 1012., H. 76.

8. ! *P. perfoliatus*. (L. sp. 182.) *Perfoliate Pondweed*. Ditches and lakes. Common. Fl. July. Perennial. E. B. 168., H. 76.

9. ! *P. lucens*. (L. sp. 183.) *Shining Pondweed*. Lakes, pools, and streams. Common. Fl. June, July. Perennial. E. B. 376., H. 76.

10. *P. prælongus*. (Wulff.) *Long-stalked Pondweed*. Lakes and pools. Scotland. Fl. July. Perennial. H. 77. β. (Hook.) Leaves narrower.

11. ! *P. heterophyllus*. (Schreb.) *Various-leaved Pondweed*. Pools and ditches. Fl. June, July. Perennial. E. B. 1285., H. 77.

12. *P. lanceolatus*. (Sm.) *Lanceolate Pondweed*. Pools and ditches. Fl. July. Perennial. H. 77.

β. *homophyllus*. Leaves all lanceolate; none floating. *P. lanceolatus*. (E. B. 1985.)

13. *P. rufescens*. (Schrud.) *Reddish Pondweed*. Ditches and slow streams, in several places in England; but not common. Fl. July. Perennial. E. B. 1286., H. 78.

14. *P. oblongus*. (Viv.) *Blunt-fruited broad-leaved Pondweed*. Sussex. Rare. Fl. July. Perennial. H. 78.

15. ! *P. natans*. (L. sp. 182.) *Sharp-fruited broad-leaved Pondweed*. Stagnant waters and slow streams. Common. Fl. June, July. Perennial. E. B. 1822., H. 78.

II. RUPPIA. (L. gen. n. 175., D. C. bot. gal. p. 440.)

Flowers hermaphrodite, distichous arranged in a solitary spadix. *Perigone* caducous, 2-valved. *Anthems* 4, sessile, reniform, 1-celled. *Ovaries* 4; their *pedicels* not perceptible at the time of flowering, but afterwards becoming much elongated. *Capsules* 1-seeded, ovate, crowned by the persistent stigma.

1. ! *R. maritima*. (L. sp. 184.) *Sea Ruppia*. Salt water pools and ditches. Gravesend. Fl. July, Aug. Perennial. E. B. 136., H. 79.

III. ZANNICHELLIA. (L. gen. n. 1034., D. C. bot. gal. p. 440.)

Flowers solitary, monœcious. — Male flower. *Stamen* 1, naked, inserted at the outside of the base of the perigone of the female flower. — Female flower. *Perigone* campanulate. *Ovaries* 2—6. *Capsule* 1-seeded, sessile, compressed, gibbous, externally crenulated.

1. ! *Z. palustris*. (L. sp. 1375.) *Horn Pondweed*. Ditches and stagnant waters. Fl. Aug. Annual. E. B. 1844., H. 390.

IV. ZOSTERA. (L. gen. n. 1032., D. C. bot. gal. p. 440.)

Flowers monœcious or diœcious, arranged in a unilateral manner within the base of the leaves. *Style* bifid. *Nuts* 1-seeded.

1. ! *Z. marina*. (L. sp. 1374.) *Grass-wrack*. Creeks and salt-water ditches. Fl. May, Sept. Perennial. E. B. 467., H. 391.

Order XCVIII. ORCHIDEÆ. (Juss., D. C. bot. gal. p. 442., R. Brown prod. New. Holl. p. 310.)

Perigone gamotepalous, petaloid, 6-partite, with irregular segments; 3 external (the helmet), and 3 internal: the 5 upper ones constitute, as it were, the flower, the lower one being the lip (labellum), various in form and direction. *Ovary* 1-celled, with 3 parietal placentæ. *Style* forming part of the column of the stamens. *Stigma* a viscid space in front of the column. Filaments of the

stamens 3, united with the style into a central column; the lateral ones (except in *Cypripedium*) sterile, sometimes more or less elongated, sometimes very short, or none; the middle one generally antheriferous. *Anthers* 2-celled; the *cells* either distinct and adnate to the sides of the style, which is often prolonged beyond them, or approximated, and then the anthers are either parallel to the stigma, immovable, and persistent; or terminating the column, movable, in the form of an operculum, and deciduous. *Pollen* granular; the *grains* cohering by means of a gultinous elastic substance; sometimes easily separable, sometimes homogeneous, and concreted into masses. These pollen masses, after the dehiscence of the cells, become attached to the stigma by means of a filiform process of the stigma, or of a glandular viscid retinaculum of the pollen. (According to Dr. Lindley, impregnation takes effect by absorption from the pollen masses through the gland into the canal by which the stigma communicates directly with the ovary). *Capsule* 1-celled, 3-valved, 3-carinate, dehiscing laterally. *Seeds* numerous, attached to 3 placentas, which are adnate to the middle of the valves. *Testa* loose, reticulated, contracted at each end. *Embryo* at the base of a fleshy albumen. (*Embryo* a solid, undivided, fleshy mass. *Albumen* none. Lind.)—Herbs, the roots either fasciculated or tuberous; the tubers being ovate or palmate. Stems rarely divided; furnished with leaves and scales, or naked. Leaves amplexicaule, entire. Flowers bracteated, spicate, or solitary; having all their parts inverted, in consequence of the twisting of the ovary.

- Stamen 1 (the lateral ones sterile, the middle alone fertile); lip not slipper-shaped
- lip spurred at the base; spur free
 - plant without leaves - - - 13. CORALLORHIZA.
 - plant with leaves
 - glands of the stalks of the pollen masses enclosed in a pouch - } 1. ORCHIS.
 - glands of the stalks of the pollen masses naked
 - lobes of the anther approximated - 2. GYMNADENIA.
 - lobes of the anther distant - 3. HABENARIA.
 - lip not spurred, or the spur adnate to the germen
 - plants without leaves, scaly
 - lip obcordate - - - 9. LISTERA *Nidus avis*.
 - lip oblong, acute - - - 13. CORALLORHIZA.
 - plants with leaves
 - pollen masses stalked, furnished with a gland at the base of the stalk
 - glands of the stalks of the pollen masses enclosed in a pouch
 - pouch simple - - - 4. ACERAS.
 - pouch double - - - 6. OPHRYS.
 - glands of the stalks of the pollen masses naked - } 5. HERMINIUM.
 - pollen masses not stalked, or only with a slight protuberance at their base
 - anther parallel with the stigma
 - lip entire
 - lip saccate; pollen angled - 7. GOODYERA.
 - lip shovel-shaped; pollen farinaceous 8. NEOTTIA.
 - lip lobed - - - 9. LISTERA.
 - anther terminal
 - anther persistent; pollen masses pulverulent - } 10. EPIPACTIS.
 - anther deciduous; pollen masses becoming waxy
 - lip uppermost - - - 11. MALAXIS.
 - lip undermost - - - 12. LIPARIS.
- Stamens 2 fertile, and lateral (the middle one sterile); lip slipper-shaped - - - 14. CYPRIPEDIUM.
- Anthers* of 2 distinct vertical cells, fixed to the top of the column immediately

above the stigma. Pollen masses stalked, composed of an indefinite number of grains, which cohere elastically, having a gland at the base of the stalk.

I. ORCHIS. (L. gen. n. 1009., D. C. bot. gal. p. 442.)

Perigone personate, ringent, 6-partite, arched or helmet-shaped above; the lip spurred at the base. *Stigma* convex, placed in the front. *Glands* of the stalks of the pollen masses contained in a common little pouch.

Tubers 2, entire

spur short, not above half the length of the ovary

middle lobe of the lip 3 or 4 times as long as } 7. O. HIRCINA.
the lateral ones, and somewhat twisted - }

middle lobe slightly, if at all, longer than the lateral ones, flat

bracts nearly as long as the ovary; middle } 3. O. USTULATA.
lobe entire - }

bracts short; middle lobe bifid, with a small intermediate projecting lobule in the sinus

outer tepals of the perigone blunt, green- } 4. O. FUSCA.
ish purple - }

outer tepals acuminate

lip with a hispid central line; segments } 5. O. MILITARIS.
of the middle lobe dilated - }

lip not hispid; segments linear - 6. O. TEPHROSANTHOS.

spur about as long as, or longer than, the ovary

middle lobe of the lip emarginate, but without projecting scales along the sides

outer tepals of perigone connivent, many- } 1. O. MORIO.
ribbed, purplish-green - }

outer tepals 3-ribbed; the two latter ones } 2. O. MASCULA.
reflexed upwards, purple - }

middle lobe of the lip entire; the lip having } 8. O. PYRAMIDALIS.
2 protuberances above - }

Tubers palmate

bracts longer than the flowers; lip slightly } 9. O. LATIFOLIA.
lobed - }

bracts much shorter than the flowers; lip deeply } 10. O. MACULATA.
lobed - }

1. ! *O. morio*. (L. sp. 1333.) *Green-winged Meadow Orchis*. Meadows and pastures. Common on the chalk. Fl. helmet purplish green; lip purple, pale in the middle, with purple spots. June. Perennial. E. B. 2059., H. 373.

2. ! *O. mascula*. (L. sp. 1333.) *Early purple Orchis*. Woods and pastures. Common. Fl. purple; the centre of the lip whitish. June. Perennial. E. B. 631., H. 373.

3. ! *O. ustulata*. (L. sp. 1333.) *Dwarf dark-winged Orchis*. Chalky pastures. Fl. dark purple. Lip white, with purple spots. June. Perennial. E. B. 18., H. 374.

4. ! *O. fusca*. (Jacq.) *Great brown-winged Orchis*. Chalky pastures and borders of woods, Kent. Fl. helmet dark greenish-purple; the rest of a paler variegated purple. May. Perennial. H. 374. *O. militaris*. (E. B. 16.)

5. ! *O. militaris*. (L. sp. 1333.) *Military Orchis*. Chalk hills, especially about Reading. Fl. helmet pale ash-coloured; lip deep purple, white in the middle. May. Perennial. E. B. 2675., H. 374.

6. ! *O. tephrosanthos*. (Vill.) *Monkey Orchis*. Chalk hills; Berks, Kent, and Oxfordshire. Fl. pale purple, spotted; lip deep purple, with crystalline points. May. Perennial. H. 374. *O. militaris* β. (E. B. 1873.) *O. macra*. (Lind. Syn. 260.) *O. Simia*. (Bot. gal. 445.)

7. ! *O. hircina*. (Scop., L. sp. 1337.) *Lizard Orchis*. Chalk hills; Kent and Surrey. Fl. dingy purplish green. Odour hircine. July. Perennial. E. B. 24., H. 374.

8. ! *O. pyramidalis*. (L. sp. 1332.) *Pyramidal Orchis*. Pastures, on a clayey or chalky soil. Fl. delicate rose-purple. July. Perennial. E. B. 110., H. 375. *Anacamptis pyramidalis*. (Rich., Lind. Syn. 261.)

9. ! *O. latifolia*. (L. sp. 1334.) *Marsh Orchis*. Marshes and moist meadows. Common. Fl. pale rose-coloured, varying to deep purple. June. Perennial. E. B. 2308., H. 375.

10. ! *O. maculata*. (L. sp. 1335.) *Spotted palmate Orchis*. Pastures and heaths. Common. Fl. pale purple, spotted. June, July. Perennial. E. B. 632., H. 375.

II. GYMNADENIA. (R. Brown, Hort. Kew. 191.)

Perigone personate, 6-partite; the *segments* connivent, coloured, arched; *lip* coloured, 3-fid, spurred at the base. *Stigma* not excavated above, but cleft. Glands of the stalks of the *pollen masses* naked, approximated.

1. ! *G. conopsea*. (Br.) *Fragrant Orchis*. Pastures and heaths. Common on chalky soils; Croydon, &c. Fl. rose-coloured. June, Aug. Perennial. H. 375. Orch. conop. (L. sp. 1335., E. B. 10.)

III. HABENARIA. (R. Brown prod. 312.)

Perigone personate, 6-partite, ringent, arched or helmet-shaped above; the *lip* spurred at the base. Glands of the stalks of the *pollen masses* naked, distant.

Spur much shorter than the ovary

lip 3-dentate, the middle segment the smallest; } 1. H. VIRIDIS.
tubers palmate - - - - - }

lip deeply 3-fid, the middle segment the largest; } 2. H. ALBIDA.
tubers undivided - - - - - }

Spur longer than the ovary

flowers white; lip linear; radical leaves suberect 3. H. BIFOLIA.

flowers green; lip ovato-lanceolate; radical leaves } 4. H. CHLORANTHA.
patent - - - - - }

1. ! *H. viridis*. (Br.) *Green Orchis*. Dry hilly pastures. Fl. greenish. June, July. Perennial. H. 376. Satyr. virid. (L. sp. 1337., E. B. 94.) Orch. virid. (Bot. gal. 443.) Peristylus virid. (Lind. syn. 261.)

2. *H. albida*. (Br.) *Small white Orchis*. Mountain pastures. Fl. white, small, fragrant. June, July. Perennial. H. 376. Sat. alb. (L. sp. 1338.) Orch. alb. (Bot. gal. 443.) Peristylus alb. (Lind. syn. 261.)

3. ! *H. bifolia*. (Br.) *Butterfly Orchis*. Moist copses and pastures. Common. Fl. yellowish white, fragrant. June. Perennial. H. 376. Orch. bifolia. (L. sp. 1331.) Platanthera bifol. (Lind. syn. 261.)

β. ! *brachyglossa*. Anthers emarginate; lip somewhat shorter. Leaves obtuse, very much tapering to the base. Platant. bifol. β. brachygloss. (Lind.)

4. ! *H. Chlorantha*. (Cust.) *Yellowish Green Butterfly Orchis*. Kent. Often mixed with the former. (Lind.) Fl. yellowish green. June. Perennial. H. 376. Orch. bifol. (E. B. 22.)

IV. ACERAS. (R. Brown, Hort. kew. 191., Hook, 371.)

Perigone 6-partite, helmet-shaped; *lip* linear, tripartite; the middle *segment* bifid; not spurred, but subgibbous at the base. Glands of the stalks of the *pollen masses* contained in a common little pouch.

1. ! *A. anthropophora*. (Br.) *Green Man Orchis*. Dry clayey and chalky pastures in the south and east of England. Fl. helmet green; lip longer than the germen, yellowish, with a red or brown margin. June. Perennial. H. 377. Ophrys anthr. (L. sp. 1343., E. B. 29.)

V. HERMINIUM. (R. Brown, Hort. kew. 191., Hook, 371.)

Perigone subcampanulate, 6-partite; the inner *segments* much the longest, and dissimilar; *lip* not spurred, saccate at the base, lobed. Glands of the stalks of the *pollen masses* naked, distinct.

1. ! *H. monorchis*. (Br.) *Green Musk Orchis*. Radical leaves 2, lanceolate. Chalky pastures in the east and south of England. Fl. green. June, July. Perennial. Oph. monorch. (L. sp. 1342., E. B. 71.)

VI. OPHRYS. (L. gen. n. 1011., D. C. bot gal. p. 446.)

Perigone 6-partite; the *segments* subpatent; *lip* not spurred. *Stigma* convex in front. *Anthers* 2-celled, terminal. *Pollen masses* with 2 glands, enclosed in separate pouches; each mass deeply divided into numerous angular particles.

Lip 2—5-fid, not waved at the margin

lip tumid, or subtumid; scarcely, if at all, longer
than the other tepals of the perigone

- | | | |
|---|---|------------------|
| terminal segment of the middle lobe subulate, recurved; lip trifid | } | 1. O. APIFERA. |
| terminal segment of the middle lobe not recurved; lip 3-5-lobed | | |
| inner segments of the perigone linear, smooth; lip 3-lobed | } | 3. O. ARANIFERA. |
| inner segments deltoid, downy; lip slightly 5-lobed | | |
| lip flat, 2-lobed, twice as long as the other segments of the perigone; the lateral ones filiform | } | 5. O. MUSCIFERA. |
| Lip undivided, waved at the margin | | |
| | | 4. O. FUCIFERA. |

1. ! *O. apifera*. (Huds.) *Bee Orchis*. Chalky and clayey soils. Common on the Surrey and Kent chalk hills. Fl. helmet greenish white; lip brownish, variegated with yellow, velvety. July. Perennial. E. B. 383., H. 377.

2. ! *O. arachnites*. (Hoffm.) *Late Spider Orchis*. Chalky downs of south Kent. Fl. helmet pale greenish purple; lip brown, with greenish stripes and spots. May, June. Perennial. E. B. 2596., H. 377.

3. ! *O. aranifera*. (Huds.) *Early Spider Orchis*. Chalky and clayey pastures. Common on the Surrey and Kent chalk hills. Fl. helmet greenish; lip deep brown, with lighter confluent lines. April, May. Perennial. E. B. 65., H. 378.

4. *O. fucifera*. (Smith.) *Drone Orchis*. Chalk hills; Kent. Fl. May, June. Perennial. E. B. 2649., H. 378.

5. ! *O. muscifera*. (Huds.) *Fly Orchis*. Chalky and clayey pastures. Common on the Kent and Surrey chalk hills. Fl. lateral; segments resembling the antennæ of an insect; lip with a broad pale bluish spot in the centre. June. Perennial. E. B. 64., H. 378. *O. myodes*. Bot. gal. 447.

** *Anthers parallel with the stigma. Pollen masses farinaceous, or composed of angular grains fixed to the apex of the stigma, not stalked.*

VII. GOODYERA. (R. Brown, Hort. kew. 197., Hook. 372.)

Perigone 6-partite; the upper segments connivent at the base, free at the apex; lip ventricose, entire, remarkably concavo-gibbous beneath, and included within the lateral segments of the perigone. *Column* free, taper, with 2 sharp appendages. *Stigma* in front, oblique. *Anthers* 2-celled. *Pollen masses* sessile; in angular particles.

1. *G. repens*. (Brown.) *Creeping Orchis*. Fir forests in Scotland. Fl. small, white. Aug. Perennial. H. 378. *Sat. repens*. (L. sp. 1339., E. B. 289.) *Neottia repens*. (Bot. gal. 448.)

VIII. NEOTTIA. (Jacq., D. C. bot. gal. p. 448.)

Perigone 6-partite; the upper segments connivent, parallel with the lip; lip ventricose, unguiculate, with 2 fleshy projections at the base; entire, included within the lateral segments. *Column* wingless, taper, club-shaped; with 2 appendages at the apex; free. *Stigma* in front, rostrate. *Pollen* granular.

Spike twisted, unilateral; bracts downy - - - 1. N. SPIRALIS.

Spike twisted, 3-ranked; bracts glabrous - - - 2. N. GEMMIPARA.

1. ! *N. spiralis*. (Swartz.) *Common Lady's Tresses*. Chalk hills; Surrey and Kent. Fl. greenish white, spiral. Aug., Sept. Perennial. H. 378. *Ophr. spir.* (L. sp. 1340., E. B. 541.) *Spiranthes autumnalis*. (Lind. syn. 257.)

2. *N. gemmipara*. (Sm.) *Proliferous Lady's Tresses*. Bantry Bay, Ireland. Fl. greenish. Oct. Perennial. E. B. 2786., H. 379. *Spirant. gemmip.* (Lind. syn. 257.)

IX. LISTERA. (R. Brown, Hort. kew. 201., Hook. 372.)

Perigone 6-partite; the segments loosely connivent into a globe; lip 2-lobed, patent, not spurred. *Stigma* oblique, in front of the anther, terminating in a narrow process. *Anther* attached to the back of the stigma, in a cavity of the column. *Pollen* farinaceous; the masses sessile.

Stem with 2 opposite green leaves

leaves elliptical; lip bifid, not toothed at the base - - - 1. L. OVATA.

leaves cordate; lip bifid, with a tooth on each side of the base - - - 2. L. CORDATA.

Stem without leaves; scales dingy brown - - - 3. L. NIDUS AVIS.

1. ! *L. ovata*. (Brown.) *Common Twayblade*. Woods and moist pastures. Common. Fl. yellowish green. June. Perennial. H. 379. Oph. ovata. (L. sp. 1340., E. B. 1548.) Epip. ovata. (Bot. gal. 449.)
2. *L. cordata*. (Brown.) *Heart-leaved Twayblade*. Heathy mountains in the north of England and Scotland. Fl. greenish brown. July, Aug. Perennial. H. 379. Oph. cord. (L. sp. 1340., E. B. 358.) Epip. cord. (Bot. gal. 449.)
3. ! *L. Nidus avis*. (Hook.) *Bird's Nest Orchis*. Shady woods; especially on and near chalk. Charlton. Fl., and whole plant, dingy brown. May, June. Perennial. H. 379. Oph. Nid. av. (L. sp. 1339., E. B. 48.) Epip. Nid. av. (Bot. gal. 449.) Neot. Nid. av. (Lind. syn. 258.)

*** *Anthers terminal, persistent. Pollen masses pulverulent, or composed of angular granules, eventually fixed to the back of the stigma.*

X. EPIPACTIS. (R. Brown, Hort. kew. 201., D. C. bot. gal. p. 449.)

Perigone 6-partite; the segments erect, connivent; lip embracing the column, very concave at the base; sometimes lobed; the middle lobe large, and, as it were, jointed. Column plano-convex, with 2 teeth at the apex. Stigma not narrowing into a process. *Anthers* as in the section.

Flowers more or less drooping; column of fructification very short

lip as long as the other segments, with a notched protuberance on the disk } 3. E. PALUSTRIS.

lip shorter than the other segments, entire
lower bracts longer than the flowers - 1. E. LATIFOLIA.
all the bracts twice as long as the flowers - 2. E. PURPURATA.

Flowers erect, sessile; column of fructification very long

bracts longer than the ovary
ovary glabrous; helmet white - 4. E. GRANDIFLORA.
ovary downy; helmet purplish red - 7. E. RUBRA.

bracts minute, shorter than the ovary; leaves much } 5. E. ENSIFOLIA.
acuminated - - - - -

1. ! *E. latifolia*. (Swartz.) *Broad-leaved Helleborine*. Woods, in mountainous countries. Fl. greenish purple. July, Aug. Perennial. H. 379. Serapias latif. (L. mant. 940., E. B. 269.)

2. *E. purpurata*. (Sm.) *Purple-leaved Helleborine*. In Worcestershire, and at Woburn Abbey. Fl. dark purple. June. Perennial. E. B. 2775.

3. ! *E. palustris*. (Swartz.) *Marsh Helleborine*. Moist marshy places, near chalk. Fl. greenish white, with rose-coloured streaks. July. Perennial. H. 380. Serap. longifol. (L. sp. 1345.) Serap. palust. (E. B. 270.)

4. ! *E. grandiflora*. (Sm.) *Large white Helleborine*. Woods and thickets; chiefly on chalk. Fl. white. June. Perennial. H. 380. Serap. grandifolia. (E. B. 271.)

5. ! *E. ensifolia*. (Swartz.) *Narrow-leaved white Helleborine*. Mountainous woods. Fl. white. May, June. Perennial. H. 380. Serap. ensifolia. (E. B. 494.)

6. *E. rubra*. (Swartz.) *Purple Helleborine*. Mountainous woods. Rare. Helmet purple; lip white. June. Perennial. H. 380. Serap. rubra. (E. B. 437.)

**** *Anthers terminal, deciduous. Pollen masses becoming waxy.*

XI. MALAXIS. (Swartz., Hook. 372.)

Perigone 6-partite, inverted; 5 of the segments loosely spreading; the lip superior, much smaller than the outer segments, not spurred; embracing the column at the base; column gibbous, excavated in front, very short. *Anthers* as in the section. *Pollen masses* in 2 pairs.

1. *M. paludosa*. (Swartz.) *Marsh Bog Orchis*. Spongy bogs. Fl. greenish. Aug., Sept. Perennial. E. B. 72., H. 380. Ophrys paludosa. (L. sp. 1341.)

XII. LIPARIS. (Rich., Hooker, 372.)

Perigone 6-partite, not inverted; the 5 upper segments linear, uniform, spreading; lip inferior, much larger than the outer segments, undivided, reflexed; column elongated. *Anthers* and *pollen* as in Malaxis.

1. *L. Loeselii*. (Rich.) *Two-leaved Bog Orchis*. Sandy bogs in the eastern

counties. Fl. few, yellowish-green. July. Perennial. H. 381. M. Loesellii. (Bot. gal. 450.) Ophr. Loesellii. (L. sp. 1341., E. B. 47.)

XIII. CORALLORHIZA. (Haller, D. C. bot. gal. p. 458.)

Perigone 6-partite; the upper segments arching (spreading, Lind.); lip slightly spurred; the spur often adnate to the ovary. *Ovary* with a short pedicel; column free, plano-convex, entire. *Anthers* terminal, deciduous, round, 2-celled, with 2 anterior valves. *Pollen masses* 4, spherical, oblique.

1. *C. innata*. (R. Brown.) *Coral Root*. Marshy woods in Scotland. Fl. pale yellowish green. July. Perennial. H. 381. C. Halleri. (Bot. gal. 450.) Oph. coral. (L. sp. 1339., E. B. 1547.)

***** *Lateral anthers fertile; the intermediate one sterile and petaloid.*

I. CYPRIPIEDIUM. (L. gen. n. 1015.)

Perigone loosely patent; somewhat in the form of a cross; lip very large, obtuse, inflated, slipper-shaped; column with a large, terminal, dilated lobe (the sterile anther), separating the anthers, which are distinct, lateral, and with a lanceolate appendage at the base; the 2 lateral or lower segments of the *perigone* often combined.

1. *C. Calceolus*. (L. sp. 1346.) *Lady's Slipper*. Woods in the north of England. Rare. Fl. wings chocolate-coloured; the lip, or slipper, yellow. June. Perennial. E. B. 1., H. 381.

Order XCIX. IRIDEÆ. (Juss., D. C. bot. gal. p. 451.)

Perigone tubular at the base, adherent to the ovary, petaloid, 6-fid or 6-partite; often irregular. *Stamens* 3, inserted into the base of the outer segments of the perigone. *Anthers* linear, dehiscing externally (extrorse). *Ovary* 1—3-celled, many-ovuled; the ovules in 2 rows. *Style* 1, or none. *Stigmas* 3, simple or lacinated, membranaceous or petaloid. *Capsule* 3-celled, 3-valved; the valves septiferous in the middle, many-seeded; the seeds attached to the inner angle of the cells. *Embryo* within the fleshy or horny albumen.—Herbs, with tuberous roots, and, often, underground stems or rhizomes. Leaves alternate, ensiform, or linear, equitant.

Filaments of the stamens not united

- | | | | |
|---|---|---|--------------------|
| style with 3 very large petaloid segments | - | - | 1. IRIS. |
| segments of the style not petaloid | | | |
| perigone bilabiate | - | - | 2. GLADIOLUS, clt. |
| perigone not bilabiate | | | |
| stigmas 2-partite; the segments filiform | - | - | 3. TRICHONEMA. |
| stigmas 3, thick, convoluted | - | - | 4. CROCUS. |

Filaments united into a long tube - - - 5. TIGRIDIA, clt.

I. IRIS. (L. gen. n. 59., D. C. bot. gal. p. 451.)

Perigone 6-partite; the 3 outer segments larger, spreading; the 3 inner smaller, erect. *Stamens* distinct. *Style* with 3 very large petaloid, often emarginate, segments. *Stigmas* 3; on the lower surface of the petaloid segments.

Inner surface of the exterior segments of the perigone bearded at their base - - - } 1. I. GERMANICA, clt.

Inner surface of the segments, not bearded
inner segments smaller than the stigma; seeds
angular; flowers yellow - - - } 2. I. PSEUD-ACORUS.

inner segments about as large as the stigma;
seeds globose; flowers livid purple - - - } 3. I. FÆTIDISSIMA.

1. *I. germanica*. (L. sp. 55.) *Fleur de Luce*. *Perigone* bearded. Leaves ensiform, acuminate, glabrous, falcate; shorter than the many-flowered stem. Spathe scariose; the tube longer than the ovary; outer segments rotundo-orbicular. Native of the south of Europe. Cult. in gardens. Very common. Fl. outer segments purple, with a yellow beard; the inner ones light blue. June. Perennial. Bot. gal. 451.

*** *I. sambucina*, the elder-scented *Iris*, is often cultivated: it differs from *I. germanica*, in the segments of the perigone being deflexed, and of a deeper purple colour; the stigmas, also, are serrated.

2. ! *I. Pseud-acorus*. (L. sp. 56.) *Yellow Water Iris*, or *Flag*. Watery places. Common. Fl. yellow. June, July. Perennial. E. B. 578., H. 26.

β. *citrina*. (Hook.) Flowers smaller. Segments of the perigone narrower; the inner ones more acute. Stem taller. Ayrshire.

3. ! *I. foetidissima*. (L. sp. 57.) *Roast Beef Plant*; *Gladwine*. Road sides and thickets. Common in the south of England. Fl. dull livid purple. May, June. Perennial. E. B. 596., H. 26.

* * *Iris Xiphium* (L. sp. 58.), *Spanish Flag*; having a tunicated bulb, and the segments of the perigone beardless; the inner ones being as large as the stigma; and the ovary nearly round, and 3-celled; is indicated by Gray as growing wild by the sides of rivers in England. It is very commonly cultivated, as are also *I. pumila*, the *Dwarf Iris*, which is one of the earliest in the London market; and *I. florentina*, the *Florentine Iris*, with white flowers. Many other species are also cultivated, but not so generally as those here introduced.

II. GLADIOLUS. (L. gen. n. 57., D. C. bot. gal. p. 452.)

Perigone funnel-shaped; the *limb* 6-fid; unequally bilabiate. *Stigma* 3-lobed, spreading. *Seeds* with an arillus.

1. *G. communis*. (L. gen. n. 52.) *Corn Flag*. Flowers subringent, secund; the spathes longer than the tube. Leaves ensiform, nerved. Native of the south of Europe. Cult. Very common. Fl. rose-coloured. June, July. Perennial.

III. TRICHONEMA. (Ker., Hook. 25.)

Perigone 6-partite; the *segments* equal, longer than the tube. *Filaments* hairy. *Stigma* bipartite, slender. *Seeds* globose.

1. *T. Bulbocodium*. (Ker.) *Dawlish* and in *Guernsey*. Fl. pale bluish purple and yellow. March, April. Perennial. T. Columnæ. (H. 25.) *Ixia Bulbocodium*. (? L. sp. 52., E. B. 2549.)

IV. CROCUS. (L. gen. n. 55., D. C. bot. gal. p. 453.)

Tube of the *perigone* slender, twice as long as the limb; *limb* 6-partite, equal, erect. *Stigmas* 3, thick, convoluted; generally crested. *Capsule* underground, elevated by a short peduncle from the root; which peduncle elongates after the decay of the flower, and the capsules appear above ground. (Hooker, p. 25.)

Stigma protruded, drooping - - - 1. *C. SATIVUS*.

Stigma included within the flower

flowers accompanied by leaves

flowers solitary

fauces of the perigone hairy - - - 2. *C. VERNUS*.

fauces naked - - - 3. *C. MINIMUS*.

flowers 2; bulb coated with compact fibres - 4. *C. AUREUS*.

flowers before the leaves

stigma as long as the stamens - - - 5. *C. NUDIFLORUS*.

stigma longer than the stamens; flower conspicuous - - - } 6. *C. SPECIOSUS*.

1. *C. sativus*. (L. sp. 50.) *Saffron Crocus*. Meadows in the eastern counties. Naturalised. Long cultivated in Essex, &c., for saffron. Fl. Sept. Perennial. H. 24. *C. autumnalis*. (E. B. 343.)

2. ! *C. vernus*. (Willd.) *Purple Spring Crocus*. Meadows and fields. Naturalised. Fl. purple. March. Perennial. E. B. 344., H. 24.

3. *C. minimus*. (Redouté.) *Least Purple Crocus*. Park at Barton, Suffolk. an outcast of the garden. Fl. purple. March. Perennial. E. B. 2645., H. 24.

4. ! *C. aureus*. (Smith.) *Golden Crocus*. With the preceding, also an outcast of the garden. Fl. yellow. March. Perennial. E. B. 2646., H. 25.

5. *C. nudiflorus*. (Smith.) *Naked flowering Crocus*. Nottingham Castle fields. Naturalised. Fl. pale purple. Oct. Perennial. E. B. 491., H. 25. *C. multifidus*. (Bot. gal. 453.)

6. *C. speciosus*. (M. Bieb.) *Showy Crocus*. Near Warrington and Halifax. Naturalised. Fl. purple. Oct. Perennial. E. B. 2752., H. 25.

V. TIGRIDIA. (Juss. gen. 57.)

Spathe 2-valved. *Perigone* campanulate, 6-partite; the 3 outer segments very large; the 3 inner smaller, hastate, nectariferous at the margin. *Filaments* united into a long monadelphous tube. *Stigmas* 3, bifid. *Capsule* oblong, angular.

1. *T. pavonia*. (Redouté.) *Mexican Tiger Flower*. Native of Mexico. Cult. Common. Fl. large; the segments scarlet; the base purple, with a stripe of orange, and spotted; fading in a few hours. June, July. Perennial. Bot. mag. 532.

* * *Sisyrinchium bermudianum*, with the tepals separate, and the filaments connate, having the stem branched, and covered with small cream-coloured flowers, is also often cultivated.

Order C. AMARYLLIDÆ. (R. Brown, D. C. bot. gal. p. 454.)

Perigone gamotepalous, tubular, adherent to the ovary, 6-partite, imbricated in æstivation; the 3 outer segments of the same size as the inner ones. *Stamens* 6; the filaments free or united. *Anthers* introrse. *Ovary* inferior, 3-celled; the cells many-seeded. *Style* simple. *Stigma* 3-lobed. *Fruit* a 3-valved capsule; the valves septiferous in the middle, many-seeded; or a 1-3-seeded berry. *Albumen* fleshy. *Embryo* straight; the radicle directed towards the umbilicus. — Roots bulbous or fibrous. Flowers in umbels, or solitary.

Perigone with a petaloid corona, surmounting the fauces 2. NARCISSUS.

Perigone not crowned at the fauces

fauces furnished with 6 scales - - - 1. AMARYLLIS, clt.

fauces naked

segments of the perigone 6, equal, thickened at the } 3. LEUCOJUM.
apex - - - - - }

3 inner segments very much shorter than the 3 } 4. GALANTHUS.
outer, and emarginate - - - - - }

I. AMARYLLIS. (L. gen. n. 406., D. C. bot. gal. 454.)

Perigone funnel-shaped, 6-partite; fauces furnished with 6 scales. *Stigma* 3-fid. *Stamens* 6, generally declinate (erect in some), or unequal.

1. *A. sarniensis*. (L. sp. 421.) *Guernsey Lily*. Spathe many-flowered. Corolla revolute; the stamens and style erect. Native of Japan. Almost wild in Guernsey, and much cultivated about London. Fl. of various colours. May, June. Perennial.

* * *A. lutea*, with yellow flowers, is also commonly cultivated.

II. NARCISSUS. (L. gen. n. 403., D. C. bot. gal. p. 454.)

Perigone funnel-shaped; the limb patent, 6-partite. *Corona* (nectary, Lin.) petaloid, cylindrical or campanulate, entire or divided, surmounting the fauces. *Stamens* 6, inserted into the tube; concealed within the corona.

Leaves flat, glaucous; scape 1-2-flowered

corona as long as the segments of the perigone, } 1. N. PSEUDO-NARCISSUS.
crisped at the margin; flowers yellow - - }

corona short, crenate; segments of the perigone white

border of the corona deeply coloured; leaves } 2. N. POETICUS.
obtusely keeled; scape 1-flowered - - }

border of the corona not coloured; leaves } 3. N. BIFLORUS.
acutely keeled; scape 2-3-flowered - - }

Leaves subulate, semicylindrical, green; scape } 4. N. JUNQUILLA, clt.
3-many-flowered - - - - - }

1. ! *N. Pseudo-Narcissus*. (L. sp. 414.) *Daffodil*. Woods and meadows. Common. Also much cult. Fl. large, yellow. March, April. Perennial. E. B. 17., H. 158.

2. ! *N. poeticus*. (L. sp. 414.) *Narcissus of the Poets*. Norfolk and Kent; on sandy soil. Cult. Common. Fl. white, with a deep reddish orange-coloured border to the nectary. May. Perennial. E. B. 275., H. 158.

3. ! *N. biflorus*. (Curtis.) *Pale Narcissus*. Kent and Herts; in sandy fields. Cult. Common. Fl. white, with a slight shade of yellow; without a coloured border to the nectary. May. Perennial. E. B. 276., H. 158.

4. *N. Junquilla*. (L. sp. 417.) *Jonquil*. Leaves subulate, semicylindrical, green. Scape cylindrical, 3-6-flowered. Corona cup-shaped, dilated at the apex; much shorter than the segments of the perigone; the tube twice the length of the segments. Native of the south of Europe. Cult. in gardens. Fl. yellow, very odorous. April, May. Perennial. Bot. mag. 15., Bot. gal. 456.

* * All the other species of *Narcissus* are very ornamental, and cultivated by florists, but the above are the most common.

III. LEUCOJUM. (L. gen. n. 402., D. C. bot. gal. p. 457.)

Perigone with a short tube; the *limb* campanulate, 6-partite; the *segments* equal, and thickened at the apex. *Stigma* simple.

- | | | | | | |
|----------------------|---|---|---|---|--------------------|
| Spathe 1-flowered | - | - | - | - | 1. L. VERNUM, clt. |
| Spathe many-flowered | - | - | - | - | 2. L. ÆSTIVUM. |

1. *L. vernum*. (L. sp. 414.) *Vernal Snowflake*. Native of the south of Europe. Subalpine thickets and pastures. Cult. in gardens. Fl. white; all the segments tipped with green. March. Perennial. Bot. mag. 46., Bot. gal. 457.

2. *L. æstivum*. (L. sp. 414.) *Summer Snowflake*. Moist meadows; along the banks of the Thames, Plumstead marsh. Fl. white; all the segments tipped with green. May. Perennial. E. B. 621., H. 157.

IV. GALANTHUS. (L. gen. n. 401., D. C. bot. gal. p. 457.)

Perigone 6-partite; the 3 inner *segments* very much shorter than the outer, emarginate. *Stigma* simple.

1. *G. nivalis*. (L. sp. 413.) *Snowdrop*. Woods, orchards, &c. Naturalised. Fl. white; the inner segments only tipped with green. Feb. Perennial. E. B. 19., H. 157.

Order CI. ASPARAGÆÆ. (Juss., D. C. bot. gal. p. 458.)

Flowers hermaphrodite, monœcious or diœcious. *Perigone* petaloid, free, or adherent to the ovary; generally 6-partite; sometimes 6-fid, or 4—8-partite. *Stamens* as many as the segments of the perigone, and adherent to them at their base; the *filaments* free, rarely (in *Ruscus*) united into a tube. *Ovary* single, 3-celled, 1—many-ovuled; the *ovules* attached to the inner angles. *Styles* 1—4—5. *Stigmas* 3—4. *Berries*, or *capsules*, spherical, 3—4-celled; sometimes, by abortion, 1-celled. *Cells* 1—3-seeded. *Embryo* generally very small, in a fleshy albumen. — Herbs or small shrubs. Leaves not sheathing.

- | | | | |
|---|---|---|-----------------|
| Stamens, and segments of perigone, 8 | - | - | 2. PARIS. |
| Stamens, and segments of perigone, 6 | - | - | - |
| leaves fasciculated | - | - | 1. ASPARAGUS. |
| leaves not fasciculated | - | - | - |
| flowers hermaphrodite; stem herbaceous | - | - | 3. CONVALLARIA. |
| flowers diœcious; stem woody | - | - | - |
| stem climbing; perigone adherent to the ovary | - | - | 5. TAMUS. |
| stem erect, not climbing; perigone, in female | - | - | } 4. RUSCUS. |
| flower, not adherent | - | - | |

* *Flowers* hermaphrodite. *Ovary* free.

I. ASPARAGUS. (L. gen. n. 424., D. C. Bot. gal. p. 458.)

Perigone free, 6-partite. *Stamens* 6. *Berry* 3-celled; the *cells* 2-seeded; rarely, by abortion, 1-seeded.

1. *A. officinalis*. (L. sp. 448.) *Common Asparagus*. South coast of England. Fl. greenish white. Aug. Perennial. E. B. 339., H. 162.

II. PARIS. (L. gen. n. 500., D. C. Bot. gal. p. 459.)

Perigone expanded, 8-partite; the 4 outer *segments* broader, calicine; the 4 inner, narrower, petaloid. *Stamens* 8; the *anthers* adnate to the middle of the filaments. *Stigmas* 4. *Berry* 4-celled; the *cells* 6—8-seeded.

1. *P. quadrifolia*. ((L. sp. 527.) *Herb Paris*. Moist and wet shady woods. Fl. greenish; the inner segments yellowish. May, June. Perennial. E. B. 7., H. 187.

III. CONVALLARIA. (L. gen. n. 425., D. C. Bot. gal. p. 459.)

Perigone globose or cylindrical, 6-dentate. *Stamens* 6. *Berry* globose, spotted while unripe, 3-celled; the *cells* 1-seeded.

- | | | | | | |
|---------------------|---|---|---|---|---------------------|
| Flowers cylindrical | - | - | - | - | - |
| leaves in whorls | - | - | - | - | 1. C. VERTICILLATA. |
| leaves alternate | - | - | - | - | - |

- | | | |
|--------------------------------------|---|---------------------------|
| stem 2-edged; peduncles 1-flowered | - | 2. <i>C. POLYGONATUM.</i> |
| stem terete; peduncles many-flowered | - | 3. <i>C. MULTIFLORA.</i> |
| Flowers campanulate | - | 4. <i>C. MAJALIS.</i> |

1. *C. verticillata*. (L. sp. 451.) *Narrow-leaved Solomon's Seal*. Woods and glens in Scotland. Rare. Fl. yellowish white. June. Perennial. E. B. 128., H. 158.

2. *C. Polygonatum*. (L. sp. 451.) *Angular Solomon's Seal*. Woods in Kent and Yorkshire; but rare. Fl. greenish white. May, June. Perennial. E. B. 280., H. 159.

3. *C. multiflora*. (L. sp. 450.) *Common Solomon's Seal*. Woods and coppices. Common; especially on the chalk. Fl. white, with greenish tips. May, June. Perennial. E. B. 279., H. 159.

4. *C. majalis*. (L. sp. 451.) *Lily of the Valley*. Woods and coppices at Hampstead and Norwood, &c. Much cult. Fl. white. May. Perennial. E. B. 1035., H. 158.

* * *Mayanthemum bifolium*, *Convallaria bifolia* (L. sp. 452.), easily distinguished by its cordate subpetiolated leaves, the parts of the flower being in fours, is naturalised in Caen Wood, Hampstead.

IV. RUSCUS. (L. gen. n. 1139., D. C. Bot. gal. p. 460.)

Perigone 6-partite, generally expanding. *Filaments* united; naked in the female flower, but having 6 anthers in the male flower. *Style* 1. *Stigma* 1. *Berry* globose, 3-celled; the *cells* 2-seeded.

1. *R. aculeatus*. (L. sp. 1474.) *Butcher's Broom*. In bushy places, and under hedges. Very common in the south of England, on a gravelly soil. Fl. very small, whitish, arising from the middle of the leaves. March, April. Perennial. E. B. 560., H. 439.

V. TAMUS. (L. gen. n. 1119., D. C. Bot. gal. p. 460.)

Perigone campanulate, 6-partite. — Male flower. *Segments* patent. *Stamens* 6. — Female flower. *Perigone* adherent to the ovary, and contracted above. *Style* 1. *Stigmas* 3. *Berry* 3-celled.

1. *T. communis*. (L. sp. 1458.) *Black Bryony*. Hedges and thickets. Common. Fl. greenish white. June. Perennial. E. B. 91., H. 440.

* * * The *Yucca gloriosa*, one of the few ligneous monocotyledonous plants which will bear the rigour of our winters, is by some placed in this order; but, perhaps, it more properly belongs to the next. It is sometimes cultivated in nursery grounds and parterres, but is not common. The yucca may easily be recognised by its stem bearing a bunch of lanceolate leaves at the top, from whence springs a panicle crowded with large cream-coloured flowers.

Order CII. LILIACEÆ. (D. C. bot. gal. p. 461.)

Flowers hermaphrodite. *Perigone* petaloid, free, often tubular, 6-fid or 6-partite; the segments in a double row. *Stamens* 6, opposite the segments of the perigone, and generally adnate to them. *Ovary* 1, free, sessile, triangular, many-ovuled; the *ovules* arranged longitudinally in 2 rows. *Style* 1, longitudinally trisulcate; rarely wanting. *Stigmas* 3 or 1, triquetrous. *Capsule* 3-celled, 3-valved; the *valves* septiferous in the middle. *Seeds* many, attached to the internal angle of the cell, and covered with a crustaceous, membranous, or spongy integument. *Embryo* within a cartilaginous or fleshy albumen; the *radicle* turned towards the hilum. — Herbs, either bulbous, with radical leaves, or caulescent, with the stem leaves sheathing or sessile.

Stigmas 3

scape naked; leaves radical - - - 4. *ERYTHRONIUM*, clt.

stem leafy

segments of the perigone with an oval nectary } 2. *FRITILLARIA*.
at their base - - - }

segments without nectaries at their base
segments grooved on the upper surface, with } 3. *LILIUM*, clt.
a longitudinal furrow - - - }

segments not grooved - - - 1. *TULIPA*.

Stigma 1

stamens declinate - - - 13. *HEMEROCALLIS*, clt.

stamens erect

flowers umbellate, arising from a 1—3-

valved spathe

stigma simple - - - 12. ALLIUM.

stigma gaping - - - 10. GAGEA.

flowers spicate, racemose, or paniculated

perigone 6-fid or 6-dentate

perigone tubular

stamens inserted into the base of the } 7. SCILLA.

perigone - - - }

stamens inserted about the middle of } 8. HYACINTHUS.

the perigone - - - }

perigone ovate, inflated in the middle - 9. MUSCARI.

perigone 6-partite

filaments of the stamens dilated at the base

all the filaments dilated, and covering } 5. ASPHODELUS, clt.

the ovary - - - }

3 outer filaments dilated, not covering } 11. ORNITHOGALUM.

the ovary - - - }

filaments not dilated at the base

perigone tubular - - - 8. HYACINTHUS.

perigone spreading

flowers yellow - - - 10. GAGEA.

flowers white, blue, or purple

seeds triquetrous; roots fasciculated 6. PHALANGIUM.

seeds round; roots bulbous - 7. SCILLA.

Tribe I. TULIPACEÆ. (D. C. bot. gal. p. 461.)

Seeds flat, with a spongy dilated, often winged, testa. Stigmas 3.

I. TULIPA. (L. gen. n. 415., D. C. l. c.)

Perigone campanulate, of 6 tepals, or 6-partite; the *segments* not nectariferous at the base, nor grooved. *Stigmas* sessile, thick. *Capsule* oblong, triangular.

Segments of the perigone glabrous; bulbs lanuginous

stem and upper surface of the leaves pubescent - 1. T. SUAVEOLENS, clt.

stem and upper surface of the leaves glabrous - 2. T. GESNERIANA, clt.

Segments of perigone bearded at the apex; bulbs } 3. T. SYLVESTRIS.
not lanuginous - - - }

1. *T. suaveolens*. (Roth.) *Sweet-scented early Tulip*. Leaves broadly lanceolate. Stem 1-flowered. Upper surface of the leaves and stem pubescent. Flowers erect. Segments of the perigone ovate, acute, glabrous. Native of Asia. Cult. in gardens, on account of its early flowers. Fl. generally reddish orange, with yellow stripes. March to June. Perennial. Bot. gal. 461.

2. *T. gesneriana*. (L. sp. 438.) *Garden Tulip*. Leaves lanceolate undulated. Stem 1-flowered, glabrous. Flower erect. Filaments of stamens glabrous. Segments of the perigone obovate, obtuse, glabrous. Native of Asia. Cult. in gardens. Very common. Fl. of almost every variety of colour. May, June. Perennial. Bot. gal. p. 461.

3. ! *T. sylvestris*. (L. sp. 438.) *Wild Tulip*. Chalk pits, in various parts of the south of England. Fl. yellow. April. Perennial. E. B. 63., H. 163.

II. FRITILLARIA. (L. gen. n. 411., D. C. bot. gal. p. 461.)

Perigone campanulate, 6-partite; the *segments* hollowed at the base, with an ovate nectariferous recess.

Nectaries oblong; root bituberculate; flower, ter- } 1. F. MELEAGRIS.
minal - - - }

Nectaries round; root tuberous, tunicated; flowers } 2. F. IMPERIALIS, clt.
numerous, axillary, in a whorl at the top of }
the stem - - - }

1. ! *F. Meleagris*. (L. sp. 436.) *Fritillary*. Moist meadows and pastures in the middle and south of England; Mortlake meadows near Kew. Fl. purplish, chequered. April. Perennial. E. B. 622., H. 163.

2. *F. Imperialis*. (L. sp. 435.) *Crown Imperial*. Stem leafy at the top.

Flowers nodding. Raceme comose, naked beneath. Native of Asia. Cult. in gardens. Fl. deep yellow. May. Perennial. Bot. gal. 462.

III. LILIUM. (L. gen. n. 410., D. C., bot. gal. p. 462.)

Perigone campanulate; with 6 deep, straight, or revolute segments; grooved to the base on the upper surface with a longitudinal, fimbriated, or naked furrow.

Perigone open, campanulate, but not revolute
 flowers white, glabrous within; leaves undulate 1. *L. CANDIDUM*, clt.
 flowers orange or red, scabrous within; leaves flat 2. *L. BULBIFERUM*, clt.

Perigone revolute
 leaves verticillate 3. *L. MARTAGON*, clt.
 leaves scattered 4. *L. TIGRINUM*, clt.

1. *L. candidum*. (L. sp. 433.) *White Lily*. Leaves lanceolate, scattered, undulate. Flowers pedunculated, terminal; glabrous within. Native of Asia. Cult. Common. Fl. white. July. Perennial. Bot. mag. 278., bot. gal. p. 462.

2. *L. bulbiferum*. (L. sp. 433.) *Orange Lily*. Leaves scattered, linear, lanceolate, flat. Flowers campanulate, erect terminal; scabrous within. Native of the south of Europe. Cult. Common. Fl. orange, spotted with black. July. Perennial. Bot. mag. 36., Bot. gal. 462.

3. ! *L. Martagon*. (L. sp. 435.) *Turk's Cap Lily*. Leaves verticillated, ovate, lanceolate. Flowers nodding, reflexed. Native of the Alps. Cult. Common; and figured as a native in the last number of the *Supplement to English Botany*, 2799. Fl. yellowish red, spotted. July. Perennial. Bot. gal. 436.

4. *L. tigrinum*. (Curt.) *Tiger Lily*. Leaves scattered, sessile, 5-nerved; the upper ones cordato-ovate. Corolla revolute. Native of China. Cult. Common. Fl. reddish orange, with dark purple spots or papillæ. July. Perennial. Bot. mag. 1237.

* * *L. chalcedonicum*, the *Scarlet Martagon*, with reflexed bright scarlet flowers, and linear leaves up to the top of the stem, is also much cultivated.

Tribe II. ASPHODELEÆ. (D. C. bot. gal. p. 463.)

Seeds rounded or angular, with a black, brittle, crustaceous, testa.

IV. ERYTHRONIUM. (L. gen. n. 414., D. C. l. c.)

Perigone campanulate, very patent or reflexed, 6-partite; the segments petaloid; the 3 inner ones with 2 callosities at the base. *Style* 1, elongated. *Stigmas* 3. *Capsule* globose, narrower at the base. *Seeds* rounded.

1. *E. Dens canis*. (L. sp. 437.) *Dog's Tooth Violet*. Leaves broadly lanceolate, spotted. Segments of the perigone, oblongo-elliptical, very entire. Native of the south of Europe. Cult. Common in gardens. Fl. lilac. April, May. Perennial. Bot. mag. 5., Bot. gal. 463.

V. ASPHODELUS. (L. gen. n. 421., D. C. l. c.)

Perigone patent, 6-partite. Filaments of the *stamens* dilated at the base, curved in an arching manner, covering the ovary. *Capsule* globose; the cells 1-seeded.

1. *A. luteus*. (L. sp. 443.) *Yellow Asphodel*. Stem leafy; the leaves triquetrous, striated, linear subulate. Segments of the perigone sublinear. Native of Sicily. Cult. in gardens. Fl. yellow, spiked. June, July. Biennial. Bot. gal. p. 463.

* * *A. ramosus*, with whitish flowers, has the stem naked, and the leaves ensiform.

VI. PHALANGIUM. (Tour., D. C. bot. gal. 464.)

Perigone 6-partite, more or less spreading. Filaments of the *stamens* straight, slender; generally glabrous; sometimes bearded; inserted into the base of the segments. *Stigma* simple. *Capsule* 3-sulcate on the back; subtriangular, ovato-globose. *Seeds* triquetrous, in 2 rows. — Roots fasciculated.

1. *P. serotinum*. (Lamarck.) *Mountain Spiderwort*. Welsh mountains. Rare. Fl. white, with reddish stripes externally. June. Perennial. Bot. gal. 464. *Anthericum serotinum*. (L. sp. 444., E. B. 793., H. 162.)

VII. SCILLA. (L. gen. n. 419., D. C. bot. gal. p. 464.)

Perigone 6-partite; generally spreading and caducous. Filaments of the

stamens glabrous, slender; inserted into the base of the perigone. *Seeds* round. — Roots bulbous.

Segments of the flower spreading

floral bractees about as long as the pedicels - - 1. *S. VERNÆ*.

floral bractees none, or very short.

leaves linear, numerous - - - 2. *S. AUTUMNALIS*.

leaves lanceolate, generally 2 - - - 3. *S. BIFOLIA*.

Segments of the flower converging at the base into }
a tube. (See *Hyacinthus non scriptus*, below) - } *S. NUTANS*.

1. *S. verna*. (Huds.) *Vernal Squill*. West and north coast of England and Scotland. Fl. deep blue. April. Perennial. E. B. 23., H. 161. *S. umbellata*. (Bot. gal. 464.)

2. ! *S. autumnalis*. (L. sp. 443.) *Autumnal Squill*. Blackheath and Richmond. Common. Also on the south coast of England, at St. Helen's, Isle of Wight. Fl. pinkish purple. Sept. Perennial. E. B. 78., H. 161.

3. *S. bifolia*. (L. sp. 443.) *Two-leaved Squill*. ? West of England. Fl. pale blue. March, April. Perennial. E. B. 24., H. 161.

VIII. HYACINTHUS. (L. gen. n. 427., D. C. bot. gal. p. 466.)

Perigone tubular, 6-fid, or partite; the *segments* spreading. *Stamens* inserted about the middle of the perigone. *Capsule* obtuse, triangular. *Cells* many-seeded.

Flowers campanulate; segments deep, approxi- }
mated, linear - - - } 1. *H. NON SCRIPTUS*.

Flowers funnel-shaped, ventricose at the base; seg- }
ments shallow, obtuse - - - } 2. *H. ORIENTALIS*, clt.

1. ! *H. non scriptus*. (L. sp. 453.) *Blue Bell*; *Wild Hyacinth*. Woods, copses, and under hedges. Fl. blue. May. Perennial. H. 162. *Scilla nutans*. (Bot. gal. 465.)

2. *H. orientalis*. (L. sp. 454.) *Garden Hyacinth*. Leaves linear, obtuse; shorter than the scape. Raceme lax, erect, many-flowered. Bractees membranous, in pairs, lanceolate; shorter than the pedicels. Flowers funnel-shaped, ventricose at the base, scarcely 6-fid; the segments oblong, obtuse. Native of Asia. Cult. in gardens; the varieties are upwards of 2000. Fl. of various colours. April, May. Perennial. Bot. gal. 466.

IX. MUSCARI. (Tourn., D. C. bot. gal. p. 466.)

Perigone ovate, inflated in the middle; 6-dentate. *Capsule* triangular; the angles prominent. *Cells* 2-seeded.

1. ! *M. racemosum*. (Mill.) *Starch Grape Hyacinth*. Grassy fields, and among ruins. Scarcely native. Fl. dark blue. May. Perennial. H. 162. *Hyacinth. racem.* (L. sp. 455., E. B. 1931.)

* * A variety of this flower, with the stamens and pistil abortive, and the perigone much elongated, and even branching, is cultivated in gardens.

X. GAGEA. (Salisb., D. C. bot. gal. p. 466.)

Perigone caliciform, 6-partite, persistent; converging at the base, spreading above. *Stamens* 6; the *filaments* not dilated at the base. *Stigma* gaping. *Capsule* triangular. — Flowers in corymbs, yellow. Bractees foliaceous.

1. ! *G. lutea*. (Ker.) *Yellow Star of Bethlehem*. Woods and pastures; but not common. Godalming. Fl. yellow. March. Perennial. H. 160. *Ornith. luteum*. (L. sp. 440., E. B. 21.)

XI. ORNITHOGALUM. (L. gen. n. 418., D. C. bot. gal. p. 467.)

Perigone petaloid, 6-partite, marcescent; converging at the base, spreading above. *Stamens* 6; the 3 outer *filaments* dilated at the base. *Stigma* very small, capitate. *Ovary* obtuse, triangular. — Flowers racemose, white or greenish. Bractees membranous.

Flowers erect

racemes elongated, almost spiked - - - 1. *O. PYRENAICUM*.

racemes corymbose; peduncles very long - - - 2. *O. UMBELLATUM*.

Flowers pendulous, subunilateral - - - 3. *O. NUTANS*.

1. ! *O. pyrenaicum*. (L. sp. 440.) *Spiked Star of Bethlehem*. Pastures; Sus-

sex, Bedfordshire, and Somersetshire; but rare. Fl. greenish white. June, July. Perennial. E. B. 499., H. 160.

2. ! *O. umbellatum*. (L. sp. 441.) *Common Star of Bethlehem*. Meadows and pastures in various parts of England; naturalised. Fl. greenish with a white margin. April, May. Perennial. E. B. 130., H. 161.

3. ! *O. nutans*. (L. sp. 441.) *Drooping Star of Bethlehem*. Fields and orchards. Midland counties; escaped from gardens. Fl. white, externally green ribbed. April, May. Perennial. E. B. 1997., H. 161.

XII. ALLIUM. (L. gen. n. 409., D. C. bot. gal. p. 468.)

Perigone 6-partite; generally spreading. *Stigma* simple. *Capsule* triquetrous; cells deeply bipartite; the *filiform axis* remaining after the dehiscence of the valves. — Flowers umbellate, terminal; arising from a 1—3-valved spathe.

Leaves flat or grooved

alternate stamens tricuspidate

umbel bearing bulbs

underground bulb, surrounded by numerous } 3. *A. SATIVUM*, clt.
smaller bulbs; pistil and stamens exsert

underground bulb simple; pistil (and sta- } 4. *A. ARENARIUM*.
mens not exsert

umbels not bulbiferous

underground bulb simple - - - 1. *A. PORRUM*, clt.

underground bulb surrounded by a cluster } 2. *A. AMPELOPRASUM*.
of smaller bulbs

stamens all simple

stem leafy; leaves linear, keeled - - - 10. *A. CARINATUM*.

stem leafless; radical leaves ovato-lanceo- } 11. *A. URSINUM*.
late

Leaves cylindrical or subcylindrical

alternate stamens tricuspidate

umbel bearing bulbs - - - 6. *A. VINEALE*.

umbel not bulbiferous

stem leafy; leaves subulate; segments of } 5. *A. ASCALONICUM*, clt.
the perigone longer than the stamens

stem leafless; radical leaves terete, fistu- } 7. *A. CEPA*, clt.
lous; segments of the perigone shorter
than the stamens

stamens all simple

umbel bulbiferous; stem leafy - - - 8. *A. OLERACEUM*.

umbel not bulbiferous; stem leafless - - - 9. *A. SCHÆNOPRASUM*.

1. *A. Porrum*. (L. sp. 423.) *Leek*. Bulb coated. Stem terete. Leaves thickish, lanceolate, acute, subkeeled. Umbel capsuliferous, globose. Native of Switzerland. Cult. in kitchen-gardens. Fl. white or purple. July, Aug. Biennial. Bot. gal. 468.

2. *A. Ampeloprasum*. (L. sp. 423.) *Great round-headed Garlic*. Holmes Island, in the Severn. Rare. Fl. purplish white. Aug. Perennial. E. B. 1657., H. 159.

3. *A. sativum*. (L. sp. 425.) *Garlic*. Bulb surrounded by smaller ones. Leaves linear, entire. Umbel bulbiferous, globose. Spathe ovate, rounded. Segments of the perigone ovate, obtuse. Pistil and stamens exsert. ? Native of the south of Europe. Cult. in kitchen-gardens. Fl. whitish purple. Aug. Perennial. Bot. gal. 468.

4. *A. arenarium*. (L. sp. 426.) *Sand Garlic*. Mountainous woods and fields on sandy soil, in the north of England. Fl. purple. July. Perennial. E. B. 1358., H. 159.

5. *A. ascalonicum*. (L. sp. 429.) *Shalot*. Scape terete. Leaves subulate. Umbel capsuliferous, globose. Spathe 2-valved. Segments of the perigone linear, acute; longer than the pistil and stamens. Native of Asia. Cult. in kitchen-gardeus. Fl. July. Perennial. Bot. gal. 468.

6. ! *A. vineale*. (L. sp. 428.) *Crow Garlic*. Corn fields and waste places. Fl. reddish; the keels green. June. Perennial. E. B. 1974., H. 160.

7. *A. Cepa*. (L. sp. 431.) *Onion*. Stem fistulous, ventricose beneath; longer than the terete fistulous leaves. Umbel capsuliferous, globose. Segments of perigone linear, elliptic-obtuse; shorter than the stamens and pistil. Native country unknown. Cult. in kitchen-gardens. Fl. light purple. July. Biennial. Bot. gal. 469.

8. ! *A. oleraceum*. (L. sp. 429.) *Streaked Field Garlic*. Borders of fields; but not common. Fl. greenish. July. Perennial. E. B. 488., H. 160.

9. *A. Schænoprasmum*. (L. sp. 432.) *Chives*. Meadows and pastures; near the borders of England and Scotland. Rare. Fl. purplish. July. Perennial. E. B. 2441., H. 160.

10. *A. carinatum*. (L. sp. 426.) *Mountain Garlic*. Sandy ground, on the north east coast of England, and mountains of Scotland. Fl. pale brownish white. July. Perennial. E. B. 1658., H. 159.

11. ! *A. ursinum*. (L. sp. 431.) *Ramsons*. Moist woods and hedge banks. Common. Fl. white. June. Perennial. E. B. 122., H. 160.

. *Lachenalia tricolor*, distinguished by its pendent, tubular, three-coloured corolla, is much cultivated for the London market as a spring flower, but requires the heat of a frame in the winter.

Tribe III. HEMEROCALLIDEÆ. (D. C. bot. gal. p. 471.)

Perigone tubular, marcescent. Testa of the seeds neither black nor crustaceous; often spongy and dilated, or winged. *Albumen* fleshy.

XV. HEMEROCALLIS. (L. gen. n. 433., D. C. l. c.)

Perigone large, marcescent, gamophyllous; the segments united at the base into a tube. *Stigma* simple. *Stamens* declinate. *Capsule* triangular. *Seeds* round.

Flowers orange-coloured; the segments obtuse, undu-	} 1. H. FULVA, clt.
lated, with ramose nerves - - - - -	
Flowers lemon-coloured; the segments acute, flat, with	} 2. H. FLAVA, clt.
undivided nerves - - - - -	

1. *H. fulva*. (L. sp. 462.) *Orange Day Lily*. Native of the south of Europe. Cult. in gardens. Common. Fl. orange-coloured. July, Aug. Perennial. Bot. mag. 64., Bot. gal. 471.

2. *H. flava*. (L. sp. 462.) *Yellow Day Lily*. Native of the south of Siberia. Cult. in gardens. Common. Fl. yellow. June. Perennial. Bot. mag. 19., Bot. gal. 471.

Order CIII. COMMELINEÆ. (R. Brown, prod. 268.)

Perigone consisting of 6 tepals; the 3 outer herbaceous, the 3 inner coloured; sometimes united at the base. *Stamens* hypogynous, 6, or fewer, by abortion; some of them often deformed. *Ovary* 3-celled; the cells few-seeded. *Style* 1. *Stigma* 1. *Capsule* 2—3-celled; the valves septiferous in the middle. *Seeds* generally in pairs, attached to the inner angle of the cells by their whole length; and, hence, the hilum is linear. *Embryo* contracted in the middle, lying in a cavity of the densely fleshy albumen, remote from the hilum. — Herbs, with generally sheathing leaves.

I. TRADESCANTIA. (L. gen. n. 398.)

Inner tepals of the *perigone* petaloid. *Stamens* 6; the filaments rough with articulated hairs. *Capsule* 3-celled, few-seeded.

1. *T. virginica*. (L. sp. 411.) *Common purple Spiderwort*. Stem herbaceous, straight, smooth. Leaves folded, channeled. Flowers fascicled, umbellate. Native of Virginia. Cult. Very common. Fl. purple. July. Perennial. Bot. mag. 105.

. *Commelina cœlestis* having a number of bright blue flowers arising from a nearly horizontal spathe, with 3 or more of the stamens often abortive, the filaments of which are not hairy, is occasionally cultivated in gardens.

Order CIV. COLCHICACEÆ. (D. C. bot. gal. p. 473.)

Flowers generally hermaphrodite. *Perigone* coloured, 6-fid or 6-partite; the segments generally involute in æstivation. *Stamens* 6; adnate to the segments of the perigone. *Anthers* extrorse. *Ovaries* 3; sometimes scarcely adherent, sometimes more or less united, and thus constituting a single 3-celled ovary; the cells containing numerous seeds attached to the inner angle, and terminated by a long or short style. *Stigma* glandular. *Fruit* generally 3-valved and 3-celled; separating and dehiscing by their inner angle. *Seeds*

with a membranaceous testa. *Embryo* in a fleshy albumen. — Herbs, with the flowers either arising from under the surface of the ground, or arranged upon a tall leafy stem, in large panicles, or in spikes or racemes on a naked scape.

Perigone with a small 3-partite involucre - - 2. TOFIELDIA.
Perigone without an involucre - - 1. COLCHICUM.

I. COLCHICUM. (L. gen. n. 457., D. C. bot. gal. p. 473.)

Perigone long, tubular, arising from the bulb; the *limb* campanulate, 6-partite. *Stamens* inserted into the apex of the tube; the *anthers* oblong, versatile. *Ovary* 1. *Styles* 3, very long. *Stigmas* as many, hooked. *Capsules* 3-follicled; the *follicles* inflated, erect; united at the base, and many-seeded.

1. ! *C. autumnale*. (L. sp. 485.) *Meadow Saffron*. Meadows and pastures; principally in the north-west of England. Fl. lilac. Sept., Oct. Perennial. E. B. 1432., H. 174.

II. TOFIELDIA. (Huds. angl., D. C. bot. gal. p. 474.)

Perigone 6-partite; surrounded at its base by a small 3-partite involucre. *Stamens* glabrous. *Capsule* 3—6-celled; the *cells* united at the base, many-seeded. — Stem leafy below; the leaves linear.

1. *T. palustris*. (Huds.) *Scotch Asphodel*. Mountains of England, Scotland, and Ireland; in boggy places. Fl. yellowish white. July, Aug. Perennial. E. B. 536., H. 174. *Anthericum caliculatum*. (L. sp. 447.)

Order CV. JUNCEÆ. (D. C. bot. gal. p. 474.)

Flowers hermaphrodite. *Perigone* free, generally glumaceous, 6-partite; the *segments* arranged in a double row. *Stamens* 3 or 6, opposite to the segments of the perigone; the *filaments* subulate; the *anthers* 2-celled. *Ovary* 1. *Style* 1. *Stigmas* 3, filiform or 1, and 3-lobed. *Capsule* 3-valved, 1—3-celled; the *valves* septiferous in the middle, many-seeded; sometimes destitute of valves, and 1-seeded, by abortion. *Embryo* subcylindrical. *Albumen* fleshy. — Herbs, with sheathing leaves. Flowers generally paniced or corymbose, with glumaceous scariosc bracts.

Filaments of stamens lanuginous, persistent - - 1. ABAMA.
Filaments not lanuginous
capsule 3-celled, many-seeded; leaves terete or subterete 2. JUNCUS.
capsule 1-celled, 3-seeded; leaves flat - - 3. LUZULA.

I. ABAMA. (D. C. bot. gal. l. c.)

Perigone 6-partite. *Stamens* 6; the *filaments* lanuginous, persistent. *Ovary* pyramidal. *Style* short. *Capsule* 3-celled, 3-valved. *Seeds* numerous, ovate-oblong; with an appendage on each side.

1. ! *A. ossifraga*. (D. C. l. c.) *Lancashire Bog Asphodel*. Wet places on moors and mountains. Common. Fl. yellow. July, Aug. Perennial. *Narthecium ossifr.* (Huds., E. B. 584., H. 163.)

II. JUNCUS. (L. gen. n. 463., D. C. bot. gal. p. 475.)

Perigone 6-partite, glumaceous. *Stamens* 3—6. *Capsule* 3-celled, 3-valved; the *valves* septiferous in the middle. *Seeds* numerous, attached to the septum. — Leaves terete, glabrous.

Leaves none; the barren scapes somewhat resembling leaves

panicle lateral
stem filiform, weak and drooping - - 5. J. FILIFORMIS.
stem erect, thicker, and of more consistence
panicle dense
panicle many-flowered; stamens 3 - - 3. J. CONGLOMERATUS.
panicle few-flowered; stamens 6 - - 4. J. BALTICUS.
panicle loose
scape deeply striated, glaucous - - 1. J. GLAUCUS.
scape very faintly striated, not glaucous 2. J. EFFUSUS.
panicle terminal; the bract which rises above the panicle being broad and membranous at the base

- panicle compact; capsule twice the length of the calyx } 7. *J. ACUTUS*.
 panicle subdiffuse; capsule the length of the calyx } 6. *J. MARITIMUS*.
- Herb leafy
 leaves all radical; the stem only leafy at the base
 stem many-flowered
 leaves cylindrical: see 42
 leaves somewhat flattish or grooved above
 flowers subsolitary, in 2 or 3 lateral panicles; leaves rigid; bracts lanceolate, shorter than the flowers } 17. *J. SQUARROSUS*.
 flowers in sessile capitules; leaves soft; bracts setaceous, longer than the flowers } 18. *J. CAPITATUS*.
- stem few-flowered
 stem generally 3-flowered
 bracts much longer than the capitules - 13. *J. TRIFIDUS*.
 bracts shorter than the capitules - 20. *J. TRIGLUMIS*.
 stem 2-flowered; 1 bractea longer than the capitule } 19. *J. BIGLUMIS*.
- stem leafy
 leaves rounded or subcompressed, distinctly jointed internally
 segments of the perigone obtuse - 10. *J. OBTUSIFLORUS*.
 segments of the perigone acute
 capsule obtuse; stem often bulbous at the base; panicle nearly simple } 11. *J. ULIGINOSUS*.
 capsule acute; stem not bulbous; panicle generally compound
 capsule shining black, much longer than the inner segments of the perigone } 9. *J. LAMPOCARPUS*.
 capsule pale brown, about as long as the perigone } 8. *J. ACUTIFLORUS*.
- leaves flat or grooved above, not distinctly jointed
 flowers in a loose panicle
 panicle compound, subcymose - 14. *J. COMPRESSUS*.
 panicle subsimple, dichotomous
 capsules nearly spherical; segments of the perigone 3-ribbed } 15. *J. TENUIS*.
 capsules elliptical-ovate; segments membranaceous, 2-ribbed } 16. *J. BUFONIUS*.
- flowers in a sessile or subsessile capitule
 bracts 3, setaceous, much longer than the 1—3-flowered capitule; capsule not angular } 13. *J. TRIFIDUS*.
 bract 1, dilated at the base, scarcely longer than the capitules; capsule triangular } 12. *J. CASTANEUS*.
1. ! *J. glaucus*. (Sibth.) *Hard Rush*. Wet pastures and road sides. Common. Fl. July. Perennial. E. B. 665., H. 163.
 2. ! *J. effusus*. (L. sp. 464.) *Soft Rush*. Marshy ground. Common. Fl. July. Perennial. E. B. 836., H. 164.
 3. ! *J. conglomeratus*. (L. sp. 464.) *Common Rush*. Marshy ground. Common. Fl. July. Perennial. E. B. 835., H. 164.
 4. *J. balticus*. (Willd.) *Baltic Rush*. Sands of Barrie, near Dundee. Fl. July. Perennial. E. B. 2621., H. 164.
 5. *J. filiformis*. (L. sp. 465.) *Thread Rush*. Stony margins of the Cumberland lakes. July, Aug. Perennial. E. B. 1175., H. 164.
 6. ! *J. maritimus*. (Smith.) *Lesser sharp Sea Rush*. Salt marshes; Gravesend, &c. Fl. Aug. Perennial. E. B. 1725., H. 165. *J. acutus* β. (L. sp. 463.)
 7. ! *J. acutus*. (L. sp. 463.) *Great sharp Sea Rush*. Sandy sea shores of the south of England. Fl. July. Perennial. E. B. 1614., H. 165.
 8. ! *J. acutiflorus*. (Ehr.) *Sharp-flowered jointed Rush*. Bogs. Common. Fl. June, Aug. Perennial. E. B. 238., H. 165.
 9. ! *J. lampocarpus*. (Ehr.) *Shining-fruited jointed Rush*. Watery places. Common. Fl. July, Aug. Perennial. E. B. 2143., H. 165.

- β. nigritellus*. Panicles less branched. Clusters of more numerous flowers. *J. nigritellus*. (E. B. 2643., Lind. 276.)
10. ! *J. obtusiflorus*. (Ehr.) *Blunt-flowered jointed Rush*. Wet pastures. Common. Fl. Aug. Perennial. E. B. 2144., H. 166.
11. ! *J. uliginosus*. (Sibth.) *Lesser Bog jointed Rush*. Moist places, or floating in shallow water. Fl. Aug. Perennial. E. B. 801., H. 166. *J. bulbosus*. (L. sp. 466.) *J. subverticillatus* (Lind. 275.)
12. *J. castaneus*. (Smith.) *Clustered Alpine Rush*. Breadalbane Mountains. Fl. July. Perennial. E. B. 900., H. 166.
13. *J. trifidus*. (L. sp. 465.) *Three-leaved Rush*. Rocky places on the Highland mountains. Fl. July, Aug. Perennial. E. B. 1482., H. 167.
14. ! *J. compressus*. (Jacq.) *Round-fruited Rush*. Marshy places. Common. Fl. Aug. Perennial. E. B. 934., H. 167.
- β. ! cænosus*. Panicle nearly simple, few-flowered, longer than the bracts. *J. cænosus*. (E. B. 2680., Lind. 274.)
15. *J. tenuis*. (Willd.) *Slender spreading Rush*. Clova mountains. Fl. July. Perennial. H. 167. *J. gracilis*. (E. B. 2174.) *J. Gesneri*. (Lind. 274.)
16. ! *J. bufonius*. (L. sp. 466.) *Toad Rush*. Moist places. Common. Fl. Aug. Annual. E. B. 802., H. 168.
17. ! *J. squarrosus*. (L. sp. 465.) *Heath Rush*. Moory and heathy ground. Common. Fl. June, July. Perennial. E. B. 933., H. 168.
18. *J. capitatus*. (Willd.) *Capitate Rush*. Isle of Jersey. Fl. July. Annual. E. B. 2644., H. 168.
19. *J. biglumis*. (L. sp. 467.) *Two-flowered Rush*. Highland mountains; Breadalbane range. July, Aug. Perennial. E. B. 898., H. 168.
20. *J. triglumis*. (L. sp. 467.) *Three-flowered Rush*. Mountains of England, Wales, and Scotland. July, Aug. Perennial. E. B. 899., H. 168.

III. LUZULA. (D. C. bot. gal. p. 478.)

Perigone 6-partite, glumaceous. *Stamens* 6. *Capsule* 1-celled, 3-seeded, 3-valved; the *valves* without a septa. — Leaves flat, generally hairy.

Flowers in a loose corymb

pedicels 1-flowered

pedicels bent back; segments of the perigone rather shorter than the obtuse capsule } 2. L. PILOSA.

pedicels erect; segments of the perigone rather longer than the acute capsule } 4. L. FORSTERI.

pedicels about 3-flowered } 1. L. SYLVATICA.

Flowers in capitules, which are umbellate or spiked

capitules 3—5, subumbellate; leaves hairy

peduncles long, much arched; capsules elliptical; leaves channeled } 5. L. ARCUATA.

peduncles short, suberect; capsules obovate; leaves flat } 4. L. CAMPESTRIS.

capitules in a spike; leaves with hairs only on the margins of the sheaths } 6. L. SPICATA.

1. ! *L. sylvatica*. (Rich.) *Great Hairy Wood Rush*. Woods. Common. Fl. May, June. Perennial. H. 169. *L. maxima*. (Bot. gal. 479.) *J. sylvaticus*. (E. B. 737.) *J. pilosus* δ. (L. sp. 463.)

2. ! *L. pilosa*. (Willd.) *Broad-leaved hairy Wood Rush*. Woods. Common. April, May. Perennial. H. 169. *L. vernalis*. (Bot. gal. 478.) *J. pilosus*. (L. sp. 468., E. B. 736.)

3. ! *L. Forsteri*. (D. C.) *Narrow-leaved hairy Wood Rush*. Groves and thickets; Essex and Surrey. Fl. May, June. Perennial. H. 169. *J. Forsteri*. (E. B. 1293.)

4. ! *L. campestris*. (D. C.) *Field Wood Rush*. Dry pastures and woods. Common. Fl. April, May. Perennial. H. 170. *J. campestris*. (L. sp. 468., E. B. 672.)

β. ! congesta. (D. C.) Flowers capitate. Capitules collected into an orbicular sessile head. *L. congesta*. (E. B. 2718., Lind. 276.)

5. *L. arcuata*. (Hook.) *Curved Mountain Wood Rush*. Barren stony summits of the great Cairngorum range of mountains. Fl. July. Perennial. E. B. 2688., H. 170.

6. *L. spicata*. (D. C.) *Spiked Mountain Wood Rush*. High mountains in England and Scotland. Fl. July. Perennial. E. B. 1176., H. 170.

Order CVI. AROIDEÆ. (Juss., D. C. bot. gal. p. 480.)

Flowers monœcious, sessile; arranged upon a simple spadix, which is generally surrounded by a monophyllous spathe, or by a few scales; sometimes naked. *Perigone* none. — Male flower. *Stamens* definite or indefinite. *Anthers* 1—2-celled. — Female flower. *Ovaries* either mixed with the stamens, or separate; 1-celled, rarely 3-celled, many-seeded. *Styles* and *stigmas* as many. *Fruit* baccate, round, or rarely capsular, 1-seeded by abortion. *Embryo* straight, in the middle of a fleshy or farinaceous albumen. *Radicle* inferior. — Herbs, with or without a stem; the leaves alternate or radical, sheathing at the base; sometimes pedate or cordate.

Flowers furnished with a spathe; scales wanting; fruit baccate

spadix naked at the apex	-	-	-	1. ARUM.
spadix entirely covered with stamens and ovaries	-	-	-	2. CALLA, clt.
Flowers with scales in the form of a perigone; spathe	-	-	-	} 3. ACORUS.
wanting; fruit dry	-	-	-	

I. ARUM. (L. gen. n. 1028., D. C. bot. gal. 480.)

Spadix enclosed in a spathe, naked at the apex. *Anthers* in many rows, about the middle of the spadix; the *ovaries* inserted into the base. *Berry* 1-celled, many-seeded.

1. ! *A. maculatum*. (L. sp. 1370.) *Cuckoo-pint*, or *Wake-robin*. Hedge banks and groves. Common. Fl. spadix purplish. April, May. Perennial. E. B. 1298., H. 410.

II. CALLA. (L. gen. n. 1030., D. C. bot. gal. p. 481.)

Spadix surrounded by a spathe, entirely covered with the stamens and ovaries. *Berry* many-celled, many-seeded.

1. *C. æthiopica*. (L. sp. 1373.) *Ethiopian Arum*. Leaves sagittate, cordate. Spathe twisted; narrow at the base, expanded above. Spadix male above, with the ovaries at the base. Native of Ethiopia. Cult. Very common. Fl. large: the spathe white; the spadix yellow. June. Perennial. *Richardia æthiopica*. (Kunth.)

III. ACORUS. (L. gen. n. 434., D. C. bot. gal. p. 481.)

Spathe none. *Perigone* persistent, globose, 6-partite. *Stamens* 6, opposite to the segments of the perigone. *Ovary* globose, 3-celled, many-seeded. *Stigma* sessile. *Capsule* attached by a stalk to the perigone.

1. ! *A. Calamus*. (L. sp. 462.) *Sweet Sedge*, or *Flag*. Watery places and banks of rivers. Not common. Croydon Canal; Wimbledon Common. Fl. June. Perennial. E. B. 356., H. 163.

Order CVII. TYPHACEÆ. (Juss., D. C. bot. gal. p. 482.)

Flowers monœcious, aggregated in unisexual catkins, on a naked spadix. *Perigone* 3-leaved, or obsolete. — Male flower. *Stamens* 3—6; the *filaments* long; the *anthers* wedge-shaped. — Female flower. *Ovary* 1, free, 1-seeded. *Ovule* pendulous. *Style* 1. *Stigmas* 1—2. *Fruit* 1-seeded. *Embryo* straight, in the middle of a fleshy or farinaceous albumen. *Radicle* inferior. — Aquatic herbs, without joints. Leaves alternate, ensiform, somewhat sheathing.

Catkins cylindrical	-	-	-	-	1. TYPHA.
Catkins globose	-	-	-	-	2. SPARGANIUM.

I. TYPHA. (L. gen. n. 1040., D. C. l. c.)

Catkins cylindrical. — Male flower. *Perigone* 3-leaved, obsolete. *Stamens* 3, united beneath into a single filament. — Female flower. *Perigone* none. *Fruit* pedicellated; the *pedicels* surrounded at the base by long pappus-like hairs (sepals of Lind.).

Fertile catkins cylindrical; receptacle hairy or chaffy

catkins continuous; leaves flat	-	-	-	1. T. LATIFOLIA.
catkins separated; leaves channeled	-	-	-	2. T. ANGUSTIFOLIA.
Fertile catkins short and turgid; receptacle naked	-	-	-	3. T. MINOR.

1. ! *T. latifolia*. (L. sp. 1377.) *Great Bulrush*. Borders of ponds and lakes. Fl. sterile, yellow; fertile, greenish brown. July, Aug. Perennial. E. B. 1455., H. 391.

2. ! *T. angustifolia*. (L. sp. 1377.) *Lesser Bulrush*. Pools and ditches. Frequent. Fl. as above. July. Perennial. E. B. 1456., H. 391.

3. ! *T. minor*. (Smith.) *Dwarf Bulrush*. Hounslow Heath. Doubtful native. Fl. as above. July. Perennial. E. B. 1457., H. 391.

II. SPARGANIUM. (L. gen. n. 1041., D. C. l. c.)

Catkins globose. *Perigone* 3-leaved. *Fruit* sessile, turbinate, without bristles at the base.

Stem erect

stem simple; leaves flat - - - - 1. *S. SIMPLEX*.

stem branched; leaves concave - - - - 2. *S. RAMOSUM*.

Stem floating - - - - 3. *S. NATANS*.

1. ! *S. simplex*. (Huds.) *Unbranched upright Bur Reed*. Ditches and stagnant waters. Common. On gravelly soil. Fl. pale yellow. July. Perennial. E. B. 745., H. 392.

2. ! *S. ramosum*. (Huds.) *Branched Bur Reed*. Ditches and stagnant water. Common. Fl. pale yellow. July. Perennial. E. B. 744., H. 392. *S. erectum*, (L. sp. 1378.)

3. *S. natans*. (L. sp. 1378.) *Floating Bur Reed*. Lakes and stagnant waters in the north of England and Scotland. Fl. pale yellow. July. Perennial. E. B. 273., H. 392.

Order CVIII. RESTIACEÆ. (R. Brown, Lind. syn. p. 272.)

Perigone free, 2—6-partite. *Stamens* definite, 1—6. *Ovary* 1- or more celled. *Cells* 1-ovuled; *ovules* pendulous. *Fruit* capsular or nut-like. *Seeds* inverted. *Embryo* lenticular; outside the albumen, and distant from the hilum. — Herbaceous plants, or under shrubs. Leaves simple, narrow or none. Flowers generally in capitules, or spikes.

I. ERIOCAULON. (L. gen. n. 100., Lind. l. c.)

Capitule androgynous. *Scales* 1-flowered; the outer ones generally empty, and forming an involucre. Male flowers in the disk; the *perigone* in 2 rows, 4—6-fid; the inner *segments* united nearly to the summit. *Stamens* 4—6. — Female flowers in the ray; the *perigone* deeply 4-partite. *Style* 1. *Stigmas* 2—3. *Capsule* 2—3-lobed, 2—3-celled; the *cells* 1-seeded.

1. *E. septangulare*. (With.) *Pipewort*. Lakes in the Isle of Skye and Cunnamara. Fl. purplish externally, white within. Aug. Perennial. E. B. 733., H. 408.

Order CIX. CYPERACEÆ. (Juss., D. C. bot. gal. p. 483.)

Flowers glumaceous, spiked, hermaphrodite or unisexual. *Scales* (*glumes*, D. C.) 1-valved, imbricated; very rarely enclosing other scales (*glumes*, Lind.). *Perigone* none, or reduced to a few hairs (hypogynous setæ), or more or less united scales. *Stamens* hypogynous, generally 3, rarely more or less numerous. *Filaments* capillary. *Anthers* innate, acuminate at the apex, cordate at the base, 2-celled. *Ovary* free, often surrounded at the base by bristles. *Style* (Lind.; *stigma*, D. C.) generally bifid or trifid. *Fruit* (*nut*, *achene*, or *cariopsis*) generally triangular or compressed; crustaceous, 1-seeded, indehiscent. *Albumen* farinaceous. *Embryo* very small, lenticular, at the base of the albumen. — Perennial herbs, resembling grasses; but the stems are generally without knots. Leaves with their sheaths entire.

Flowers hermaphrodite

fruit surrounded at the base with persistent hairs or down

hairs or down much longer than the scales - - 5. *ERIOPHORUM*.

hairs shorter than the scales

lower scales of the spikelets with stamens and pistil

style persistent - - - - 8. *ELIOCHARIS*.

- style deciduous - - - 6. SCIRPUS.
 lower scales without stamens or pistil - - -
 style persistent - - - 9. RHYNCHOSPORA.
 style deciduous - - - 4. BLYSMUS.
 fruit, while young, surrounded by short deciduous hairs } 7. SCIRPIDIUM.
 fruit not surrounded at the base by hairs
 scales of the spikelets imbricated in 2 or 3 rows
 lower scales with stamens and pistils - - 1. CYPERUS.
 lower scales empty - - - 10. SCHÆNUS.
 scales of the spikelets imbricated on all sides, or in many rows
 lower scales with stamens and pistil
 style trifid, deciduous; fruit 3-cornered, plano-convex; spikelets 2 or more, apparently lateral } 2. ISOLEPIS.
 style bifid, the base persistent; fruit compressed; spike terminal, solitary - } 3. ELEOGITON.
 lower scales empty - - - 11. CLADIUM.
 Flowers monœcious or diœcious
 fruit composed of a nut, surrounded by a membranous sack } 13. CAREX.
 fruit not surrounded by a membranous covering - 12. KOBRESIA.

Tribe I. CYPEREÆ. (Nees von Esenb. in Linnæa, ix. p. 282.)

Hermaphrodite. *Spikelets* imbricated in 2 rows, 1- or many-flowered, generally naked; rarely aggregated in a spike, imbricated on all sides. *Scales* all floriferous. *Perigone* none, or, if any, setaceous, or cup-shaped; the inner *scales* adnate to the partial rachis, or wanting. *Cariopsis* with a distinct style, not beaked (or, rarely, with a beak-like point).

I. CYPERUS. (L. gen. n. 66., Nees, p. 283.)

Flowers hermaphrodite. *Spikelets* compressed at the sides, many-flowered; generally arranged in compound irregular umbels; or fasciculated, having an involucre of foliaceous *bracteas* at the base. *Scales* imbricated in 2 rows, subequal; all floriferous; the lower deciduous with the rest. *Perigone* (*hypogynous setæ*) none; but in its place there are 2 persistent scales, longitudinally adnate to the partial rachis, embracing the germen. *Style* trifid; the *branches* filiform, deciduous, glabrous. *Cariopsis* triangular.

Plant 2—3 feet high; spikelets in doubly compound umbels, supported on long pedicels - } 1. C. LONGUS.

Plant only a few inches high; spikelets in a compound umbel, and with short pedicels - } 2. C. FUSCUS.

1. ! *C. longus*. (L. sp. 67.) *English Galingale*; *Sweet Cyperus*. Sea Brooke, Kent; Boyton, Wilts; Somersetshire and Guernsey. In Marshes. Rare. Fl. light brownish. July. Perennial. E. B. 1039., H. 26., Bot. gal. 483.

2. ! *C. fuscus* (L. sp. 69.) *Dark Cyperus*. Little Chelsea. Very rare. Fl. almost black. Sept. Annual. E. B. 2626., H. 26., Bot. gal. 483.

Tribe II. SCIRPEÆ. (Nees in Linnæa, ix. p. 289.)

Hermaphrodite. *Spikelets* imbricated on all sides. Inner scales of the *perigone* either wanting or separate, narrow, setiform, or filiform, surrounding the floret; or sometimes there is a short cup-like membranous perigone.

Sect. I. *Perigone* none.

II. ISOLEPIS. (R. Brown prod. i. p. 221., Nees, p. 290.)

Flowers hermaphrodite. *Spikelets* many-flowered, fascicled, sublateral, supported by 2 bracteas; the upper much longer, and forming a continuation of the stem; the lower one deciduous. *Scales* imbricated on all sides, subequal, all floriferous. *Perigone* (*hypogynous setæ*) none. *Style* trifid, pubescent within, subequal at the base, deciduous. *Cariopsis* triangular or plano-convex.

Spikelets 4—5, quite globular; 1—2 sessile, the rest on pedicels of different lengths - } 1. I. HOLOSCHÆNUS.

- Spikelets 2—3, oval, sessile
 stem compressed; fruit obovate, ribbed, marked } 2. I. SETACEA.
 with transverse lines - - - - - }
 stem terete; fruit subglobose, rough with slightly } 3. I. SAVIANA.
 elevated points - - - - - }

1. *I. Holoschænus*. (Schrad.) *Round cluster-headed Club Rush*. Sandy sea-shores, in the extreme southern and western parts of England. Fl. Sept. Perennial. *Scirpus Holoschænus*. (L. sp. 72., E. B. 1612., H. 28.)

2. ! *I. setacea*. (R. Br. i. p. 221.) *Bristle-stalked Club Rush*. Moist gravelly places. Common. Fl. July, Aug. Perennial. *Scirpus setaceus*. (L. sp. 73., E. B. 1693., H. 28.)

3. *I. Saviana*. (Seb. and Maur.) *Savi's Club Rush*. Devonshire, Anglesea, and Ireland. Fl. July. Perennial. Nees, 291. *Scirpus Savii*. (E. B. 2782., H. 28.)

III. ELEOGITON. (Link., Nees, p. 291.)

Flowers hermaphrodite. *Spikelets* terminal, solitary, naked, small, and few-flowered. *Scales* gradually diminishing in size, imbricated in 4 rows; all floriferous. *Perigone* (*hypogynous setæ*) none. *Style* bifid, pubescent, continuous at the base with the fruit, leaving a small mucro after its fall. *Cariopsis* compressed or biconvex, glabrous, pedicellated.

1. ! *E. fluitans*. (Link.) *Floating Spike Rush*. Pools of water which are dried up in summer. Common. Fl. June, July. Perennial. *Scirp. fluit.* (L. sp. 71., E. B. 216.) *Eleocharis fluit.* (H. 31.)

Sect. II. *Perigone filiform, setaceous, or capillary.*

IV. BLYSMUS. (Panz., Link., Nees, p. 293.)

Flowers hermaphrodite. *Spike* compound, 2-rowed; the *spikelets* supported by a membranous bractea. *Scales* imbricated in 4 rows; the upper the smallest; all fertile. *Perigone* of 6 soft, persistent, dentate bristles. *Style* filiform, bifid, pubescent. *Cariopsis* obcompressed, biconvex, or obsoletely triangular.

Lowermost bractea subulate, subfoliose; leaves linear, } 1. B. COMPRESSUS.
 flat - - - - - }

Bractea all membranous; leaves very narrow, grooved } 2. B. RUFUS.

1. ! *B. compressus*. (Panz.) *Broad-leaved Blysmus*. Boggy pastures, and wet places near the sea; and at Beddington, near Croydon. Fl. July. Perennial. H. 29., Nees, 293. *Schœnus compress.* (L. sp. 65., E. B. 791.)

2. *B. rufus*. (Link.) *Narrow-leaved Blysmus*. Marshy plains near the sea; Wales; and west of England and Scotland. Fl. July. Perennial. H. 29., Nees, 293. *Schœn. ruf.* (E. B. 1010.)

V. ERIOPHORUM. (L. gen. n. 68., Nees, l. c.)

Flowers hermaphrodite. *Spikelets* many-flowered; either solitary and terminal, or many in a fascicle, with an involucre of foliaceous bractea at its base. *Scales* imbricated on all sides, subequal; the lower sometimes sterile. *Perigone* (*hypogynous setæ*) composed of numerous persistent capillary hairs; which become elongated after flowering, and are collected into bundles at the base, forming a coma. *Style* trifid, pubescent.

Spike solitary

stem triangular above

leaves shorter than the sheaths; spike ob- } 1. E. ALPINUM.
 long-ovate - - - - - }

leaves much longer than the sheaths; spike } 2. E. VAGINATUM.
 ovate - - - - - }

stem rounded, spike almost globose - 3. E. CAPITATUM.

Spikes many

leaves flat, with a triangular point

stem round; pedicels smooth - 4. E. POLYSTACHION.

stem angular above; pedicels downy - 5. E. PUBESCENS.

leaves triangular, channeled towards the base

down (*setæ*) 4 times the length of the spike; } 6. E. ANGUSTIFOLIUM.
 spikes pedicellated - - - - - }

down twice the length of the spike; spikes } 7. E. GRACILE.
 subsessile - - - - - }

1. *E. alpinum*. (L. sp. 77.) *Alpine Cotton Grass*. Scotland; but very rare. Fl. June. Perennial. E. B. 311., H. 31., Nees, 293.
2. ! *E. vaginatum*. (L. sp. 76.) *Hare's-tail Cotton Grass*. Barren moors and bogs, in mountainous countries. Fl. May. Perennial. E. B. 873., H. 31., Nees, 293.
3. *E. capitatum*. (Host.) *Round-headed Cotton Grass*. Near the summit of Ben Lawers. Fl. Aug. Perennial. E. B. 2387., H. 31., Nees, 293.
4. ! *E. polystachion*. (L. sp. 76.) *Broad-leaved Cotton Grass*. Bogs. Common. Fl. April, June. Perennial. E. B. 563., H. 32., Nees, 293.
5. *E. pubescens*. (Smith.) *Downy-stalked Cotton Grass*. Bogs in Cambridgeshire; South Kent; Anglesea, and Scotland. Fl. April, June. Perennial. E. B. 2663., H. 32.
6. ! *E. angustifolium*. (Schrud.) *Common Cotton Grass*. Bogs and water meadows. Common. Fl. April. Perennial. E. B. 564., H. 32., Nees, 293.
7. *E. gracile*. (Roth.) *Slender Mountain Cotton Grass*. On the mountains of Wales and Scotland. Fl. July. Perennial. E. B. 2402., H. 32.

VI. SCIRPUS. (L. gen. n. 67., Nees, p. 293.)

Flowers hermaphrodite, spiked, or subcymose; supported by a solitary bractea, or, by many, in the form of an involucre. *Scales* imbricated in many rows, subequal; all floriferous. *Perigone* (*hypogynous setæ*) of 6 rigid persistent bristles. *Filaments* of the *stamens* as broad as the anthers. *Styles* 2—3-fid; equal, deciduous. *Cariopsis* subligneous, plano-convex, surrounded by the persistent perigone, or setæ, and stamens; tipped with the base of the indurated style; papillate.

- | | | | | | | |
|---|---|---|---|---|---|---------------------|
| Stem round | - | - | - | - | - | 1. S. LACUSTRIS. |
| Stem triangular above | | | | | | |
| stem rather rounded below the sheaths; leafless | - | | | | | 3. S. CARINATUS. |
| stem leafy | | | | | | |
| spikelets in a terminal, many times compound, | | | | | | } 5. S. SYLVATICUS. |
| cyme; the pedicels divaricated | - | | | | | |
| spikelets clustered, stalked, and sessile | | | | | | |
| spikes apparently lateral; the upper leaflet of the | | | | | | } 2. S. TRIQUETER |
| involucre being the continuation of the stem; | | | | | | |
| lower leaf of the involucre very small | - | | | | | |
| spikes decidedly terminal, with large involucre | | | | | | } 4. S. MARITIMUS. |
| leaves | - | | | | | |

1. ! *S. lacustris*. (L. sp. 72.) *Bull-rush*. Margins of lakes and ponds. Common. Fl. with brown fringed glumes. July, Aug. Perennial. E. B. 62., H. 27., Nees, 293.

β. ! *S. glaucus*. (Hook.) Smaller and glaucous; bractea foliaceous, as long as the spikelets. In salt marshes. *S. glaucus*. (Sm. E. B. 2321., Lind. 281.)

2. ! *S. triquetus*. (L. mant. 29.) *Triangular Club Rush*. Muddy river banks. Fl. with light brown scales. Aug. Perennial. E. B. 1694., H. 28., Nees, 293.

3. ! *S. carinatus*. (Sm.) *Blunt-edged Club Rush*. Muddy banks. Rare. Fl. July, Aug. Perennial. E. B. 1983., H. 28.

4. ! *S. maritimus*. (L. sp. 74.) *Salt marsh Club Rush*. Salt marshes. Common. Fl. July, Aug. Perennial. E. B. 542., H. 29., Nees, 293.

5. ! *S. sylvaticus*. (L. sp. 75.) *Wood Club Rush*. Moist woods and banks; especially in South Kent; also near Windsor and Box Hill. Fl. with the scales greenish. July. Perennial. E. B. 919., H. 29., Nees, 293.

VII. SCIRPIDIUM. (Nees, p. 293.)

Flowers hermaphrodite, in small, solitary, naked, terminal spikes. *Scales* imbricated in many rows, subequal; all floriferous. *Perigone* (*hypogynous setæ*) of few, short, rigid, deciduous setæ. *Style* trifid, bulbous at the base, persistent. *Cariopsis* biconvex, smooth.

1. ! *S. aciculare*. (Nees, l. c.) *Least Spike Rush*. Wet sandy places. Common. Fl. July, Aug. Perennial. *Scirpus acicularis*. (L. sp. 71.) *Eleocharis acicularis*. (H. 31.)

VIII. ELEOCHARIS. (R. Brown prod. i. p. 224., Nees, p. 294.)

Flowers hermaphrodite, in a terminal solitary spike, which is naked or subtended by a few scaly bractea at the base. *Scales* imbricated in many rows, subequal; all floriferous. *Perigone* (*hypogynous setæ*) of rough persistent

setæ. *Style* bifid or trifid, generally with a rugose, suberose, persistent bulb at the base. *Cariopsis* obovate, biconvex.

- Root creeping to a great length; stigmas 2; setæ 4 - 1. *E. PALUSTRIS*.
 Root scarcely, if at all, creeping; stigmas 3; setæ 6
 outer scales smaller than the rest - - - 2. *E. MULTICAULIS*.
 outer scales the largest
 outer scales longer than the spike; upper part of }
 the style deciduous - - - } 3. *E. CÆSPITOSA*.
 outer scales shorter than the spike; style withered, }
 scarcely deciduous - - - } 4. *E. PAUCIFLORA*.

1. ! *E. palustris*. (R. Brown.) *Creeping Spike Rush*. Marshy places. Very common. Fl. with dark brown scales. June, July. Perennial. H. 29., Nees, 294. *Scirpus palustris*. (L. sp. 70., E. B. 131.)

2. ! *E. multicaulis*. (Sm.) *Many-stalked Spike Rush*. Marshy places. Not uncommon. Fl. with the scales greenish; the margin light brown. July. Perennial. H. 30., Nees, 294. *Scirp. multic.* (E. B. 1187.)

3. ! *E. cæspitosa*. (Link.) *Scaly-stalked Spike Rush*. Moors and moist heaths. Common. Fl. with light brown, almost yellow, scales. June, July. Perennial. H. 30., Nees, 294. *Scirpus cæspit.* (E. B. 1029.)

4. *E. pauciflora*. (Link.) *Chocolate-headed Spike Rush*. Moors, in mountainous countries; also near Yarmouth, Norfolk. Fl. with chocolate-coloured scales. July, Aug. Perennial. H. 30. *E. Bæothryon*. (? Nees, 294.) *Scirpus pauciflorus*. (E. B. 1122.) *S. Bæothryon*. (Ehrh., ? L. suppl. 103.)

Tribe III. RHYNCHOSPORA. (Nees von Esenb. in Linnæa, ix. p. 294.)

Hermaphrodite, or the sexes in separate florets in the same spikelets; the *spikelets* in 2 rows; 1- or few-flowered (rarely many-flowered); with the lower *scales* smaller and sterile. *Perigone* generally bristly or cup-shaped, permanent (rarely wanting). *Cariopsis* beaked, regularly sculptured; the *beak* generally distinct.

IX. RHYNCHOSPORA. (Vahl, Nees, p. 297.)

Flowers hermaphrodite, or rarely polygamous, spiked; the *spikelets* 2- or few-flowered, compressed, fasciculated, terminal, or axillary; subtended by foliaceous bracteas. *Scales* as in tribe. *Perigone* (*hypogynous disk*) of 6 (rarely more) rigid denticulate bristles. *Cariopsis* subcompressed, biconvex; beaked by the dilated base of the distinct style.

Spikelets whitish, as long as the outer bracteas - - - 1. *R. ALBA*.

Spikelets rich brown, much shorter than the outer bracteas - 2. *R. FUSCA*.

1. ! *R. alba*. (Vahl.) *White Beak Rush*. Turfy bogs. Fl. with the scales white. June, Aug. Perennial. H. 27., Nees, 297. *Schœnus albus*. (L. sp. 65., E. B. 985.)

2. *R. fusca*. (Sm.) *Brown Beak Rush*. Bogs in south and south-west of England. Fl. with the scales of a rich brown. July, Aug. Perennial. H. 27., Nees, 297. *Schœn. fuscus*. (L. sp. 1664., E. B. 1575.)

Tribe IV. CLADIÆ. (Nees von Esenb. in Linnæa, ix. p. 297.)

Hermaphrodite. *Spikelets* imbricated in 2—3—4 rows, 1- or few-flowered; lower *scales* sterile. *Perigone* bristly, or cup-shaped, or wanting. *Cariopsis* nut-like, smooth, or irregularly rugose; with or without a continuous beak.

X. SCHŒNUS. (L. gen. n. 65., Nees, p. 298.)

Spikelets fasciculated into a terminal capitule, with 2 sheathing *bracteas* at the base. *Scales* in 2—3 rows; the lower ones sterile. *Perigone* (*hypogynous setæ*) none (composed of spiny bristles, Hook.). *Style* trifid. *Nut* whitish, terminated by the base of the persistent style, or sometimes pointless.

1. ! *S. nigricans*. (L. sp. 64.) *Black Bog Rush*. Wet moors and bogs. Common. Fl. with blackish scales. Fl. June, July. Perennial. E. B. 1121., H. 27., Nees, 298.

XI. CLADIUM. (R. Brown prod., Nees, l. c.)

Spikelets small, 1- rarely 2-flowered; fasciculated and arranged in subcymose,

many-flowered, lateral or terminal panicles. *Bracteas* numerous, distant, foliaceous. *Scales* imbricated in many rows, or subdistinct; the lower 1 smaller; 1 or 2 only of the upper ones floriferous. *Perigone* (or *hypogynous setæ*) none. *Style* bifid; its branches being again bifid or trifid. *Nut* mucronulate; the *pericarp* thickened, and suberose towards the apex. *Seeds* smooth.

1. *C. Mariscus*. (Brown.) *Prickly Twig Rush*. Boggy and fenny places. Norfolk; Cambridge; Kent; near Portsmouth, &c. Fl. with light brown scales. July, Aug. Perennial. H. 13. *C. germanicum*. (Nees, 301.) *Schœnus Mariscus*. (L. sp. 62., E. B. 950.)

Tribe V. ELYNEÆ. (Nees von Esenb. in Linnæa, p. 304.)

Florets monœcious or diœcious. *Spikelets* compound, imbricated in 2 rows, or on all sides, with scales which enclose either 1 unisexual floret, or 2 monœcious ones, which are generally valvular. *Proper perigone* none. *Cariopsis* generally beaked. *Style* trifid.

XII. KOBRESIA. (Willd., Nees, l. c.)

Flowers monœcious, in aggregated spikes; the lower ones female, the upper male. *Scales* imbricated in many rows, 1-flowered. — Male flower without perigone. — Female flower with 2 scales, embracing the germen. *Style* trifid; the *branches* filiform, pubescent. *Cariopsis* obtusely trigonal, mucronate. Nut enclosed in a membranous pouch.

1. *K. caricina*. (Willd.) Moors in the north of England and Scotland. Fl. with the scales convolute, brown. Aug. Perennial. Nees, 304. *Elyna caricina*. (H. 406.) *Schœnus monoicus*. (E. B. 1410.)

Tribe VI. CARICEÆ. (Nees von Esenb. in Linnæa, ix. p. 305.)

Flowers unisexual. *Cariopsis* entirely enclosed within the perigone.

XIII. CAREX. (L. gen. n. 1046., Nees, l. c.)

Flowers monœcious, or rarely diœcious. *Spikelets*, in general, monœcious; the male ones terminal: or androgynous, and congested into a compound spike. *Scales* imbricated in all directions, simple and 1-flowered. *Perigone* (formed of connate scales), urceolate, and enclosing the *cariopsis*, resembling a capsule. *Setæ* none. *Style* bifid or trifid; or *stigmas* 2 or 3.

* *Stigmas* 2 (subgenus *Vignea*, Nees)

spike simple, solitary

spike diœcious

fruit erect; leaves and stem smoothish; } 1. *C. DIOICA*.

root creeping - - - - -

fruit recurvato-deflexed; leaves and stem } 2. *C. DAVALLIANA*.

rough; root fibrous - - - - -

spike monœcious - - - - - 3. *C. PULICARIS*.

spike compound, consisting of 3 or more spike-

lets or spikes

† barren and fertile florets in the same

spikelet

‡ uppermost florets of the spikelets barren

root repent

bracteas of involucre, all membra- } 4. *C. INCURVA*.

nous; spike roundish - - - - -

lower bracteas leafy

spike ovate, composed of few } 7. *C. DIVISA*.

spikelets; the lower ones ge-

nerally compound - - - - -

spike oblong, composed of nume-

rous spikelets

fruit with a membranous wing, } 5. *C. ARENARIA*.

shorter than the scales - - - - -

fruit acutely margined, longer } 6. *C. INTERMEDIA*.

than the scales - - - - -

root fibrous

spikelets arranged in a loose panicle 12. *C. PANICULATA*.

- spikelets in a 2—3 times compound
 dense head
 leaves broad - - - 10. *C. VULPINA*.
 leaves very narrow - - - 11. *C. TERETIUSCULA*.
 spikelets arranged in a simple spike
 spike dense; fruit rough at the }
 beak, spreading - - - } 9. *C. MURICATA*.
 spike elongated, interrupted; fruit }
 erect - - - } 8. *C. DIVULSA*.
 †† lowermost florets of the spikelets sterile
 spikelets collected into an oval crowded }
 head - - - } 19. *C. OVALIS*.
 spikelets in a more or less interrupted
 cylindrical and elongated spike
 lowermost spikelet very distant;
 subtended by a foliaceous bractea,
 longer than the spike
 lower spikelet simple; fruit with a }
 slightly cloven beak - - - } 15. *C. REMOTA*.
 lower spikelet compound; fruit }
 with a deeply cloven beak - - - } 17. *C. AXILLARIS*.
 all the spikelets at about equal distances;
 bracteas, if any, short and membranous
 fruit twice as long as the scale
 spikelets 5—12; many-flowered 18. *C. ELONGATA*.
 spikelets 3, distant, few-flowered 16. *C. TENELLA*.
 fruit not longer than the scales
 spikelets 3—4; fruit, when ripe, }
 stellate - - - } 13. *C. STELLULATA*.
 spikelets 5—7; fruit not stellate 14. *C. CURTA*.
 †† barren and fertile florets in separate spikelets
 barren spike solitary
 sheath of the lower leaves with a filamentous network } 23. *C. STRICTA*.
 sheaths of lower leaves, not reticulate
 lower fertile spike pedunculated
 spike oval; fruit with a bifid }
 beak - - - } 20. *C. PULLA*.
 spike subcylindrical elongated; }
 beak entire - - - } 22. *C. RIGIDA*.
 lower fertile spike sessile or subsessile
 fruit elliptical, flat, many-ribbed - 21. *C. CÆSPITOSA*.
 fruit roundish-obovate - - - 24. *C. AQUATILIS*.
 barren spikes, 2 or more - - - 25. *C. ACUTA*.
 ** Stigmas 3 (subgenus *Carex*, Nees)
 spike simple, solitary - - -
 leaves setaceous, keeled, and folded; fruit }
 rather longer than the caducous scales - } 62. *C. PAUCIFLORA*.
 leaves linear, flat; fruit shorter than the }
 obtuse scales - - - } 63. *C. RUPESTRIS*.
 spike compound, consisting of 3 or more spikelets or spikes
 barren and fertile florets in the same spikelet
 fertile spikes sessile or subsessile, erect - 61. *C. BUXBAUMII*.
 fertile spikes pedunculated, inclined
 fruit subglabrous, shorter than the scale - 51. *C. ATRATA*.
 fruit scabrous, with minute crystalline bristles, rather longer than the scale } 60. *C. VAHLII*.
 barren and fertile florets in separate spikes
 † barren spike mostly solitary
 ‡ fruit villous, or tomentose, over its whole surface

- bracteas membranous
 fertile spikes remote, almost concealed
 by the large bracteas; stem much } 59. *C. CLANDESTINA*.
 shorter than the leaves - - - }
- fertile spikes approximated, exsert
 from the bracteas; stem as long as } 58. *C. DIGITATA*.
 the leaves - - - }
- ✂* bracteas foliaceous
 leaves filiform, erect; their margin } 31. *C. FILIFORMIS*.
 involute above - - - }
- leaves flat or channeled
 fertile spikes with long peduncles } 33. *C. RECURVA*.
 fertile spikes sessile or subsessile
- barren spikes more dilated at the
 apex than at the base; fruit } 54. *C. PRÆCOX*.
 pyriform, with an abrupt en-
 tire point - - - }
- barren spike tapering at the
 apex; fruit with a cloven
 beak
- stem erect; fruit globose, } 56. *C. TOMENTOSA*.
 densely downy - - - }
- stem weak, curved; fruit obo- } 55. *C. PILULIFERA*.
 vato-globose, pubescent - }
- †† fruit glabrous, or ciliated only on the
 angles
- fertile spikes sessile or subsessile
 leaves flat, rather broad; fruit } 53. *C. FLAVA*.
 spreading; beak subdeflexed - }
- leaves narrow, convolute; fruit not } 46. *C. EXTENSA*.
 spreading; beak short - }
- fertile spikes pedunculated
- § sheaths short
- bracteas subsetaceous
 fertile spikes oblong-ovate; scales
 as long as the greenish brown } 48. *C. LIMOSA*.
 fruit - - - }
- fertile spikes narrow oblong, few-
 flowered; scales longer and } 49. *C. RARIFLORA*.
 broader than the pale fruit }
- bracteas foliaceous
 fruit beaked, bifid
- fertile spikes on long peduncles, } 35. *C. PSEUDO-CYPERUS*.
 cylindrical, pendulous - }
- fertile spikes on short pe-
 duncles, ovate, inclined - } See ✂
- fruit obtuse, entire
- fertile spikes pale green - 52. *C. PALLESCENS*.
 fertile spikes dark brown - 33. *C. RECURVA*.
- §§ sheaths elongated
 sheaths nearly as long as the pe-
 duncles
- fertile spikes pendulous - 34. *C. PENDULA*.
 fertile spikes nearly erect
- fertile spikes filiform, very long } 36. *C. STRIGOSA*.
 fertile spikes ovato-cylindrical
- fruit uniformly nerved - 44. *C. DISTANS*.
 fruit with 2 principal green
 nerves near the margin
- seeds very smooth, covered } 42. *C. PUNCTATA*.
 with pellucid dots - }
- seeds rough at the edge, } 43. *C. BINERVIS*.
 not dotted - }
- sheaths much shorter than the pe-
 duncles

- ⚡** || fertile spikes subpendulous
 spike many-flowered
 fertile spike filiform, slender; }
 leaves narrow - - - } 37. *C. SYLVATICA*.
 fertile spike cylindrical; }
 leaves broad - - - } 45. *C. LEVIGATA*.
 fertile spike ovate; fruit }
 purplish black - - - } 50. *C. USTULATA*.
 spikes composed of a few lax }
 flowers; fruit dark brown } 41. *C. CAPILLARIS*.
 ||| fertile spike erect or suberect
 fruit subglobose
 spike few-flowered; fruit }
 beaked - - - } 39. *C. DEPAUPERATA*.
 spike many-flowered; fruit }
 obtuse - - - } 57. *C. PANICEA*.
 fruit ovate
 spike lax; fruit rough-edged } 38. *C. MIELICHOFERI*.
 spike dense; fruit smooth at }
 the edges
 fertile spike oblong-ovate; }
 stem scabrous - - - } 47. *C. FULVA*.
 fertile spike ovate; stem }
 smooth - - - } 40. *C. SPEIROSTACHYA*.
 †† barren spikes 2 or more;
 † sheath none
 fruit inflated
 stem acute, angular, rough; }
 leaves broad; fruit tawny } 28. *C. VESICARIA*.
 stem subterete, smooth; leaves }
 channeled, glaucous; fruit } 29. *C. AMPULLACEA*.
 brownish - - - }
 fruit not inflated
 leaves narrow - - - See ⚡*
 leaves broad
 scales of the sterile spikes ob- }
 tuse - - - } 26. *C. PALUDOSA*.
 scales of the sterile spikes acu- }
 minate - - - } 27. *C. RIPARIA*.
 †† sheaths elongated
 plant hairy - - - 32. *C. HIRTA*.
 plant not hairy
 fertile spikes pendulous - - - See ⚡**
 fertile spikes erect
 fruit subglobose, obtuse, entire }
 at the point - - - } 57. *C. PANICEA*.
 fruit oblong, acuminate, deeply }
 bifid - - - } 30. *C. HORDEIFORMIS*.

Subgenus I. *VIGNEA*. (Nees von Esenb. in Linnæa, ix. p. 305.)

Style bifid.

1. ! *C. dioica*. (L. sp. 1379.) *Creeping diœcious Sedge*. Spongy bogs. Fl. May, June. Perennial. E. B. 543., H. 392.
2. *C. Davalliana*. (Smith trans. lin. soc. v. 5.) *Prickly-headed diœcious Sedge*. In subalpine bogs in Scotland and north of Ireland; also near Bath. Fl. June. Perennial. E. B. 2123., H. 392.
3. ! *C. pulicaris*. (L. sp. 1380.) *Flea Sedge*. Bogs and spongy ground. Fl. June. Perennial. E. B. 1051., H. 392.
4. *C. incurva*. (Lightfoot.) *Curved Sand Sedge*. Sandy sea shores in the north of Scotland. Fl. June. Perennial. E. B. 927., H. 393. *C. juncifolia*. (All. ped., not Schk.; D. C. bot. gal. 490.)
5. ! *C. arenaria*. (L. sp. 1381.) *Common Sea Sedge*. Sandy sea shores. Very common. Fl. June. Perennial. E. B. 928., H. 393.
6. ! *C. intermedia*. (Goodenough trs. lin. soc. 2.) *Soft brown Marsh Sedge*. Marshy ground and wet meadows. Fl. June. Perennial. E. B. 2042., H. 393. *C. disticha*. (Hudson ang. 403., D. C. bot. gal. 489.)

7. ! *C. divisa*. (Huds. ang. 405.) *Bracteated Marsh Sedge*. Marshy places, near the sea; especially on the east coast. Fl. May, June. Perennial. E. B. 1096., H. 393.
8. ! *C. divulsa*. (Gooden. trs. lin. soc. 2.) *Grey Sedge*. Moist pastures. Fl. May, June. Perennial. E. B. 629., H. 394. Sir W. J. Hooker agrees in opinion with M. de Candolle in not considering this species sufficiently distinct from the following.
9. ! *C. muricata*. (L. sp. 1382.) *Greater prickly Sedge*. Marshy, and especially, gravelly ground. Fl. May, June. Perennial. E. B. 1097., H. 393.
10. ! *C. vulpina*. (L. sp. 1382.) *Great rough-headed Sedge*. Shady ditches and watery places. Fl. June. Perennial. E. B. 307., H. 394.
11. ! *C. teretiuscula*. (Gooden. lin. trs. 2.) *Lesser panicle Sedge*. Boggy and watery meadows. Fl. May, June. Perennial. E. B. 1065., H. 394.
12. ! *C. paniculata*. (L. sp. 1383.) *Great panicle Sedge*. Spongy ground. Fl. June. Perennial. E. B. 1064., H. 394.
13. ! *C. stellulata*. (Gooden. trs. lin. soc. 2.) *Little star-headed Sedge*. Marshes and heathy places. Fl. May, June. Perennial. E. B. 806., H. 395.
14. *C. curta*. (Gooden.) *Short white Sedge*. Bogs; coast of Kent. Fl. in pale elliptical spikelets. June. Perennial. E. B. 1386., H. 395.
15. ! *C. remota*. (L. sp. 1383.) *Remote Sedge*. Woods and moist hedges. Fl. June. Perennial. E. B. 832., H. 396.
16. *C. tenella*. (Schkr.) *Slender-headed Sedge*. Angushire. Rare. Fl. May, June. Perennial. H. 396.
17. ! *C. axillaris*. (Gooden.) *Axillary clustered Sedge*. Marshes at Putney, and in other localities; but rare. Fl. June. Perennial. E. B. 993., H. 396.
18. *C. elongata*. (L. sp. 1383.) *Elongated Sedge*. Marshes in north of England. Rare. Fl. June. Perennial. H. 395.
19. ! *C. ovalis*. (Gooden.) *Oval spiked Sedge*. Bogs and marshy places. Common. Fl. in close clustered, brownish green, shining spikelets. June. Perennial. E. B. 806., H. 395.
20. *C. pulla*. (Gooden.) [*Russet*] *Sedge*. Higher regions of the Scotch mountains. Fl. with shining deep chocolate-coloured scales. June. Perennial. E. B. 2045., H. 402.
21. ! *C. cæspitosa*. (L. sp. 1388.) *Tufted Bog Sedge*. Marshy and wet places. Common. Fl. May, June. Perennial. E. B. 1507., H. 403. *C. angustifolia*. (Smith) according to Professor Don.
22. *C. rigida*. (Gooden.) *Rigid Sedge*. Snowdon, and Scotch mountains. Fl. June, July. Perennial. E. B. 2047. Too nearly allied to *C. cæspitosa*, according to Mr. Wilson in Hook. 403.
23. ! *C. stricta*. (Gooden.) *Straight-leaved Sedge*. Marshes. Common. Fl. with lanceolate dark brown scales. April, May. Perennial. E. B. 914., H. 403.
24. *C. aquatilis*. (Wahlenberg.) *Straight-leaved Water Sedge*. Mountains of Clova, Scotland. Fl. July, Aug. Perennial. E. B. 2758., H. 404.
25. ! *C. acuta*. (L. sp. 1388.) [*Slender-spiked Sedge*. Moist meadows and wet pastures. Common. Fl. May. Perennial. E. B. 580., H. 404.

Subgenus II. CAREX. (Nees von Esenb. in Linnæa, ix. p. 305.)

Style trifid.

26. ! *C. paludosa*. (Gooden.) *Lesser common Sedge*. Banks of rivers and ditches. Common. Fl. May. Perennial. E. B. 807., H. 404.
27. ! *C. riparia*. (Curtis.) *Great common Sedge*. Banks of rivers and ditches. Very common. Fl. May. Perennial. E. B. 579., H. 404.
28. ! *C. vesicaria*. (L. sp. 1388a.) *Short-spiked Bladder Sedge*. Bogs and marshes. Fl. May, June. Perennial. E. B. 779., H. 405.
29. ! *C. ampullacea*. (Gooden.) *Slender-beaked Bottle Sedge*. Bogs and marshes; especially in the north. Fl. June. Perennial. E. B. 780., H. 405.
30. *C. hordeiformis*. (Host.) *Barley Sedge*. Near Forfar. Fl. June. Perennial. H. 405. *C. hordeistichos*. (Vill. daup., Bot. gal. 497.)
31. *C. filiformis*. (L. sp. 1385.) *Slender-leaved Sedge*. Boggy ground, in the north of England and Scotland. Rare. Fl. May. Perennial. E. B. 904., H. 405.
32. ! *C. hirta*. (L. sp. 1389.) *Hairy Sedge*. Wet pastures. Common. Fl. May, June. Perennial. E. B. 685., H. 405.
33. ! *C. recurva*. (Huds.) *Glaucous Heath Sedge*. Moist meadows and moors. Common. Fl. June. Perennial. E. B. 1506., H. 402. *C. glauca*.

(D. C. bot. gal. 494.) *C. strictocarpa*. (E. B. 2772., according to Professor Don.)

34. ! *C. pendula*. (Huds.) *Great pendulous Sedge*. Moist shady places. Not common. Fl. May, June. Perennial. E. B. 2315., H. 397. *C. maxima*. (D. C. bot. gal. 497.)

35. ! *C. Pseudo-Cyperus*. (L. sp. 1318.) *Cyperus-like Sedge*. Moist places; by the sides of ponds and canals. Fl. June. Perennial. E. B. 242., H. 399.

36. *C. strigosa*. (Huds.) *Loose pendulous Sedge*. Groves and thickets, in east and middle of England; coast of Kent. Fl. May, June. Perennial. E. B. 994., H. 397.

37. ! *C. sylvatica*. (Huds.) *Pendulous Wood Sedge*. Moist woods. Common. Fl. May, June. Perennial. E. B. 995., H. 397. *C. patula*. (D. C. bot. gal. 497.)

38. *C. Mielichhoferi*. (Willd.) *Loose-spiked Rock Sedge*. Rocky ledges of Breadalbane Mountains. E. B. 2293., H. 398. *C. Scopoliana*. (D. C. bot. gal. 495.)

39. ! *C. depauperata*. (Gooden.) *Starved Wood Sedge*. Dry woods; Godalming; Charlton Wood. Rare. Fl. May, June. Perennial. E. B. 1098., H. 397.

40. *C. speirostachya*. (Swartz.) *Dense short-spiked Sedge*. South of Scotland; also in marshes above the village of Newcastle, Mourne Mountains Ireland. Fl. July, Aug. Perennial. E. B. 2770., H. 398.

41. *C. capillaris*. (L. sp. 1386.) *Dwarf capillary Sedge*. Highland mountains. Fl. June, July. Perennial. E. B. 2069., H. 398.

42. *C. punctata*. (Gaudin.) *Dotted Sedge*. Leaves linear, flat, smooth. Fertile spikes 2—3, oblong, cylindrical, distant; the lower ones on short peduncles, erect. Fruit longer than the ovate mucronate scale; ovato-globose, shining, very smooth, with pellucid dots; 2-nerved, with a short, very smooth, bidentate beak. Beaumarris, by Mr. Dawson Turner, according to Dr. Boott; also at Warrington, by Mr. Wilson. Fl. June, July. Perennial. Bot. gal. 495., Hook. in Companion to bot. mag., Jan. 1837.

43. ! *C. binervis*. (Sm.) *Green ribbed Sedge*. Dry heaths and moors. Common. Fl. with 2 green nerves along the margin of the brown scales. July. Perennial. E. B. 1099., H. 401.

44. ! *C. distans*. (L. sp. 1387.) *Loose Sedge*. Muddy marshes, near the sea; coast of Kent; Anglesea. Fl. June. Perennial. E. B. 1234., H. 401.

45. ! *C. lævigata*. (Sm.) *Smooth-stalked beaked Sedge*. Marshy and boggy thickets; but not common. Fl. June. Perennial. E. B. 1387., H. 404.

46. *C. extensa*. (Gooden.) *Long-bracteated Sedge*. Marshes near the sea. Rare. Fl. June. Perennial. E. B. 833., H. 400.

47. *C. fulva*. (Gooden.) *Tawny Sedge*. Boggy meadows. Fl. with yellowish scales. June. Perennial. E. B. 1295., H. 400.

48. *C. limosa*. (L. sp. 1386.) *Mud Sedge*. Bogs and marshes; principally in mountainous countries. Fl. June. Perennial. E. B. 2043., H. 398.

49. *C. rariflora*. (Sm.) *Loose-flowered Alpine Sedge*. Bogs in the north of Scotland. Fl. with obtuse deep brown scales; the dorsal rib pale. June. Perennial. E. B. 2516., H. 399.

50. *C. ustulata*. (Willd.) *Scorched alpine Sedge*. Ben Lawers. Fl. with purplish, almost black, scales. July. Perennial. E. B. 2404., H. 399.

51. *C. atrata*. (L. sp. 1386.) *Black Sedge*. Snowdon and Breadalbane Mountains. Rare. Fl. with dark brown opaque scales. June. Perennial. E. B. 2044., H. 398.

52. *C. pallescens*. (L. sp. 1386.) *Pale Sedge*. Marshy places. Common. Fl. with pale yellow scales. June. Perennial. E. B. 2185., H. 400.

53. ! *C. flava*. (L. sp. 1384.) *Yellow Sedge*. Turfy bogs. Common. Fl. yellowish. May, June. Perennial. E. B. 1294., H. 400.

! *β. Oederi*. (Gaud.) Smaller; the spikes all approximated. *C. Oederi*. E. B. 1773., H. 400.)

54. ! *C. præcox*. (Jacq.) *Vernal Sedge*. Dry pastures and heaths. Fl. April, May. Perennial. E. B. 1099., H. 401.

55. ! *C. pilulifera*. (L. sp. 1385.) *Round-headed Sedge*. Heaths and moory ground. Common. Fl. June. Perennial. E. B. 885., H. 401.

56. *C. tomentosa*. (L. sp., Mant. 123) *Larger downy-fruited Sedge*. Meadows near Merston Measy, Wilts. Fl. June. Perennial. E. B. 2046., H. 402.

57. ! *C. panicea*. (L. sp. 1367.) *Pink-leaved Sedge*. Marshy places and bogs. Common. Fl. with dark brown scales, having a green keel. June. Perennial

E. B. 1505., H. 402. *C. phæostachya* (E. B. 2731.), according to Sir W. Hooker, on the authority of Mr. Foster, Dr. Graham, and Mr. Borrer.

58. *C. digitata*. (L. sp. 1384.) *Fingered Sedge*. Woods in limestone countries; Bath, Bristol, Ripon, Yorkshire. Fl. May. Perennial. E. B. 615., H. 396.

59. *C. clandestina*. (Gooden.) *Dwarf silvery Sedge*. St. Vincent's Rocks, Bristol. Fl. May. Perennial. E. B. 2124., H. 397.

60. *C. Vahlit.* (Schkur.) *Close-bearded alpine Sedge*. Rocks; Braemar, Glen Dole, Scotland. Fl. Aug., Sept. Perennial. E. B. 2666., H. 395.

61. *C. Buxbaumii*. (Willd.) *Buxbaum's Sedge*. Androgynous spike pendunculated, obovate; male below. Fertile spikes about 3, remote, subsessile, erect. Fruit elliptical or obovate, glabrous, obtuse, obsoletely bidentate. Found by Mr. Moore, on Church Island, in Lough Neagh, Ireland. Pers. ii. p. 540. *C. polygama*. (Schk. 84.)

62. *C. pauciflora*. (Lightfoot.) *Few-flowered Sedge*. Crag Lake, Northumberland; and Highland Mountains. Fl. June. Perennial. E. B. 2041., H. 392. closely allied to *C. pulicaris*.

63. *C. rupestris*. (Allion.) *Rock Sedge*. Culm sharp-angled. Leaves rigid, linear, striated, rather flat. Androgynous spike male at the top, cylindrical. Fruit loose, obovate; shorter than the very obtuse scales. Much resembling *Kobresia caricina*. Found by Messrs. Templeton and Dickie, on the rocks above the lake at the head of Glen Callader. Hook. in companion to Bot. mag., Jan. 1837; Bot. gal. 488.

Order CX. GRAMINEÆ. (Juss., D. C. bot. gal. p. 499.; Kunth *Agrostographia*, p. 3., Lind. gen. syst. p. 369.)

Flowers generally hermaphrodite; sometimes monœcious or polygamous; consisting of imbricated bractœas, of which the outer ones are called *glumes*; the inner immediately enclosing the stamens *paleæ*, and the innermost at the base of the ovary *scales*. *Glumes* (*calyx*, Lin.) generally 2, alternate and unequal. *Paleæ* (*glumellæ*, D. C.; *corolla*, Lin.) 2, alternate; the lower or outer one simple, the upper or inner composed of 2, united by their contiguous margins, and generally with 2 keels. *Scales* 2, rarely 3; sometimes very small or wanting. *Stamens* generally 3 (rarely 1—2 or 6). *Filaments* generally free. *Anthers* versatile, 2-celled, bifid at the base and apex; dehiscing longitudinally. *Ovary* simple. *Styles* generally 2; sometimes connate at the base. *Stigmas* as many, plumose, with simple or ramose hairs, or dentate. *Fruit* (*carriopsis*) free, or adnate to the paleæ. *Pericarp* adnate to, and usually undistinguishable from, the seed. *Embryo* attached to the outer side of a large farinaceous albumen at the base; monocotyledonous, very rarely dicotyledonous; the second being small, and alternate with the first. *Corculum* (the *plumula* and *radicle*) lying in a groove of the cotyledon; the basilar extremity, during germination, throwing out 3—5 radicles. *Roots* fibrous, or with a repent or bulbous rhizome. *Stem* (*culm*) generally fistular, closed at the joints; rarely solid. — *Leaves*, 1 from each joint, with a divided sheath. *Spikelets* collected at the apex of the stem, in panicles, racemes, or spikes; sometimes immersed in the thickened rachis, or enclosed in a spathe.

Florets of distinct sexes in separate spikelets

male spikelets in terminal panicles; the female } 1. ZEA, clt.
ones in lateral spikes - - - }

male, female, and hermaphrodite spikelets inter- } 47. HORDEUM.
mixed in the same spike - - - }

Florets hermaphrodite, or male and female in the same spikelets

* spikelets pedicellated; arranged in panicles, which are diffuse or spiked

stamens of fertile florets 2

lateral florets neuter - - -

lateral florets staminiferous - - -

stamens 3

† spikelets 1-flowered

spikelets with an involucre, or additional

glumes beneath the florets - - - 12. SETARIA.

8. ANTHOXANTHUM.

7. HIEROCHLOA.

- spikelets with 2 glumes beneath the florets
 glumes covered with long silky hair; }
 paleæ 3-awned - - - } 26. LAGURUS.
 glumes either glabrous or with short
 hair; paleæ 1-awned or awnless
 † paleæ surrounded with silky down at
 the base
 ... spikelet with a plumose pedicel at
 the base of the upper palea
 lower palea having a twisted awn }
 arising from the back - - } 18. DEYEUXIA.
 lower palea mucronate, but not }
 awned at the back - - } 19. AMMOPHILA.
 spikelet without a pedicel, or rudi- }
 ment of a second flower - } 17. CALAMAGROSTIS.
 †† paleæ not surrounded with silky hairs
 § florets with either the glumes or
 paleæ awned
 glumes awned
 paleæ awned - - - 16. POLYPOGON.
 paleæ not awned - - - 4. PHLEUM.
 glumes not awned
 outer palea with a long awn }
 from the apex - - } 13. STIPA.
 outer palea with an awn from
 the back or base
 panicle spiked - - - 3. ALOPECURUS.
 ☞ panicle more or less loose, at
 least while in flower
 paleæ cartilaginous, closely }
 surrounding the seed - } 9. MILIUM.
 paleæ membranous, loosely
 covering the seed
 glumes ventricose at the }
 base - - - } 15. GASTRIDIMUM.
 glumes convex, not ven- }
 tricose - - } 14. AGROSTIS.
 §§ neither glumes nor paleæ awned
 ☞ * florets subsessile, arranged in
 digitate spikes
 glumes spreading; spikelets }
 solitary - - - } 21. CYNODON.
 glumes adpressed; spikelets in }
 pairs - - - } 10. PANICUM.
 florets in a spiked or loose pa-
 nicle
 panicle loose - - - See ☞
 panicle spiked
 glumes retuse at the apex, }
 not navicular - - } 4. PHLEUM.
 glumes navicular, acumi- }
 nate - - - } 5. PHALARIS.
 †† spikelets 2- or many-flowered
 paleæ surrounded with silky hairs at the }
 base - - - } 20. PHRAGMITES.
 paleæ not surrounded with silky hairs
 † paleæ awned
 § one or more of the florets incomplete,
 either staminiferous or neuter
 awn arising from between the seg- }
 ments of the paleæ, short; giving }
 the paleæ the appearance of being } 30. DANTHONIA.
 3-dentate - - - }
 awn from the back or base of the pa-
 leæ, rarely from the apex; gene-
 rally long

- spikelets 2-flowered
 lower floret incomplete, male or neuter
 glumes subequal; awn from the base } 29. ARRENATHERUM.
 lower glume much smaller; awn, if any, from the apex } 11. OPLISMENUS.
 upper floret incomplete, and alone awned } 6. HOLCUS.
 spikelets 3- or more flowered; the upper floret incomplete; awn from the back } 28. AVENA.
- † all the florets fertile
 awn from the base of the paleæ
 awn jointed in the middle; bearded at the joint } 23. CORYNEPHORUS.
 awn not jointed
 lower palea truncate, 4-dentate; awn straight } 24. DESCHAMPSIA.
 lower palea notched or bifid; awn twisted
 paleæ slightly notched; spikelets 2-flowered } 25. AIRA.
 paleæ deeply bifid; spikelets 3-4-flowered } 27. TRISETUM.
 awn from between the segments of the paleæ, and scarcely longer than them; giving the paleæ the appearance of being 3-dentate } 30. DANTHONIA.
 awn from beneath the apex of the paleæ } 42. BROMUS.
 awn from the apex of the paleæ, and decidedly terminal
 glumes concave, or but slightly keeled; panicle loose or crowded, but rarely spiked } 41. FESTUCA.
 glumes sharply keeled; panicle clustered or spiked
 both paleæ keeled; panicle in terminal clusters } 39. DACTYLIS.
 lower palea keeled, embracing the upper one; panicle spiked } 38. KÆLERIA.
- †† paleæ awnless
 spikelets with a lacerated foliaceous bractea at the base } 40. CYNOSURUS.
 spikelets destitute of foliaceous bracteas
 glumes truncate } 34. CATABROSA.
 glumes acute
 spikelets 2-flowered; the glumes very scariose
 glumes much shorter than the florets } 37. MOLINIA.
 glumes the length of the florets } 36. MELICA.
 spikelets many-flowered
 scales connate, appearing single } 33. GLYCERIA.
 scales 2, not connate
 paleæ and spikelets ventricose, cordate } 35. BRIZA.
 paleæ neither ventricose nor cordate
 pedicels articulated with the spikelets; paleæ generally acute } 41. FESTUCA.
 pedicels not articulated with the spikelets; paleæ obtuse } 32. POA.

** spikelets sessile, spiked along the rachis

† rachis not excavated

spikelets 1-flowered

stigma 1 - - - - -

48. NARDUS.

stigmas 2

glumes awnless

paleæ very small, urceolate, with a }
lacerated or truncate margin - }

2. CHAMAGROSTIS.

paleæ entire - - - - -

See § 48 *

glumes awned

spike simple - - - - -

4. PHLEUM.

spike compound - - - - -

22. SPARTINA.

spikelets 2- or many-flowered

spikelets with a foliaceous lacerated bract- }
tea at the base - - - - - }

40. CYNOSURUS.

spikelets not bracteated - - - - -

31. SESLERIA.

†† rachis excavated

spikelets quite embedded in the hollow of the }
rachis - - - - - }

49. LEPTURUS.

spikelets, occupying the recess, and project-
ing beyond it

spikelets in each recess of the rachis solitary

spikelets 3—8-flowered

spikelets with the broad surface towards }
the rachis - - - - - }

44. TRITICUM.

spikelets with the narrow edge towards }
the rachis - - - - - }

43. LOLIUM.

spikelets 1—2-flowered - - - - -

45. SECALE, clt.

spikelets 2—3 in each recess of the rachis

spikelets with 1 fertile floret - - - - -

47. HORDEUM.

spikelets with 2—4 fertile florets - - - - -

46. ELYMUS.

Tribe I. PHALARIDÆ. (Kunth Agrost. p. 18.)

Spikelets hermaphrodite or polygamous, rarely monœcious; in some genera 1-flowered, with, or without, a stipitiform rudiment of an upper flower; in others 2-flowered, with both flowers hermaphrodite; or one male, the other hermaphrodite; in others 2—3-flowered; the terminal flower fertile, the rest incomplete. *Glumes* generally equal. *Paleæ* often smooth and hardened after flowering. *Styles* or *stigmas* elongated.

I. ZEA. (L. gen. n. 1042., Kunth, 19.)

Flowers monœcious; male ones terminal, racemose; the female axillary, compactly spicate, closely rolled up in many leafless sheaths. *Stigmas* very long, and much exsert. Male *spikelets* 2-flowered; the *flowers* sessile, each with 2 paleæ. Female *spikelets* 2-flowered; the lower neuter, with 2 paleæ; the upper female, with 2—3 paleæ. *Glumes* carnosio-membranous, very broad and ciliated. *Style* terminal, bifid at the apex. *Cariopsis* subrotund-reniform, surrounded by the persistent paleæ and glumes.

1. *Zea Mays*. (L. sp. 1378.) *Indian Corn*; *Maize*. Leaves very entire. Native of Paraguay and Asia. Cultivated in England; but more especially

β. *præcox*, which is smaller than the other varieties.

II. CHAMAGROSTIS. (Barkh., Kunth agrost. 23.)

Spike composed of alternate, subsessile, and subunilateral spikelets. *Spikelets* 1-flowered; the *floret* sessile, shorter than the glumes. *Glumes* 2, ovate-oblong, 1-nerved, keeled, blunt, not awned; the upper one rather the longest. *Paleæ* 2, very thin; membranous, villous externally; the lower one very broad, 5-nerved truncate, enclosing the upper one, which is obsolete 2-nerved. *Ovary* glabrous. *Stigmas* very long, rather pilose. *Scales* 2, very small, glabrous (none, Nees). *Cariopsis* ovate, laterally compressed, free, loosely surrounded by the paleæ and glumes. — A very diminutive annual grass.

1. *C. minima*. (Barkh. l. c.) *Small Spring Chamagrostis*. Sandy pastures, near the sea. Rare. Essex, at the mouth of the Thames. Anglesea. Fl. April, March. Annual. Kunth, 23. *Knappia agrostidea*. (E. B. 1127., H. 58.) *Agrost. min.* (L. sp. 93.)

III. ALOPECURUS. (L. gen. n. 78., Kunth agr. 23.)

Panicle cylindrical, or ovate spiked; *spiculæ* pedicellated, 1-flowered. *Glumes* 2, naviculari-carinate, not awned, subequal; generally connate at the base. *Lower palea* single, membranous, compressed, carinate, having an awn from below the middle of the back; their margins connate at the base. *Styles* 2, often connate beneath. *Stigmas* very long; pubescent, plumose. *Scales* none. *Cariopsis* obliquely elliptical, lenticularly compressed at the sides; smooth, free, loosely covered by the glumes and paleæ.

Panicle spiked, ovate - - - 6. A. ALPINUS.

Panicle spiked, cylindrical
culm erect

glumes not united at the base; root bulbous - 4. A. BULBOSUS.

glumes united; root not bulbous

culm scabrous above; panicle acuminate; } 1. A. AGRESTIS.

glumes subglabrous - - -

culm smooth; panicle obtuse; glumes hairy - 5. A. PRATENSIS.

culm ascending, bent at the joints

awns twice the length of the glumes - - 2. A. GENICULATUS.

awns scarcely longer than the glumes; anthers } 3. A. FULVUS.

bright orange-colour - - -

1. ! *A. agrestis*. (L. sp. 88.) *Slender Fox-tail Grass*. Fields and way sides. Common. Fl. June, July. Annual. E. B. 848., H. 33. Kunth, 23.

2. ! *A. geniculatus*. (L. sp. 89.) *Floating Fox-tail Grass*. Pools and marshy places. Fl. July, Aug. Perennial. E. B. 1250., H. 33. Kunth, 24.

3. ! *A. fulvus*. (Smith.) *Orange-coloured spiked Fox-tail Grass*. Pools and moist places; not unfrequent in the east and south of England. E. B. 1467., H. 34., Kunth, 24.

4. *A. bulbosus*. (L. sp. 1665.) *Tuberous Fox-tail Grass*. Wet salt marshes, near Yarmouth and Weymouth. Rare. Fl. July. Perennial. E. B. 1249., H. 33., Kunth, 24.

5. ! *A. pratensis*. (L. sp. 88.) *Meadow Fox-tail Grass*. Meadows and pastures. Common. Fl. May, June. Perennial. E. B. 759., H. 33., Kunth, 24.

6. *A. alpinus*. (Smith.) *Alpine Fox-tail Grass*. Scotch Highlands. Fl. July, Aug. Perennial. E. B. 1126., H. 33., Kunth, 25.

IV. PHLEUM. (L. gen. n. 77., Kunth agrost. 27.)

Spike dense, composed of sessile spikelets; the *spikelets* 1-flowered. *Glumes* 2, naviculari-carinate, membranous, longer than the floret; blunt or awned at the apex. *Paleæ* 2, thin, membranous, shorter than the glumes; the lower one truncate at the apex, blunt or mucronate, or with a dorsal awn, surrounding the upper one, which is narrow and 2-nerved. *Scales* 2, glabrous; denticulate externally. *Cariopsis* elliptical, obliquely ovate; loosely surrounded by the paleæ and glumes.

Spikelet having an awl-shaped rudiment of a second flower at the base of the upper palea (gen. *Chilochloa*, Beauv.)

scales none; stigmas sessile; glumes thrice the length of the paleæ (gen. *Achnodon*, Trin.) - } 3. P. ARENARIUM.

scales 2; stigma supported on a more or less elongated style; glumes not twice the length of the paleæ

culm branched; glumes wedge-shaped - - 1. P. ASPERUM.

culm simple; glumes lanceolate

glumes rather obtuse, submucronate, roughish 2. P. BOEHMERI.

glumes gradually tapering into a point; the keel } 4. P. MICHELII.

ciliated - - -

Spikelet without any rudiment of the second flower

panicle spiked, cylindrical; awns not as long as the glumes - } 5. P. PRATENSE.

panicle spiked, ovate; awn as long as the glumes 6. P. ALPINUM.

1. *P. asperum*. (Vill.) *Rough Cat's-tail Grass*. Dry open fields, in the west of England. Rare. Fl. July. Annual. E. B. 1077., H. 35., Kunth, 28. *Chilochloa asp.* (Beauv.)

2. *P. Boehmeri*. (Schrad.) *Purple-stalked Cat's-tail Grass*. Dry, sandy, and chalky fields; Norfolk and Cambridge. Rare. Fl. July. Perennial. E. B.

459., H. 35., Kunth, 28. *Chilochl. Boehm.* (Beauv.) *Phal. phleoides.* (L. sp. 80.)

3. ! *P. arenarium.* (L. sp. 88.) *Sea Cat's-tail Grass.* On loose sand near the sea. Fl. May, June. Annual. E. B. 222., H. 35., Kunth, 28. *Chilochloa aren.* (Beauv.) *Achnodon arenarius.* (Lind. 300.)

4. *P. Michellii.* (Allion.) *Michellian Cat's-tail Grass.* Rocks of Clova, Scotland. Fl. July, Aug. Perennial. E. B. 2265., H. 35., Kunth, 28.

5. ! *P. pratense.* (L. sp. 87.) *Common Cat's-tail, or Timothy, Grass.* Meadows and pastures. Common. Fl. June. Perennial. E. B. 1076., H. 34., Kunth 29.

β. ! *nodosum.* Root tuberous. *P. nodosum.* (Willd.)

6. *P. alpinum.* (L. sp. 88.) *Alpine Cat's-tail Grass.* Scotch mountains. Rare. Fl. July. Perennial. E. B. 519., H. 35., Kunth, 29.

V. PHALARIS. (L. gen. n. 74., Kunth agrost. 31.)

Panicle generally compact, resembling a spike; the *spikelets* 3-flowered; the 2 lower very small, squamiform; the upper fertile. *Glumes* 2, carinato-navicular; the *keel* being generally winged, not awned, subequal, membranous, longer than the florets. *Paleæ* 2, both carinato-navicular, not awned; membranous; the lower one larger, and enclosing the upper one. *Ovary* glabrous. *Styles* very long. *Scales* 2, small, glabrous. *Cariopsis* oblong, lenticularly compressed at the sides, glabrous, free, becoming closely surrounded by the coriaceous *paleæ*.

Keel of the glumes winged; panicle compact - 1. *P. CANARIENSIS.*

Keel of the glumes not winged; panicle diffuse (gen. } 2. *P. ARUNDINACEA.*
Digraphis, Trin.) - - - }

1. ! *P. canariensis.* (L. sp. 79.) *Canary Grass.* Cultivated grounds. Not unfrequent, but naturalised. Fl. yellowish green. July. Biennial. E. B. 1510., H. 34., Kunth, 31.

2. ! *P. ? arundinacea.* (L. sp. 80.) *Reed Phalaris.* Sides of lakes and rivers. Common. Fl. July, Aug. Perennial. E. B. 402. and 2160., H. 34., Kunth, 33. *Digraphis arund.* (Trin. and Lind. syn. 301.) *Baldingera arund.* (Dumort.)

β. *variegata.* *Riband Grass.* Leaves striped with white. Native of Japan. Cult. in gardens. Very common. Naturalised near Cardigan. Rev. J. Tozer in Hook. 34.

VI. HOLCUS. (L. gen. n. 1146., Kunth agr. 34.)

Panicle expanded during flowering. *Spicula* 2-flowered; the *florets* distant; lower one hermaphrodite; the upper male. *Glumes* 2, membranous, naviculari-carinate, longer than the florets. *Paleæ* 2, membranous; equal in length; the lower one carinato-navicular, 5-nerved, awned only in the upper floret; upper *palea* 2-keeled. *Ovary* pear-shaped. *Styles* very short. *Scales* 2, longer than the ovary. *Cariopsis* glabrous, free, loosely surrounded by the glumes and *paleæ*.

Calyx valves acuminate; culm with a tuft of hairs at the } 1. *H. MOLLIS.*
joints; awn geniculate, exsert; root creeping - }

Calyx valves obtuse; culm not tufted with hair at the } 2. *H. LANATUS.*
joints; awn curved, not exsert; root fibrous - }

1. ! *H. mollis.* (L. sp. 1485.) *Creeping soft Grass.* Pastures and hedges. Common. Fl. July. Perennial. E. B. 1170., H. 42. Kunth, 35.

2. ! *H. lanatus.* (L. sp. 1485.) *Meadow soft Grass.* Meadows, &c. Very common. Fl. June, July. Perennial. E. B. 1169., H. 42. Kunth, 34.

VII. HIEROCHLOA. (Gmel., Brown, Kunth agr. 35.)

Panicle diffuse or compact. *Spikelets* pedicellated, 3-flowered; the 2 lower florets male, triandrous; the upper one hermaphrodite, diandrous. *Glumes* 2-keeled, membranous, subequal. *Paleæ* 2; the lower one keeled; the upper one, in the male flowers, bicarinate. *Scales* 2, lanceolate glabrous, shorter than the ovary. *Cariopsis* glabrous, elliptical, free; but surrounded by the glumes and *paleæ*. — Odour the same as of *Anthoxanthum*.

1. *H. borealis.* (Rœmer and Schultz.) *Northern Holy Grass.* Valley of Kella, Angusshire. Fl. July. Perennial. E. B. 2641. H. 42. Kunth, 36.

VIII. ANTHOXANTHUM. (L. gen. n. 42., Kunth agr. 37.)

Panicle spiked. *Spikelets* 3-flowered; lower *florets* sterile; the upper her-

maphrodite. *Glumes* 2, unequal; the lower much shorter, 1-nerved; the upper 3-nerved, longer than the florets. Sterile *floret* with a single hirsute palea, having a twisted awn arising from above the base. Hermaphrodite *floret* with membranous, glabrous, palea. *Stamens* 2; the *filaments* elongated, filiform. *Ovary* sessile, glabrous. *Stigmas* very long, plumose. *Scales* none. *Cariopsis* elliptical, sharp at both extremities, terete, closely covered by the brown shining palea, but free. — Odour aromatic.

1. ! *A. odoratum*. (L. sp. 40.) *Sweet-scented Vernal Grass*. Meadows, woods, and pastures. Very common. Fl. May. Perennial. E. B. 647., H. 14., Kunth, 38.

Tribe II. PANICEÆ. (Kunth agrost. p. 40.)

Spikelets 2-flowered; the lower flower incomplete. *Glumes* of a slighter texture than the palea; the lower one often (very rarely both) abortive. *Palea* of a more or less leathery, or paper-like texture, generally without awns; the lower one concave. *Cariopsis* compressed, parallel with the embryo.

IX. MILIUM. (L. gen. n. 79., Kunth, 65.)

Panicle spreading; the branches verticillate. *Spikelets* 2-flowered, not articulate with the pedicel; lower *floret* neuter, with 1 palea, which much resembles a glume (and hence, according to Nees v. Esenb., the spikelets are 1-flowered, with 2 glumes); upper *floret* hermaphrodite, with 2 palea. *Glume* 1 (the lower being abortive), not awned, membranous, concave. *Palea* of the hermaphrodite *floret* subcoriaceous, not awned; the lower concave, embracing the 2-nerved upper ones. *Styles* short. *Scales* 2, fleshy; longer than the ovary. *Cariopsis* glabrous, elliptical; sharp at the points, closely surrounded by the indurated palea, but free.

1. ! *M. effusum*. (L. sp. 90.) *Spreading Millet Grass*. Moist shady woods. Charlton, Forrest Hill, Caen Wood. Fl. June. Perennial. E. B. 1006., H. 36. Kunth, 66.

X. PANICUM. (L. gen. n. 76., Kunth agr. 75.)

Inflorescence spiked, or paniced. *Spikelets* 2-flowered, naked; the upper *floret* hermaphrodite; the lower male or neuter, with 1—2 membranous awnless palea. *Glumes* 2, very unequal, membranous, concave, awnless. *Palea* of hermaphrodite *florets* 2, coriaceous, subequal, concave; the lower one embracing the upper. *Styles* elongated. *Scales* 2, fleshy truncate, glabrous. *Cariopsis* glabrous, closely surrounded with the palea, but free.

Leaves and sheaths hairy; florets oblong, glabrous,	} 1. P. SANGUINALE.
their margins scabrous - - - - -	
Leaves and sheaths glabrous; florets ovate, pubescent - - - - -	} 2. P. HUMIFUSUM.
- - - - -	

1. ! *P. sanguinale*. (L. sp. 84.) *Hairy Cock's-foot*. In sandy soil; Battersea Fields. Rare. Fl. July, Aug. Annual. E. B. 849. Kunth, 82. *Digitaria sang.* (H. 58.)

2. ! *P. glabrum*. (Gaudin.) *Glabrous Cock's-foot*. Weybridge, Ipswich, and the eastern counties. Fl. July, Aug. Annual. Kunth, 83. *Digitaria humifusa*. (E. B. 2613., H. 59.)

XI. OPLISMENUS. (Beauv., Kunth agrost. 138.)

Spikelets arranged in partial spikes, which are racemose or paniculated; the *rachis* not articulated. *Spikelets* 2-flowered, naked; the upper *floret* hermaphrodite, the lower one with 1—2 palea; male or neuter. *Glumes* 2, membranous, concave or subcarinate, unequal; generally awned. *Palea* of the hermaphrodite *floret* coriaceous; the lower acuminate, mucronate, concave, embracing the upper one. *Palea* of sterile *floret* membranous; the lower one awned. *Styles* elongated. *Scales* 2, fleshy, entire, truncate, glabrous. *Cariopsis* glabrous, surrounded by the palea, but free.

1. ! *O. Crus galli*. (Kunth.) *Common Cock's-foot*. Battersea Fields. Fl. July. Annual. Kunth, 143. *Panicum Crus galli*. (L. sp. 83., E. B. 876., H. 43.) *Echinochloa Crus galli*. (Lind. syn. 305.)

XII. SETARIA. (Beauv., Kunth agrost. 149.)

Panicle compactly or interruptedly spiked. *Rachis* not articulate. *Spikelets* 2-flowered, surrounded by an involucre; the upper *floret* hermaphrodite; the

lower male or neuter, with 1—2 paleæ, awnless. *Involucre* persistent, unilateral, composed of bristles. *Glumes* 2, membranous, unequal, concave, awnless. *Paleæ* of hermaphrodite floret coriaceous, concave, awnless; the lower one embracing the upper. *Styles* elongated. *Scales* 2, fleshy, truncate, glabrous. *Cariopsis* glabrous, surrounded by the paleæ, but free.

- Panicle interrupted; the branches verticillate; bristles of the involucre with reversed teeth } 1. *S. VERTICILLATA*.
 Panicle compact; bristles with erect teeth } 2. *S. VIRIDIS*.
 1. ! *S. verticillata*. (Beauv.) *Rough Bristle Grass*. Battersea Fields and Norwich. Fl. July, Aug. Annual. H. 43., Kunth, 152. *Panicum vertic.* (L. sp. 82., E. B. 874.)
 2. ! *S. viridis*. (Beauv.) *Green Bristle Grass*. Battersea and Norwich. Fl. July, Aug. Annual. H. 43., Kunth, 151. *Panic. virid.* (L. sp. 83., E. B. 875.)

Tribe III. STIPACEÆ. (Kunth agrost. p. 175.)

Spikelets 1-flowered. Lower *palea* involute, awned at the apex, becoming indurated at maturity. *Awn* simple or trifid, generally twisted and articulated at the base. *Ovary* stipitate. *Scales* generally 3.

XIII. STIPA. (L. gen. n. 90., Kunth agrost. 179.)

Inflorescence paniced; the *spikelets* pedicellated, 1-flowered; the *florets* stipitate. *Glumes* 2, membranous, awnless, channeled, subequal, longer than the floret. *Paleæ* 2, coriaceous, rolled up into a cylinder; the lower one awned at the apex; the *awn* twisted and articulated at the base. Upper *palea* generally much shorter, 2-nerved. Filaments of the *anthers* adnate at the base to the stalk of the ovary. *Styles* short. *Scales* 3, entire, adnate beneath to the stalk of the ovary; glabrous, fleshy, or membranous. *Cariopsis* terete, glabrous, surrounded by the paleæ, but free.

1. *S. pennata*. (L. sp. 115.) *Feather Grass*. Westmoreland, in the time of Dillenius. Probably not native. Fl. June. Perennial. E. B. 1356., H. 36., Kunth, 179.

Tribe IV. AGROSTIDEÆ. (Kunth agrost. p. 198.)

Spikelets 1-flowered; rarely having a subulate rudiment of a second floret. *Glumes* and *paleæ* membranaceo-herbaceous; the lower *palea* being often awned. *Stigmas* generally sessile.

XIV. AGROSTIS. (L. gen. n. 80., Kunth agrost. 217.)

Panicle diffuse, rarely compact; the *branches* verticillate. *Spikelets* 1-flowered, pedicellated. *Glumes* 2, subequal, generally much longer than the florets, keeled, awnless. *Paleæ* 2; the lower one awned at the back, rarely awnless; the upper one bicarinate, sometimes very small, often wanting (*Trichodium*, Lind.); sometimes having at its base the subulate pedicel of a second flower. *Stigmas* subsessile. *Scales* 2, glabrous, entire. *Cariopsis* free, glabrous.

Outer *palea* awnless

- branches of the panicle smoothish; outer *palea* 3-nerved; ligule truncate, very short } 2. *A. VULGARIS*.
 branches of the panicle hispid; outer *palea* 5-nerved; ligule oblong } 1. *A. ALBA*.

Outer *palea* with a dorsal awn

- awn from near the apex of the paleæ, very long and straight; inner *palea* with a barren pedicel at its base (gen. *Anemogrostis*, Trin.) } 5. *A. SPICA VENTI*.

awn from the base, or from below the middle of the paleæ, generally bent; no rudiment of a second flower

inner *palea* very minute, or wanting (gen. *Trichodium*, Schrad.)

- branches of the panicle long, slender, erecto-patent } 4. *A. CANINA*.
 branches of the panicle short, close } 3. *A. SETACEA*.
 inner *palea* half as large as the outer *palea* } 2. *A. VULGARIS* var.

1. ! *A. alba*. (L. sp. 93.) *Marsh Bent Grass*. Pastures and road sides. Common. Fl. July, Aug. Perennial. E. B. 1189., H. 39., Kunth, 219. *A. polymorpha* ζ. (Huds. ang. 32.)
- β. ! *sylvatica*. Florets viviparous. *A. sylvatica*. (L. sp. 1669.)
- γ. ! *stolonifera*. Panicle crowded, branched, repent. *A. stolonifera*. (E. B. 1532., Kunth, 219.)
2. ! *A. vulgaris*. (With.) *Fine Bent Grass*. Meadows and banks. Common. Fl. June, July. Perennial. E. B. 1671., H. 38., Kunth, 220.
- β. *aristata*. (Hook.) Outer valve of the corolla awned.
- γ. ! *pumila*. (Hook.) Scarcely 3 inches high. *A. pumila*. (Lin. mant. 31.)
3. *A. setacea*. (Curt. lond. vi. t. 12.) *Bristle-leaved Bent Grass*. Sandy heaths, from Hampshire to Cornwall; Stokes Bay, very abundant. Fl. June, July. Perennial. E. B. 1188., H. 37., Kunth, 222. *Trichodium setaceum*. (Lind. 303.)
4. ! *A. canina*. (L. sp. 92.) *Brown Bent Grass*. Moist heaths and moors. Common. Fl. June, July. Perennial. E. B. 1856., H. 37., Kunth, 222. *Trichodium caninum*. (Lind. 303.)
5. ! *A. Spica venti*. (L. sp. 91.) *Silky Bent Grass*. Sandy fields, which are occasionally flooded; Battersea; also Norfolk and Lancashire. Fl. June, July. Annual. E. B. 951., H. 38., Kunth, 225. *Anemagrostis Spica venti*. (Trin., Lind. 304.) *Apera Spic. vent.* (Beauv., Nees v. Esenb.)

XV. GASTRIDIDIUM. (Beauv., Kunth agrost. 230.)

Panicle compact, spiked. *Spikelets* pedicellated, 1-flowered. *Glumes* 2, membranous, lanceolate, much longer than the flower, closed, ventricose at the base. *Paleæ* 2, thin, membranous; the lower one truncato-dentate, awned or awnless, embracing the upper 2-nerved, 2-keeled one. *Stigmas* subsessile. *Scales* 2, glabrous, entire, longer than the ovary. *Cariopsis* elliptical, marked with a longitudinal furrow on the inside; covered with the paleæ, free.

1. ! *G. lendigerum*. (Beauv.) *Awned Nit Grass*. Paleæ awned. Woolwich and Northfleet; also about Gosport, and in the Isle of Wight, Hants, very common. Fl. Aug. Annual. H. 36. *G. australe*. (Kunth, 230.) *Milium lendigerum*. (E. B. 1107.)

XVI. POLYPOGON. (Desfont., Kunth agrost. 232.)

Panicle much branched, crowded, spiked; the *spikelets* pedicellated, 1-flowered; the *floret* sessile, not bearded at the base. *Glumes* 2-keeled, membranous, awned, subequal, much longer than the floret. *Paleæ* 2, thin, membranous; the lower one truncate, denticulate, with an awn beneath the apex; the upper one bicarinate. *Stigmas* 2, subsessile. *Scales* 2, falcate, cartilago-membranous, entire, glabrous, longer than the ovary. *Cariopsis* obovate, not covered with the paleæ, free.

- | | | |
|---|---|------------------------------|
| Awns thrice as long as the rough obtuse glumes; | } | 1. <i>P. MONSPELIENSIS</i> . |
| root annual | | |
| Awns as long as the subglabrous acute glumes; | } | 2. <i>P. LITTORALIS</i> . |
| root perennial | | |

1. ! *P. monspeliensis*. (Desfont.) *Annual Beard Grass*. Near Woolwich; also in Essex, Hants, and Norfolk. Fl. July, Aug. Annual. H. 36., Kunth, 232. *Agrostis panicea*. (E. B. 1704.) *Alopec. monsp.* (L. sp. 89.)

α. *major*. (Kunth.) Panicle lobed. Culm repent at the base. Setæ very long. *P. polysetus*. (Steud.) Near Porchester, Hants.

β. *minor*. (Kunth.) Panicle short, densely spiked. Culm rarely repent at the base. Setæ short. Salt-works near Portsmouth.

2. ! *P. littoralis*. (Sm.) *Perennial Beard Grass*. Muddy salt marshes. Rare. Near Woolwich; also in Essex; and near Cley, Norfolk. Fl. July. Perennial. H. 36., Kunth, 233. *Agrostis littoralis*. (E. B. 1251.)

Tribe V. ARUNDINACEÆ. (Kunth agrost. p. 236.)

Spikelets either 1-flowered, with or without the pedicel of the abortive floret, or many-flowered. *Florets* generally surrounded at the base, or beset with long soft hairs. *Glumes* and *paleæ* 2, membranaceo-herbaceous; the former as long as, or longer than, the florets; the lower *paleæ* awned or awnless. — Generally tall grasses.

XVII. CALAMAGROSTIS. (Arduin., Kunth agrost. 236.)

Panicle ramose; the *spikelets* pedicellated, 1-flowered. *Floret* sessile, surrounded at the base with long hairs. *Glumes* 2, membranous, channeled, acute or subulate, subequal, or the lower the longest; much longer than the *floret*. *Paleæ* 2, membranous; the lower one awned at the apex or back; very rarely awnless. *Stigma* subsessile. *Scales* 2, glabrous, entire. *Cariopsis* oblong, glabrous, marked with a longitudinal furrow, loosely enveloped in the *paleæ*.

- Panicle* loose; the flowers scattered, spreading; keel of the glumes smooth; awn short, from between the bifid point of the palea } 1. *C. LANCEOLATA*.
Panicle close; the flower crowded, unilateral; keel of the glumes rough; awn dorsal, as long as the palea } 2. *C. EPIGEJOS*.

1. ! *C. lanceolata*. (Roth.) *Purple-flowered Small Reed*. Moist hedges in fenny countries. Fl. June. Perennial. H. 37., Kunth 236. *Arundo Calamagrostis*. (L. sp. 121., E. B. 2159.)

2. ! *A. Epigejos*. (Roth.) *Wood small Reed*. Shady places; south of England. Fl. July. Perennial. H. 36., Kunth, 237. *Arund. Epig.* (L. sp. 120., E. B. 403.)

XVIII. DEYEUXIA. (Beauv., Kunth agrost. 239.)

Panicle branched; the *spikelets* pedicellated, 2-flowered. Lower *floret* sessile, hermaphrodite, bearded at the base; upper one reduced to a plumose pedicel. *Glumes* 2, convex, subequal, awnless; about the length of the *floret*. *Paleæ* 2; the lower one with a twisted awn on the back, the upper one bicarinate. *Cariopsis* as in *Calamagrostis*.

- Awn straight; hairs shorter than the florets - - 1. *D. NEGLECTA*.
 Awn geniculate; hairs as long as the florets - - 2. *D. LAPPONICA*.

1. *D. neglecta*. (Kunth agr. 243.) *Narrow small Reed*. Near Forfar. Rare. Fl. June. Perennial. Kunth, 242. *Arundo stricta*. (E. B. 2160.) *Calamag. stricta*. (H. 37.)

2. *D. lapponica*. (Kunth.) *Lapland Reed*. *Panicle* erect, stiff. *Glumes* acute. *Awns* geniculate. *Hairs* as long as the calyx. Discovered on Church Island, Lough Neagh, by Mr. Moore. Fl. July. Perennial. *Calamagrostis lapponica*. (Hook. in companion to Bot. mag. Jan. 1837.)

XIX. AMMOPHILA. (Host., Kunth agrost. 245.)

Panicle crowded, spiked; the *spikelets* pedicellated, 2-flowered. Lower *floret* on a short pedicel, bearded at the base; upper one reduced to a plumose pedicel. *Glumes* 2, membranous, subequal, lanceolate, keeled, longer than the *floret*, awnless; the lower 1-nerved, the upper one 3-nerved. *Paleæ* 2, membranous, subequal; the lower 5-nerved, mucronate at the apex; the upper one bicarinate. *Ovary* pyriform, glabrous. *Stigmas* sessile. *Scales* 2, lanceolate, acuminate, glabrous; much longer than the ovary. *Cariopsis* elliptical, with a longitudinal furrow; loosely covered with *paleæ*.

1. *A. arundinacea*. (Host.) *Common Sea Reed, Marum, or Matweed*. Sandy sea shores. Common. Employed to bind sand banks on many parts of the coast. H. 34., Kunth, 245. *Arundo arenaria*. (L. sp. 121., E. B. 520.)

XX. PHRAGMITES. (Trin., Kunth agrost. 250.)

Panicles branched, diffuse. *Spikelets* pedicellated, 3—6-flowered. *Florets* in 2 rows, distant, not bearded; lowest one male, the rest hermaphrodite. *Rachis* beset with long silken hairs. *Glumes* 2, membranous, unequal, keeled; much shorter than the *florets*: upper one much longer than the lower. *Paleæ* 2, membranous; the lower very long, acuminate, twice or thrice the length of the upper one. *Styles* elongated. *Scales* 2, glabrous, very large, embracing the ovary. *Cariopsis* oblong, loosely surrounded by the *glumes* and *paleæ*.

1. ! *P. communis*. (Trin.) *Common Reed*. Ditches and margins of rivers. Common. Fl. July. Perennial. Kunth 251., Nees v. Esenb. *Arundo Phragmites*. (L. sp. 120., E. B. 401., H. 54.)

Tribe VI. CHLORIDEÆ. (Kunth agrost. p. 258.)

Spikelets collected into unilateral 1- or many-flowered spikes; the upper *florets* incomplete. *Glumes* and *paleæ* 2, membranaceo-herbaceous; the latter

awned or awnless; the *glumes* adnate to the rachis, persistent. *Spikes* digitate or paniculate, very rarely solitary. *Rachis* not articulated.

XXI. CYNODON. (Rich., Kunth agrost. 259.)

Spikes digitato-fasciculate. *Spikelets* unilateral, sessile, alternate, about 2-flowered; the lower *floret* hermaphrodite; the upper one generally reduced to a subulate pedicel, or wanting. *Glumes* 2, membranous, keeled, 1-nerved, subequal, much shorter than the paleæ. *Paleæ* 2, subcoriaceous; the lower one compressed, keeled, 3-nerved, with or without a short awn; embracing the 2-keeled upper one. *Scales* 2, fleshy, glabrous, truncate, shorter than the ovary. *Cariopsis* ovate; sometimes surrounded by the paleæ.

1. *C. dactylon*. (Pers.) *Creeping Dog's-tooth Grass*. Sandy shores of Cornwall, near Penzance. Rare. Fl. Aug. Annual. H. 58. Kunth, 259. *Panicum Dactylon*. (L. sp. 85., E. B. 850.)

XXII. SPARTINA. (Schreb., Kunth agrost. 277.)

Spike composed of alternate or subdigitate partial spikes. *Spikelets* subpedicellated, unilateral, imbricated, compressed, 1-flowered; the *floret* sessile. *Glumes* 2, more or less acuminate or setigerous; the upper and outer one much the largest, longer than the flower. *Paleæ* 2, membranous, awnless, subequal; the lower 1-nerved, the upper 2-nerved. *Styles* elongated. *Scales* generally none (2 in *S. cynosuroides*). *Cariopsis* loosely covered with the paleæ.

Spikes 2, rarely 3 - - - - - 1. *S. STRICTA*.

Spikes 4—13 - - - - - 2. *S. ALTERNIFLORA*.

1. *S. stricta*. (Smith.) *Twin-spiked Cord Grass*. Muddy salt marshes on the east and south-east coast of England; about Portsmouth, very abundant. Fl. Aug. Perennial. H. 58. Kunth, 278. *Dactylis stricta*. (E. B. 380.)

2. *S. alterniflora*. (Loisel.) *Many-spiked Cord Grass*. Spikes numerous (4—13), coarctate. Flowers glabrous. Larger glume with strong lateral nerves; emarginate below the pilose apex. Leaves continuous with the sheaths, dilated at the base; longer than, or as long as, the flower spikes. Rachis much produced beyond the terminal florets of each partial spike, into a flexuose awn-like point. (Broomfield). Mud banks on both sides of the Itchen above the ferry at Southampton, very abundant. Discovered by the Rev. W. Broomfield, 1836. Fl. July, Aug. Perennial. Broomfield, in Companion to Bot. mag. ii. p. 258., Kunth, 279. *Trachynotia alternifolia*. (D. C. fl. fr. and Bot. gal. 527.) ? *S. glabra*. (Muhlemb.) ? *S. lævigata*. (Link.) *Dactylis marit.* (Wall.)

Tribe VII. AVENACEÆ. (Kunth agrost. p. 286.)

Spikelets 2- or many-flowered; the terminal *floret* generally incomplete. *Glumes* and *paleæ* 2, membranous, herbaceous; lower *palea* mostly awned; the awn often dorsal, and twisted.

XXIII. CORYNEPHORUS. (Beauv., Kunth agrost. 286.)

Panicle branched. *Spikelets* pedicellated, 2—3-flowered; the *florets* hermaphrodite. *Glumes* 2-keeled, awnless, subequal, longer than the florets. *Paleæ* 2, membranous; the lower one entire, awned above the base; the awn straight, articulated and barbate in the middle, club-shaped at the apex; upper *palea* 2-keeled beneath, 3-lobed at the apex, awnless. *Stigmas* subsessile. *Scales* 2, bifid, glabrous. *Cariopsis* glabrous, adherent to the paleæ.

1. *C. canescens*. (Beauv.) *Gray Hair Grass*. Sandy sea coasts of Norfolk and Suffolk. Fl. July. Perennial. Lind. 308. Kunth, 286. *Aira canescens*. (L. sp. 97., E. B. 1190., H. 286.)

XXIV. DESCHAMPSIA. (Beauv., Kunth agrost. 286.)

Panicle branched. *Spikelets* pedicellated, 2—3-flowered. *Glumes* 2-keeled, awnless, subequal, shorter than the spikelet. *Paleæ* 2, membranous, subequal in length; the lower one truncate, 4-dentate at the apex, having a straight awn above the base; upper one bifid at the apex, 2-keeled. *Stigmas* subsessile. *Scales* 2, entire, glabrous. *Cariopsis* glabrous, free.

1. *D. cæspitosa*. (Beauv.) *Turfy Hair Grass*. Borders of fields and moist shady places. Common. Fl. June, July. Perennial. Kunth, 286. *Aira cæspitosa*. (L. sp. 96., E. B. 1432., H. 39.)

XXV. AIRA. (L. gen. n. 81., Kunth agrost. 288.)

Panicle branched, diffuse, rarely crowded. *Spikelets* pedicellated; the *pedicels* not articulated with the glumes, 2-flowered; the *florets* subequal. *Glumes* 2, membranous, keeled, large. *Paleæ* 2, herbaceous; lower ones bifid at the apex, awned at the back (rarely awnless); the *awn* twisted at the base; upper *palea* 2-keeled. *Stigmas* sessile. *Scales* 2, acuminate, glabrous; sometimes having a lateral lobe. *Cariopsis* glabrous.

Awn inserted below the middle of the *paleæ*, longer than the glumes

panicle somewhat spiked - - - 1. *A. PRÆCOX*.

panicle spreading

stem scarcely half a foot high; *florets* subglabrous at the base, shorter than the glumes, } 2. *A. CARYOPHYLLEA*.
silvery grey - - - }

stem above 1 foot high; *florets* villous at the base, as long as the glumes, purplish green } 3. *A. FLEXUOSA*.

Awn inserted above the middle of the *palea*, shorter than the glumes; lower *spikelets* generally viviparous - - - } 4. *A. ALPINA*.

1. ! *A. præcox*. (L. sp. 97.) *Early Hair Grass*. Sandy heaths and pastures. Very common. Fl. May, June. Annual. E. B. 1296., H. 41., Kunth, 289.

2. ! *A. caryophyllea*. (L. sp. 97.) *Silvery Hair Grass*. Gravelly hills and pastures. Common. Fl. June, July. Annual. E. B. 812., H. 40. Kunth, 289.

3. ! *A. flexuosa*. (L. sp. 96.) *Waved Hair Grass*. Heaths. Common. Fl. July. Perennial. E. B. 1519., H. 40., Kunth, 290.

4. *A. alpina*. (L. sp. 96.) *Smooth alpine Hair Grass*. Moist rocks on the higher mountains of Wales and Scotland. Fl. June, July. Perennial. H. 40., Kunth, 290. *Aira lævigata*. (E. B. 2102.)

XXVI. LAGURUS. (L. gen. n. 92., Kunth agrost. 294.)

Panicle spiked; the *branches* very short, crowded, ovate or ovate-oblong. *Spikelets* 1-flowered; the *floret* on a short pedicel, bearded at the base, and with a pedicellate rudiment of a second flower. *Glumes* 2, plumose, subequal, membranous, lanceolate, tapering into bristles at the apex; longer than the *floret*. *Paleæ* 2; the lower one concave, with 2 awns at the apex, and a third longer one from the back; upper *palea* short. *Stigmas* sessile, pilose on all sides. *Scales* 2, glabrous, obtuse, denticulate at the apex. *Cariopsis* laterally compressed, loosely covered with the *paleæ* and plumose glumes.

1. *L. ovatus*. (L. sp. 119.) *Hare's-tail Grass*. Sandy fields near the sea. Guernsey. Rare. Fl. June. Annual. E. B. 1334., H. 35., Kunth 294.

XXVII. TRISETUM. (Kunth agrost. 295.)

Panicle spicate, rarely diffuse. *Spikelets* 2—4-flowered. *Glumes* 2, membranous, keeled, awnless. *Paleæ* 2, herbaceous; the lower one bicuspidate at the apex, awned at the back; the upper one 2-keeled; with a twisted awn. *Stigmas* sessile. *Scales* 2, glabrous, entire, or lobed. *Cariopsis* free, glabrous, not furrowed. Only differing from *Aira* in the number of the *florets*.

1. ! *T. flavescens*. (Beauv.) *Yellow Hair Grass*. Dry meadows and banks. Common. Fl. July. Perennial. Kunth 298., Lind. syn. 309. *Avena flavescens*. (L. sp. 118., E. B. 952., H. 54.)

XXVIII. AVENA. (L. gen. n. 91., Kunth agrost. 299.)

Spikelets paniced, racemose, or spiked; 3- or many-flowered; the *florets* remote; the upper one incomplete. *Glumes* 2, thin, membranous. *Paleæ* 2, herbaceous; the lower one awned on the back above the base, and generally bicuspidate at the apex; the *awn* twisted; upper *palea* 2-keeled, awnless. *Ovary* subpyriform, hirsute at the apex. *Stigmas* distant. *Scales* 2, glabrous, generally bifid, large. *Cariopsis* elongated, terete, marked with a longitudinal furrow on the inner side; pilose at the apex, covered with the *paleæ*, and adherent to the upper one.

Spikelets 4—7-flowered, longer than the glumes

raceme simple; lower leaves involute; sheaths } 2. *A. PRATENSIS*.
scarcely scabrous - - - }

raceme or panicle compound; leaves all flat;
sheaths scabrous

culm cylindrical; leaves glabrous - - - 3. *A. ALPINA*.

culm and sheaths compressed below; leaves }
scabrous - - - - - } 4. *A. PLANICULMIS*.

Spikelets 2 or 3-flowered

spikelets shorter than the glumes; root fibrous,
annual

branches of the panicle secund

spikelets 3-flowered; florets with 3 awns, 2 }
lateral, the third or dorsal one very long } 7. *A. STRIGOSA*.

spikelets 2-flowered; one of the florets awn- }
less, the other with a short dorsal awn - } 6. *A. ORIENTALIS*, clt.

branches of the panicle from all sides of the
culm

florets naked at the base; awn short - - - 5. *A. SATIVA*, clt.

florets villous at the base; awn long, twisted 8. *A. FATUA*.

spikelets rather longer than the glumes; root }
subrepent - - - - - } 1. *A. PUBESCENS*.

1. ! *A. pubescens*. (L. sp. 1665.) *Downy Oat Grass*. Dry pastures in chalky and limestone countries. Fl. June, July. Perennial. E. B. 1640., H. 54., Kunth, 300. *Trisetum pubescens*. (Lind. 308.)

2. ! *A. pratensis*. (L. sp. 119.) *Narrow-leaved Oat Grass*. Dry pastures; heathy and mountainous places. Fl. July. Perennial. E. B. 1204., H. 53., Kunth, 300.

3. *A. alpina*. (Sm.) *Great Alpine Oat Grass*. Rocky places on the Scotch mountains. Fl. June, July. Perennial. E. B. 2141., H. 53., Kunth, 301.

4. *A. planiculmis*. (Schrad.) *Flat-stemmed Oat Grass*. Isle of Arran, Scotland. Fl. July. Perennial. H. 53., Kunth, 301.

5. *A. sativa*. (L. sp. 118.) *Cultivated Oat*. Panicle equal; the spikelets 2-flowered. Florets shorter than the glumes, naked at the base, 1-awned. Root fibrous, annual. Native country unknown. Cult. in fields. Very common. Fl. July. Annual. Kunth, 301.

β. Florets all awnless.

γ. Fruit dark brown.

* * *A. nuda* (L. sp. 118.), *Naked Oat*, seems to be a hybrid from *A. sativa*, with the spikelets 3-flowered, longer than the glumes. *A. nuda* is considered the best for making groats.

6. *A. orientalis*. (Schreb.) *Tartarian Oat*. Panicle secund, contracted. Spikelets 2-flowered, shorter than the glumes. One of the florets awnless. Root fibrous, annual. Native of Asia. Cult. in fields. Fl. July. Annual. Kunth, 302.

7. ! *A. strigosa*. (Schreb.) *Bristle-pointed Oat*. Corn fields. Not uncommon. Fl. June, July. Annual. E. B. 1266. H. 53., Kunth, 302.

8. ! *A. fatua*. (L. sp. 118.) *Wild Oat*. Corn fields. Fl. June, Aug. Annual. E. B. 2221., H. 53., Kunth, 302.

XXIX. ARRENATHERUM. (Beauv., Kunth agrost. 307.)

Panicle branched, diffuse; the branches semiverticillate. Culm with fleshy bulbs at the base. Spikelets pedicellated, 2-flowered, with a filiform rudiment of a third floret; lower floret male, the upper one hermaphrodite. Glumes 2, membranous, concave; the upper one the longest, of the same length as the florets. Paleæ herbaceous; the lower concave, awned; the upper one 2-keeled. Awn of the male floret very long, twisted beneath, and arising from, the base; that of the hermaphrodite floret much shorter, and from beneath the apex. Ovary pyriform, pilose at the apex. Scales 2, very long, lanceolate, linear, entire, glabrous. Cariopsis adnate.

1. ! *A. avenaceum*. (Beauv.) *Common oat-like Grass*. Hedges and pastures. Frequent. Fl. June, July. Perennial. H. 42., Kunth, 307. *Avena elatior*. (L. sp. 117.) *Holcus avenaceus*. (E. B. 813.)

XXX. DANTHONIA. (D. C., Kunth agrost. 311.)

Spikelets racemose or paniculated, pedicellated, 2- or many-flowered. Florets distichous; the upper one generally incomplete. Glumes 2, membranous, subcarinate, awnless, subequal; often equal to, or longer than, the flowers. Paleæ 2; the lower one membranous, concave, 9-nerved; bifid at the apex, with an

awn arising from between the segments; twisted above, or straight and short; and thus the palea appears 3-toothed; upper *palea* 2-keeled. *Ovary* glabrous, stipitate. *Stigmas* subsessile. *Scales* 2, membranous, thick, generally glabrous. *Cariopsis* elliptic, smooth, glabrous. *Pericarp* thin, membranous, adherent.

1. ! *D. decumbens*. (D. C. fl. fr.) *Decumbent Heath Grass*. Heaths, moors, and mountain pastures. Common. Fl. July. Perennial. D. C. bot. gal. 514., Kunth, 311. *Festuca decumb.* (L. sp. 110.) *Poa decumb.* (E. B. 792.) *Triodia decumb.* (H. 47.)

Tribe VIII. FESTUCACEÆ. (Kunth agrost. p. 321.)

Spikelets many-flowered, rarely few-flowered. *Glumes* and *palea* 2, membranaceous-herbaceous, rarely coriaceous; lower *palea* generally awned; the awn not twisted. *Inflorescence* usually paniculate.

XXXI. SESLERIA. (Arduin, Kunth agrost. 321.)

Spike simple, globose, oblong or linear, crowded; sometimes bracteate at the base. *Rachis* not articulated. *Spikelets* 2—6-flowered, distichous. *Glumes* 2, membranous, blunt; rarely mucronate, unequal. *Palea* 2, membranous; the lower one keeled, aristato-mucronate, sometimes 3—5-dentate; the *teeth* mucronate; upper *palea* 2-keeled, bifid at the apex. *Stigmas* subsessile, very long. *Scales* 2, entire, or 2—5-fid. *Cariopsis* oblong, convex on the outer side, flat on the inner side; glabrous, free.

1. *S. cærulea*. (Arduin.) *Blue Moor Grass*. Mountains; England and Scotland. Fl. with bluish grey spikes. April, May. Perennial. E. B. 1613., Kunth, 321. *Cynosurus cæruleus*. (L. sp. 106.)

XXXII. POA. (L. gen. n. 83., Kunth agrost. 324.)

Flowers sometimes dioecious. *Panicle* loose, rarely coarctate or spiked; the *spikelets* pedicellated, 2- or many-flowered. *Glumes* 2, blunt. *Palea* 2, membranous, blunt; the lower one keeled; rarely concave at the back and subcoriaceous; upper one 2-keeled. *Scales* 2, bifid or entire, glabrous. *Cariopsis* glabrous, free. — Leaves flat.

Florets connected by a web

panicle rather dense

panicle unilateral; stem compressed; root creeping 8. *P. COMPRESSA*.

panicle equal; stem round, bulbous at the base - 4. *P. BULBOSA*.

panicle loosely spreading

branches of the panicle in pairs - 3. *P. LAXA*.

branches of the panicle generally in fives

stem and sheaths rough; ligule oblong; root fibrous } 5. *P. TRIVIALIS*.

stem and sheaths smooth; ligule short; root creeping } 6. *P. PRATENSIS*.

Florets without a web, generally with hairs at the base

lateral branches of the panicle 2—3-flowered - 2. *P. ALPINA*.

lateral branches many-flowered

branches of the panicle glabrous, solitary, or in pairs; roots fibrous } 1. *P. ANNUA*.

branches of the panicle rough, generally in fives; root repent } 7. *P. NEMORALIS*.

1. ! *P. annua*. (L. sp. 99.) *Annual Meadow Grass*. On all soils and in all situations. Fl. whole year. Annual. E. B. 1141., H. 46., Kunth, 349.

2. *P. laxa*. (Hænk.) *Wavy Meadow Grass*. Ben Nevis. Fl. July. Perennial. H. 45., Kunth, 349. *Poa flexuosa*. (E. B. 1123.)

3. *P. alpina*. (L. sp. 99.) *Alpine Meadow Grass*. Mountains of Wales and Scotland. Abundant. Fl. July, Aug. Perennial. E. B. 1003., H. 45., Kunth, 350.

β. *vivipara*. (Host.) *Spikelets* viviparous. Most common form on lofty mountains.

γ. *glomerata*. (D. Don.) *Spikelets* densely crowded. Banks of the Esk.

4. *P. bulbosa*. (L. sp. 102.) *Bulbous Meadow Grass*. Sandy sea shores of the east and south of England; Denes, at Yarmouth, abundant. Fl. May. Perennial. E. B. 1071., H. 45., Kunth, 352.)

5. ! *P. trivialis*. (L. sp. 99.) *Roughish Meadow Grass*. Meadows and pastures. Common. Fl. June. Perennial. E. B. 1072., H. 46., Kunth, 352.

6. ! *P. pratensis*. (L. sp. 99.) *Smooth-stalked Meadow Grass*. Meadows and pastures. Common. Fl. June, July. Perennial. E. B. 1073., H. 46., Kunth, 352.

β. *angustifolia*. (Hook.) Smaller, and with narrower leaves. *P. angustifolia*. (L. sp. 99.)

γ. *subcærulea*. (Hook.) Smaller, and glaucous. *P. subcærulea*. E. B. 1004. Var. *latifolia*. (Kunth.)

7. ! *P. nemoralis*. (L. sp. 102.) *Wood Meadow Grass*. Woods and thickets. Common. Fl. June, July. Perennial. E. B. 1265., H. 46., Kunth, 353.

β. *glaucæ*. (Hook.) Plant smaller, and every where glaucous. *P. glaucæ*. (E. B. 1720.) Mountains of Wales and Scotland.

* * *P. cæsia*. (E. B. 1719.) ? *P. Gaudini*. (Kunth.) is an alpine variety of *P. nemoralis*, according to Sir W. Hooker.

8. ! *P. compressa*. (L. sp. 101.) *Flat-stemmed Meadow Grass*. Walls and dry barren ground. Common. Fl. June, July. Perennial. E. B. 365., H. 45., Kunth, 355.

XXXIII. GLYCERIA. (Brown, Kunth agrost. 366.)

Panicle simple or branched; the *branches* semiverticillate. *Spikelets* many-flowered; the *florets* imbricato-distichous. *Rachis* jointed. *Glumes* 2, subovate, obtuse, membranous, concave; the lower one the shorter. *Paleæ* 2, membranous, rigid, subequal; the lower one ovato-elliptical, obtuse, or obsoletely 3-lobed, 7-nerved, concave; upper *palea* 2-keeled. *Styles* divaricate. *Stigmas* plumose with dichotomous hairs. *Scales* 2, truncate, fleshy, glabrous, connate; sometimes free at the apex. *Cariopsis* oblong, glabrous, free.

Panicle equal; branches in threes or fours - - - 1. *G. AQUATICA*.

Panicle secund, long, and slender; branches solitary or } 2. *G. FLUITANS*.
in pairs - - - - - }

1. ! *G. aquatica*. (Smith.) *Reed Grass*. Sides of rivers, &c. Common. Fl. July, Aug. Perennial. Kunth, 367. *Poa aquatica*. (L. sp. 98., E. B. 1315., H. 43.) *Hydrochloa aquatica*. (Lind. syn. 316.)

2. ! *G. fluitans*. (Brown.) *Manna-seed Grass*. Stagnant waters. Common. Fl. June, Aug. Perennial. Kunth, 367., Lind. 315. *Poa fluitans*. (E. B. 1520., H. 43. *Festuca fluitans*. (L. sp. 111.)

XXXIV. CATABROSA. (Beauv., Kunth agrost. 369.)

Panicle ramose, diffuse; the *branches* verticillated. *Spikelets* pedicellated, 2-flowered; the *florets* articulated at the base, deciduous; lower one sessile; upper one pedicellated; both hermaphrodite, equal. *Glumes* 2, membranous shorter than the florets, concave, coloured; the lower oblong, 1-nerved; the upper obovate, 3-nerved, coarsely crenate, or eroded at the apex. *Paleæ* 2, membranous, oblong, equal; lower one 3-nerved, truncate, rounded at the apex, keeled, trigonal; upper one 2-nerved, concave, bicarinate, subtrilobed rounded. *Ovary* roundish ovate. *Style* very short. *Scales* 2, fleshy, subtruncate at the apex, glabrous, not half the length of the ovary. *Cariopsis* oblique oblong, shortly pedicellated, glabrous, free, surrounded by the paleæ.

1. ! *C. aquatica*. (Beauv.) *Water Whorl Grass*. Pools of water, and banks of rivers and lakes. Fl. May, June. Perennial. H. 39., Kunth, 369. *Aira aquatica*. (L. sp. 95., E. B. 1557.) *Poa airoides*, D. C. bot. gal. p. 525.

XXXV. BRIZA. (L. gen. n. 84., Kunth agrost. 371.)

Panicle simple or branched, generally spreading. *Spikelets* pedicellated, many-flowered, generally cordate; the *florets* imbricato-distichous. *Glumes* 2, roundish, membranous, blunt, concavo-ventricose. *Paleæ* 2, membranous; the lower one roundish, blunt; the upper one much shorter, 2-keeled. *Stigmas* subsessile. *Scales* 2, glabrous, entire, or subbilobed. *Cariopsis* compressed, glabrous, free, or adnate to the upper palea.

Upper part of panicle nodding; spikelets 13—17-flowered 1. *B. MAXIMA*, clt.

Upper part of panicle erect; spikelets 5—9-flowered

spikelets becoming heart-shaped; glume shorter than } 2. *B. MEDIA*.
the flowers - - - - - }

spikelets triangular; glumes larger than the flowers - 3. *B. MINOR*.

1. *B. maxima*. (L. sp. 103.) *Great Quaking Grass*. Panicle nutant at the

apex. Spikelets oblongo-cordate, 13—17-flowered. Native of the south of Europe. Cultivated. Common. Fl. June. Annual. Kunth, 371.

2. ! *B. media*. (L. sp. 103.) *Common Quaking Grass, or Maiden's Hair*. Meadows and pastures. Frequent. Fl. June. Perennial. E. B. 340., H. 47., Kunth, 371.

3. *B. minor*. (L. sp. 102.) *Small quaking Grass*. Fields about Bath; Cornwall; Jersey. Rare. Fl. July. Annual. E. B. 1316., H. 47., Kunth, 372.

XXXVI. MELICA. (L. gen. n. 84., Kunth agrost. 375.)

Panicle simple or branched. *Spikelets* pedicellated, 3—5-flowered; the upper *florets* incomplete. *Glumes* 2, membranous, concave, blunt, unequal. *Paleæ* 2, membranous, blunt; the lower one concave; the upper 2-keeled. *Scales* 2, fleshy, glabrous, rarely connate into one. *Cariopsis* glabrous, free.

Panicle simple; spikelets with 2 perfect flowers; sheaths } 1. *M. NUTANS*.
not ligulate }
Panicle branched; spikelets with 1 perfect flower; sheaths } 2. *M. UNIFLORA*.
ligulate }

1. *M. nutans*. (L. sp. 98.) *Mountain Melic Grass*. Woods in mountainous districts of the north of England and Scotland. Fl. May, June. Perennial. E. B. 1059., H. 41., Kunth, 376.

2. ! *M. uniflora*. (Retz.) *Wood Melic Grass*. Shady woods. Common. Fl. May, June. Perennial. E. B. 1058., H. 41., Kunth, 377.

XXXVII. MOLINIA. (Mœnch., Kunth agrost. 379.)

Panicle branched, contracted, or spreading. *Spikelets* pedicellated, violet-coloured, 2—5-flowered; the upper floret often incomplete. *Rachis* articulated, *Glumes* 2, membranous, unequal, shorter than the contiguous florets. *Paleæ* 2; the lower one semitereti-convex, obtuse; with or without a mucro or awn; surrounding the upper one, which is nearly of the same length. *Scales* 2, hatchet-shaped, glabrous. *Cariopsis* subfusiform, glabrous, free. A rigid grass, with the joints covered by the sheaths.

1. ! *M. cærulea*. (Mœnch.) *Lavender Grass*. Wet heathy places and moors. Common. Fl. in a bluish purple panicle. Aug. Perennial. Kunth, 379., Lind. 306. *Melica cærulea*. (L. mant. ii. p. 325., E. B. 750.)

β. *alpina*. *Panicle* pale green; spikelets few-flowered. *M. alpina*. (Don.) *M. depauperata*. (Lind. 307.)

XXXVIII. KÆLERIA. (Pers., Kunth agrost. 380.)

Panicle crowded, spiked; the *spikelets* pedicellated, 2—7-flowered, distichous. *Glumes* 2, unequal, membranous, keeled. *Paleæ* 2, membranous; lower one acute, with or without a short awn from beneath the apex; upper *palea* 2-keeled, bifid at the apex. *Stigmas* sessile. *Scales* 2, unequal; generally 2—3-fid at the apex, glabrous. *Cariopsis* free.

1. ! *K. cristata*. (Pers. ench. i. p. 97.) *Crested Hair Grass*. Dry pastures. Common in the north of England; also about Croydon and Box Hill. Fl. June, July. Perennial. Kunth, 381. *Aira cristata*. (L. sp. 94., E. B. 648., H. 39.) *Airochloa cristata*. (Lind. 307.)

XXXIX. DACTYLIS. (L. gen. n. 86., Kunth agrost. 385.)

Panicle glomerated, secund. *Spikelets* 2—7-flowered. *Glumes* 2, unequal, keeled, mucronato-aristate, subunilateral at the apex; the upper one sometimes smaller and thinner, without nerves, concave. *Paleæ* 2, herbaceous; the lower one 5-nerved, keeled, mucronato-aristate; the *keel* ciliated; upper *palea* 2-keeled. *Ovary* subpyriform. *Stigma* sessile. *Scales* 2, bifid, glabrous. *Cariopsis* glabrous.

1. ! *D. glomerata*. (L. sp. 105.) *Rough Cock's-foot Grass*. Meadows and way sides. Common. Fl. July. Perennial. E. B. 335., H. 48., Kunth, 386.

XL. CYNOSURUS. (L. gen. n. 87., Kunth agrost. 388.)

Panicle crowded, spiked, secund. *Spikelets* sessile, 2—5-flowered, distichous, intermixed with comb-like bractea; arising from abortive spiculæ. *Glumes* 2, subequal, lanceolate, membranous, 1-nerved, keeled, and with a short awn. *Paleæ* 2, membranous; the lower one mucronate or awned at the apex, the upper *palea* 2-keeled, bifid at the apex. *Stigmas* sessile. *Scales* 2, subentire, glabrous. *Cariopsis* oblong, covered with the adnate paleæ.

- Panicle in a linear spike; spikelets mucronate - - 1. *C. CRISTATUS*.
 Panicle in an ovate spike; spikelets with long awns - - 2. *C. ECHINATUS*.
 1. ! *C. cristatus*. (L. sp. 105.) *Crested Dog's-tail Grass*. Dry pastures. Common. Fl. July. Perennial. E. B. 316., H. 48., Kunth, 338.
 2. *C. echinatus*. (L. sp. 105.) *Rough Dog's-tail Grass*. Sandy sea shores of the south of England. Fl. July. Annual. E. B. 1333., H. 48., Kunth, 338.

XLI. FESTUCA. (L. gen. n. 88., Kunth agrost. 391.)

Panicle branched, more or less spreading. *Spikelets* pedicellated, rarely spiked; sessile, 2- or many-flowered. *Fruit-bearing rachis* articulated. *Florets* distichous. *Glumes* 2, unequal; generally keeled. *Paleæ* 2, herbaceous; the lower one acute, mucronate, or terminating in an awn, rarely obtuse; the back not sharp; shorter than the paleæ; upper one 2-keeled. *Scales* 2, glabrous, bifid at the apex, acute. *Ovary* generally glabrous. *Stigmas* subsessile. *Cariopsis* linear-oblong, flattened, convex externally, concave internally, and marked with a prominent line; covered with the adnate paleæ and glumes.

- * Spikelets all pedicellated; branches of the panicle verticillate or secund
 † florets somewhat obtuse
 branches of panicle erect when in fruit
 leaves involute, pungent; panicle equal - 5. *F. THALASSICA*.
 leaves linear, obtuse; panicle secund - 2. *F. PROCUMBENS*.
 branches of panicle reflexed when in fruit - 4. *F. DISTANS*.
 †† florets acute, or with a short mucro
 panicle subsimple, erect when in fruit
 leaves flat
 panicle distichous, secund; spikelets } 1. *F. RIGIDA*.
 about 7-flowered - }
 panicle equal; spikelets about 4-flowered } 3. *F. BORRERI*.
 leaves setaceous - } 10. *F. OVINA*.
 panicle much branched, diffuse
 branches simple - - - 14. *F. PRATENSIS*.
 branches ramose
 panicle subsecund; florets 5, or less in } 16. *F. SYLVATICA*.
 each spikelet - }
 panicle equal; florets numerous in each } 13. *F. ELATIOR*.
 spikelet - }
 ††† florets with long mucros or with awns
 mucro or awn shorter than the floret
 leaves all setaceous - - - 10. *F. OVINA*.
 upper leaves flat
 root fibrous - - - 11. *F. DURIUSCULA*.
 root creeping - - - 12. *F. RUBRA*.
 awn longer than the floret
 panicle much spreading; the branches } 17. *F. GIGANTEA*.
 drooping - }
 panicle erect, subsimple
 one of the glumes of the calyx obsolete } 7. *F. UNIGLUMIS*.
 or very small; pedicels dilated at }
 the summit - }
 both glumes present; pedicels not dilated
 culm leafless above - - - 9. *F. BROMOIDES*.
 culm covered with sheaths of leaves up } 8. *F. MYURUS*.
 to the panicle - }
 ** Most of the spikelets sessile, distichous
 spikelets linear, oblong, distant - - 15. *F. LOLIACEA*.
 spikelets ovate, crowded - - - 6. *F. ROTTBOELLIODES*.
 1. ! *F. rigida*. (Kunth.) *Hard Fescue Grass*. Walls, rocks, and barren soils. Frequent. Fl. June. Annual. Kunth, 392. *Poa rigida*. (L. sp. 101., E. B. 1371., H. 44.) *Sclerochloa rigida*. (Lind. 316.) *Glyceria rigida*. (Sm.)
 2. ! *F. procumbens*. (Kunth.) *Procumbent Sea Fescue Grass*. Waste places near the sea. Fl. June, Aug. Annual. Kunth, 393. *Poa procumbens*. (E. B. 532., H. 44.) *Scl. proc.* (Lind. l. c.) *Glyceria proc.* (Sm.)

3. *F. Borreri*. (Bab. in Lin. soc. trans., ined.) *Borrer's Fescue Grass*. Panicle, while in flower, spreading; in fruit, ascending and patent. Spikelets linear, about 4-flowered; the florets free. Outer glume obsoletely 5-nerved; with a minute mucro. Root fibrous. Discovered by Mr. Babington, near Harwich, and by Mr. Borrer in the ditches of brackish water in Stokes Bay. Fl. July. ? Annual. *Glyceria Borreri*. (Babington in Supplement to English Botany, vol. ii. n. 2797.)

4. ! *F. distans*. (Kunth.) *Reflexed Fescue Grass*. Sandy ground, especially near the sea. Fl. July, Aug. Perennial. Kunth, 393. *Poa distans*. (L. mant. 32., E. B. 986., H. 44.)

5. ! *F. thalassica*. (Kunth.) *Creeping Sea Fescue Grass*. Sea coast. Common. Fl. July, Aug. Perennial. Kunth, 394. *Poa maritima*. (E. B. 1140., H. 44.) *Scler. mar.* (Lind. 315.)

6. *F. rothboellioides*. (Kunth.) *Close-spiked Fescue Grass*. Sandy sea shores of the east and south coast of England; near Portsmouth; and St. Helens, Isle of Wight. Fl. July. Annual. Kunth, 395. *Triticum loliaeum*. (E. B. 221., H. 56.) *Catapodium loliaeum*. (Lind. 297.)

7. *F. uniglumis*. (Solander.) *Single-glumed Fescue Grass*. Sandy sea coast of the south and east of England. Fl. June. Annual. E. B. 1430., H. 50., Kunth, 396. *Vulpia unigl.* (Lind. 314.)

8. ! *F. myurus*. (L. sp. 109.) *Wall Fescue Grass*. Walls and banks. Common. Fl. June. Annual. E. B. 1412., H. 49., Kunth, 396. *Vulp. myur.* (Lind. 314.)

9. ! *F. bromoides*. (L. sp. 110.) *Barren Fescue Grass*. Walls and banks. Common. Fl. June. Annual. E. B. 1411., H. 49., Kunth, 396. *Vulp. brom.* (Lind. 315.)

10. ! *F. ovina*. (L. sp. 108.) *Sheep's Fescue Grass*. Dry pastures. Common. Fl. June, July. Perennial. E. B. 585., H. 48., Kunth, 398.

β. *rubra*. (Hook.) Panicle purplish. *F. rubra*. (With.)

γ. *cæsia*. (Hook.) Plant glaucous. *F. cæsia*. (E. B. 1917.)

δ. *tenuifolia*. (Hook.) Leaves longer, and very slender; more numerous. Florets acuminate, awnless. *F. tenuifolia*. (Sibth.)

ε. *vivipara*. (Hook.) Plant taller. Spikelets viviparous. *F. vivipara*. (E. B. 1355.) The common form on mountains.

11. ! *F. duriuscula*. (L. sp. 108.) *Harsh Fescue Grass*. Pastures and waste ground. Fl. June, July. Perennial. E. B. 470., H. 49., Kunth, 399.

* * Kunth considers *F. cæsia* of E. B. to be a variety of *F. duriuscula*.

12. ! *F. rubra*. (L. sp. 109.) *Creeping Fescue Grass*. Light sandy pastures near the sea. Common, also, on mountain pastures. Fl. July. Perennial. E. B. 2056., H. 49., Kunth, 401.

13. ! *F. elatior*. (L. sp. 111.) *Tall Fescue Grass*. Moist meadows and banks of rivers, &c. Fl. July. Perennial. E. B. 1593., H. 50., Kunth, 404. *Schedonorus elatior*. (Lind. 313.)

4. ! *F. pratensis*. (Huds.) *Meadow Fescue Grass*. Moist meadows and pastures. Common. Fl. June, July. Perennial. E. B. 1592., H. 50., Kunth, 404. *Schedonorus pratensis*. (Lind. 312.)

15. ! *F. loliacea*. (Huds.) *Spiked Fescue Grass*. Moist meadows and pastures. Fl. June, July. Perennial. E. B. 1821., H. 50., Kunth, 404. *Sched. lol.* (Lind. 313.)

16. *F. sylvatica*. (Vill.) *Wood Fescue Grass*. Mountain woods. Fl. July. Perennial. Kunth, 405. *F. calamaria*. (E. B. 1005., H. 50.) *Sched. sylv.* (Lind. 313.)

17. ! *F. gigantea*. (Vill.) *Gigantic Fescue Grass*. Shady woods and moist meadows. Fl. July, Aug. Perennial. E. B. 1820. Lind. 314., Kunth, 407. *Bromus gigant.* (L. sp. 114., H. 50.)

XLII. BROMUS. (L. gen. n. 89., Kunth agrost. 412.)

Panicle spreading or compact. Spikelets pedicellated, generally oblong, 3- or many-flowered. Fruit-bearing rachis articulated; the florets distichous. Glumes 2, unequal, generally keeled. Paleæ 2, herbaceous; the lower one awned beneath the apex, rarely blunt; convex at the back; often cleft from the apex to the origin of the awn; upper palea 2-keeled; the keels pectinately ciliate. Scales 2, entire, glabrous. Ovary subpyriform, hirsute at the apex. Stigma sessile. Cariopsis linear, convex on the outer side, flat, and marked with a prominent line, on the inner side; adnate to the upper palea.

- * Florets hairy, downy, or scabrous]
 panicle drooping after flowering
 panicle branched; hairs of the lower part of the } 5. *B. ASPER.*
 stem reflex - - - - - }
 panicle slightly, if at all, branched; hairs, if present, not reflexed
 awn longer than the glumes; spikelets lineari-lanceolate; the florets loose - - } 9. *B. STERILIS.*
 awn as long as the glumes; spikelets ovate-oblong; the florets crowded - - } 2. *B. VELUTINUS.*
- panicle erect
 leaves subglabrous, lanceolate, spreading while in flower - - - - - } 10. *B. MADRITENSIS.*
 leaves soft, pubescent; spikelets ovato-subcompressed - - - - - } 4. *B. MOLLIS.*
- ** Florets glabrous
 panicle drooping after flowering
 spikelets few (4 or 6); peduncles arising singly from the stem - - - - - } 6. *B. SQUARROSUS.*
 spikelets numerous; peduncles in threes or more
 spikelet ovate; awn flexuose, shorter than the floret - - - - - } 1. *B. SECALINUS.*
 spikelet lanceolate; awn straight, as long the floret - - - - - } 7. *B. ARVENSIS.*
- panicle erect
 spikelets ovate; florets closely imbricated; leaves all of the same width - - - - - } 3. *B. RACEMOSUS.*
 spikelets lineari-lanceolate; florets subremote; upper leaves much broader than the lower ones - - - - - } 8. *B. ERECTUS.*
1. ! *B. secalinus*. (L. sp. 112.) *Smooth Rye Brome Grass*. Corn fields. Not uncommon. Fl. July, Aug. Annual. E. B. 1171., H. 51., Kunth, 413.
 2. *B. velutinus*. (Schr.) *Downy Rye Brome Grass*. Corn fields. Scotland. Rare. Fl. June, July. Annual. E. B. 1884., H. 51., Kunth, 413.
 3. *B. minor*. (Hook.) Sheaths of the leaves densely clothed with deflexed hairs. Sandy ground near the soap rock, Lizard, Cornwall.
 4. ! *B. racemosus*. (L. sp. 114.) *Smooth Brome Grass*. Meadows and pastures. Common. Fl. June, July. Annual. E. B. 1079., H. 52., Kunth, 413. *B. pratensis*. (E. B. 920.)
 5. ! *B. asper*. (L. suppl. 111.) *Hairy-wood Brome Grass*. Waste ground and hedges. Common. Fl. June, July. Biennial. E. B. 1172., H. 51., Kunth, 414.
 6. ! *B. squarrosus*. (L. sp. 112.) *Corn Brome Grass*. Corn fields; Sussex. Somersetshire. Not indigenous. Fl. June, July. Annual. E. B. 1885., H. 52., Kunth, 414.
 7. ! *B. arvensis*. (L. sp. 113.) *Taper-field Brome Grass*. Corn fields. Rare. Fl. June, July. Annual. E. B. 1984., H. 52., Kunth, 417.
 8. ! *B. erectus*. (Huds.) *Upright Brome Grass*. Fields and road sides; sandy soil over chalk. Fl. July. Perennial. E. B. 471., H. 52., Kunth, 418.
 9. ! *B. sterilis*. (L. sp. 113.) *Barren Brome Grass*. Waste ground and hedges. Common. Fl. June. Annual. E. B. 1030., H. 51., Kunth, 418.
 10. ! *B. madritensis*. (L. sp. 114.) *Upright annual Brome Grass*. Sandy barren wastes, south of England. Rare. Fl. June, July. Annual. Kunth, 419. *B. diandrus*. (E. B. 1006., H. 51.)

Tribe IX. HORDEACEÆ. (Kunth agrost. p. 435.)

Spikelets 3- or many-flowered; sometimes 1-flowered, often awned; terminal *floret* incomplete or rudimentary. *Glumes* and *paleæ* 2, herbaceous; the former very rarely wanting. *Stigmas* sessile. *Ovary* mostly pilose. *Inflorescence* spiked; the *spike* simple, solitary. *Rachis* rarely articulated.

XLIII. LOLIUM. (L. gen. n. 95., Kunth agr. 435.)

Spike simple. *Spikelets* many-flowered, distichous, the narrow side next to the rachis sessile. *Florets* not bearded at the base. *Glumes* 2, subequal, herbaceous, lanceolate, channeled, blunt; the lower or inner one mostly abortive in the lateral spikelets. *Paleæ* 2; the lower concave, blunt, or awned beneath the apex; the upper one 2-keeled. *Stigma* subsessile. *Scales* 2, fleshy, glabrous, acute, entire, or 2-lobed. *Cariopsis* glabrous, adherent to the upper palea.

Awns very short and soft, or wanting

spikelets much longer than the glumes; root per- } 1. L. PERENNE.
ennial - - - - - }

spikelets as long as the glumes; root annual - 2. L. ARVENSE.

Awns rigid, as long as the florets - - - 3. L. TEMULENTUM.

1. ! *L. perenne*. (L. sp. 122.) *Perennial Darnel, or Rye Grass*. Way sides and pastures. Very common. Fl. June, July. Perennial. E. B. 315., H. 57., Kunth, 436.

2. ! *L. arvense*. (Withering.) *Short-awned Annual Darnel*. Corn fields. Not uncommon. Fl. July. Annual. E. B. 1125., H. 57., Kunth, 436.

3. ! *L. temulentum*. (L. sp. 122.) *Bearded Darnel*. Corn fields. Not uncommon. Fl. July. Annual. E. B. 1124., H. 57., Kunth, 437.

XLIV. TRITICUM. (L. gen. n. 99., Kunth agrost. 438.)

Spikelets sessile, spiked, rarely subracemose; the broad side next to the rachis 3- or many-flowered. Common *rachis* simple, rarely branched, generally articulated when in fruit. *Florets* distichous. *Glumes* 2, subopposite and equal, blunt or awned. *Paleæ* 2, herbaceous; the lower one awned or awnless, upper one 2-keeled; the *keels* more or less ciliated. *Ovary* pyriform, hairy at the apex. *Stigmas* subsessile. *Scales* 2, generally entire and ciliated. *Cariopsis* convex on the outer side; concave, and marked with a prominent line on the inner; free or adnate to the paleæ.

Spikelets with 1—4 fertile florets, closely imbricated; glumes ventricos-concave, ovate-oblong, obtuse or truncate (gen. *Triticum*, Beauv.)

rachis not fragile; spikelets tetragonal

glumes mucronate at the apex, or bluntish - 1. T. VULGARE, clt.

glumes bidentate at the apex - - - 2. T. POLONICUM, clt.

rachis fragile; spikelets compressed

spikelets 4-flowered, compressed parallelly, } 3. T. SPELTA, clt.
loosely imbricated, with 2—3 fertile florets }

spikelets 3-flowered, compressed oppositely, } 14. T. MONOCOCCUM, clt.
closely imbricated; generally with but 1 }
fertile floret - - - - - }

Spikelets many-flowered; all fertile, distant, scarcely imbricated; glumes linear-lanceolate florets smallest upwards; valves of the glumes nearly equal (gen. *Agropyrum*, Beauv.)

glumes blunt; leaves involute - - - 8. T. JUNCUM.

glumes mucronate or awned; leaves flat

root creeping - - - - - 5. T. REPENS.

root fibrous

stem glabrous; glumes with 3—5 ribs - 6. T. CANINUM.

stem pubescent; glumes obscurely ribbed 7. T. CRISTATUM.

florets equal sized; valves unequal (gen. *Brachypodium*, Beauv.)

spike drooping; awns longer than the florets 9. T. SYLVATICUM.

spike erect; awns shorter than the florets - 10. T. PINNATUM.

1. *T. vulgare*. (Vill.) *Common Wheat*. Spike tetragonal, imbricated. Rachis tenacious. Spikelets generally 4-flowered. Valves ventricose, ovate, truncate, mucronate, compressed beneath the apex; convex at the back, with a prominent nerve. Florets awned or awnless. Fruit free. Cult. in fields. Fl. July. Kunth, 438.

α. *æstivum*. (Kunth.) *Bearded Wheat*. Annual. The glumes awned. *T. æstivum*. (L. sp. 126.)

β. *hybernum*. (Kunth.) *Beardless Wheat*. Biennial. The glumes unarmed. *T. hybernum*. (L. sp. 126.)

* * *T. turgidum*, *Cone Wheat*, appears only to differ from *vulgare* in the glumes being downy.

2. *T. polonicum*. (L. sp. 127.) *Polish Wheat*. Spike tetragonal or compressed, irregular. Rachis tenacious. Valves subventricose, oblong, keeled at the back, shortly bidentate at the apex. Upper palea of the lower floret half its length. Fruit free. Cult. Fl. June. Annual. Kunth, 429.

3. *T. Spelta*. (L. sp. 127.) *Spelt Wheat*. Spike parallelly compressed, loosely imbricated. Rachis fragile. Spikelets 4-flowered. Valves broadly ovate, truncate, mucronate. Florets awned or awnless. Fruit coated. Cult. Fl. June. Annual. Kunth, 439.

4. *T. monococcum*. (L. sp. 127.) *One-grained Wheat*. Spike oppositely compressed, closely imbricated. Rachis fragile. Spikelets 3-flowered (1 floret only fertile, D. C.); glumes bidentate; the teeth acute, straight. Florets awned. Fruit coated. Cult. in mountainous countries. Fl. June. Annual. Biennial. Kunth, 439.

5. ! *T. repens*. (L. sp. 128.) *Creeping Wheat Grass, or Couch Grass*. Fields and waste places. Common. Fl. June, Sept. Perennial. E. B. 909., H. 56., Kunth, 440. *Agropyrum repens*. (Lind. 298.)

6. ! *T. caninum*. (Huds.) *Fibrous-rooted Wheat Grass*. Woods and banks. Common. Fl. July. Perennial. E. B. 137., H. 56., Kunth, 442. *Agropyrum caninum*. (Lind. 298.)

7. *T. cristatum*. (Schreb.) *Crested Wheat Grass*. Sea side near Montrose. Fl. July. Perennial. E. B. 2267., H. 56., Kunth, 443. *Agrop. crist.* (Lind. 298.)

8. ! *T. junceum*. (L. sp. 108.) *Rushy Sea Wheat Grass*. Sandy sea shores. Frequent. Fl. July. Perennial. E. B. 814., H. 56., Kunth, 444. *Agropyrum junceum*. (Lind. 298.)

9. ! *T. sylvaticum*. (Mœnch.) *Slender False Brome Grass*. Woods and hedges. Not common. Fl. July. Perennial. Kunth, 445. *Bromus sylv.* (E. B. 729.) *Brachypodium sylv.* (H. 57.)

10. ! *T. pinnatum*. (Mœnch.) *Heath False Brome Grass*. Open fields and heathy places on chalky soil. Kent and Oxfordshire. Fl. July. Perennial. Kunth, 445. *Brom. pin.* (L. sp. 115., E. B. 730.) *Brach. pin.* (H. 57.)

XLV. SECALE. (L. gen. n. 97., Kunth agrost. 449.)

Spike simple. Spikelets with the broad side towards the rachis, 2-flowered. Florets sessile, distichous, with the linear rudiment of a third terminal one. Glumes 2, herbaceous, keeled, nearly opposite; blunt or awned. Paleæ 2, herbaceous; the lower one awned at the apex, keeled, unequilateral; the outer side being broader and firmer; upper palea short, 2-keeled. Ovary pyriform, pilose. Stigmas subsessile. Scales 2, entire, ciliated. Cariopsis hairy at the apex, free.

1. *S. cereale*. (L. sp. 124.) *Rye*. Glumes and awns scabrous. Native of the borders of the Caspian Sea. Cult. in fields. Fl. June. Annual. Biennial. Kunth, 449.

α. *hybernum*. (Blackw. t. 424.) *Winter Rye*.

β. *vernum*. (Host.) *Spring Rye*.

XLVI. ELYMUS. (L. gen. n. 96., Kunth agrost. 449.)

Spike simple; rarely ramose. Spikelets in pairs or fours, 2—7-flowered; the upper floret rudimentary. Glumes 2, unequal, herbaceous, rigid, subsecund, unequilateral; blunt or awned at the apex. Paleæ 2, herbaceous; the lower concave, generally terminating in an awn, upper one 2-keeled. Ovary stipitate, subpyriform, pilose above. Stigma sessile, distant. Scales 2, glabrous or ciliated. Cariopsis marked on the inner side with a furrow; pilose above, adherent to both paleæ.

Florets awnless; leaves involute, pungent

spike erect, close

spike bent downwards with 1 angle, lax

Florets with long awns; leaves flat

- 1. E. ARENARIUS.

- 2. E. GENICULATUS.

- 3. E. EUROPEUS.

1. *E. arenarius*. (L. sp. 122.) *Upright Sea Lyme Grass*. Sandy sea shores. Fl. (rarely, Hooker). July. Perennial. E. B. 1672., H. 55., Kunth, 450.

2. ! *E. geniculatus*. (Curt.) *Pendulous Sea Lyme Grass*. Salt marsh; near Gravesend. Very rare. Fl. July. Perennial. E. B. 1586., H. 55., Kunth, 450.

3. ! *E. europæus*. (L. mant. 35.) *Wood Lyme Grass*. Woods and thickets, on a chalky soil. Fl. June. Perennial. E. B. 1317., H. 55., Kunth, 452.

XLVII. HORDEUM. (L. gen. n. 98., Kunth agrost. 454.)

Spikes simple, often articulated when in fruit. *Spikelets* ternate; the lateral *florets* generally incomplete, 2-flowered; upper floret reduced to a rudimentary stalk. *Glumes* 2, lanceolate, acuminate, or awned, flat, unequal, contrary to the paleæ, subunilateral, herbaceous, rigid. *Paleæ* 2, herbaceous; the lower concave, terminating in an awn; the upper one next to the rachis, 2-keeled. *Ovary* pilose at the apex. *Stigmas* sessile, plumose. *Scales* 2, entire, or with a lateral lobe; generally pilose or ciliated. *Cariopsis* oblong, marked with a longitudinal furrow on the inner side, pilose at the apex, adherent to the paleæ; rarely free.

Lateral florets naked, not awned	-	-	3. H. DISTICHON, clt.
florets all awned			
florets all hermaphrodite			
fruit in 4 rows	-	-	1. H. VULGARE, clt.
fruit in 6 rows	-	-	2. H. HEXASTICHON, clt.
lateral florets sterile			
glumes of all the florets setaceous	-	-	4. H. PRATENSE.
glumes of the lateral florets setaceous; of the			
intermediate floret, lanceolate	-	-	5. H. MURINUM.
glumes of the lateral florets semilanceolate;			
the rest setaceous	-	-	6. H. MARITIMUM.

1. *H. vulgare*. (L. sp. 125.) *Spring Barley*. Florets all hermaphrodite, awned; fruit in 4 rows; culm erect. Native of Tartary. Cult. in fields. June. Annual. Kunth, 455.

2. *H. hexastichon*. (L. sp. 125.) *Winter Barley*. Florets all hermaphrodite, awned; fruit in 6 rows. Cult. June. Annual. Kunth, 455.

3. *H. distichon*. (L. sp. 125.) *Common Barley*. Lateral florets sterile, blunt; fertile ones in two rows, adpressed, awned. Native of Tartary. Cult. in fields. Fl. June. Annual. Kunth, 455.

* *H. zeocriton* (L. sp. 125.) is seldom cultivated: it is distinguished from *H. distichon* by the fruit being angular and patent.

4. ! *H. pratense*. (Huds.) *Meadow Barley*. Moist meadows. Common. Fl. June. Annual. E. B. 409., H. 55. Kunth, 455. *H. nodosum*. (L. sp. 126.)

5. ! *H. murinum*. (L. sp. 126.) *Wall Barley*. Waste grounds; on banks and under walls. Common. Fl. June, July. Annual. E. B. 1971., H. 55., Kunth, 456.

6. ! *H. maritimum*. (With.) *Sea-side Barley*. Light dry pastures near the sea. Common. Fl. July. Annual. E. B. 1205., H. 56., Kunth, 456.

Tribe X. ROTTBOELLIACEÆ. (Kunth agrost. p. 460.)

Inflorescence spiked. *Rachis* generally articulate. *Spikelets* 1-2- rarely 3-flowered, lying in an excavation of the rachis, either solitary or in pairs; one being pedicellated, and often rudimentary. One of the *florets* of the 2-flowered spikelets often incomplete. *Glumes* 1 or 2, sometimes none; generally coriaceous. *Paleæ* membranous, rarely awned. *Style* 1 or 2, sometimes very short or wanting.

XLVIII. NARDUS. (L. gen. n. 69., Kunth Agrost. 460.)

Spike simple. *Rachis* convex externally; excavated internally for the reception of the spikelets. *Spikelets* unilateral, sessile, alternate, 1-flowered. *Glumes* none. *Paleæ* 2, the lower one lanceolate, trigonal, keeled, 3-nerved; somewhat awned at the apex, rigid; the margins membranous, embracing the upper, shorter, linear-lanceolate, 2-keeled, palea. *Ovary* glabrous. *Style* 1. *Stigma* very long, linear, 1-nerved, pubescent. *Scales* none. *Cariopsis* glabrous, linear, terete, ? free.

1. ! *N. stricta*. (L. sp. 77.) *Mat Grass*. Moors and heaths. Very abundant. Fl. June. Perennial. E. B. 290., H. 32., Kunth, 460.

XLIX. LEPTURUS. (R. Brown prod., Kunth agrost. 461.)

Spikes slender, straight or arched, terete, articulated. *Spikelets* 1 in each joint, immersed in the excavation of the rachis, 2-flowered; lower *floret* (next to the rachis) hermaphrodite, with 2 paleæ; the upper or outer incomplete, pedicellate, or reduced to a linear rudiment; rarely complete, and similar to the lower one. *Glumes* 2, coriaceous, acute, subulate, subequal; in the terminal, spikelet, always opposite; in the lateral spikelets rarely so, and then

contrary to the rachis. *Paleæ* 2, membranaceous, blunt, shorter than the *glumes*; the lower or inner surrounding the upper 2-nerved one. *Ovary* glabrous. *Stigmas* sessile, plumose. *Scales* 2, entire, glabrous. *Cariopsis* glabrous, free.

Spike incurved; leaves flat; root annual - - 1. *L. INCURVATUS*.
Spike erect; leaves channeled; root perennial - - 2. *L. FILIFORMIS*.

1. ! *L. incurvatus*. (Trin.) *Curved Sea Hard Grass*. Spike terete, awned, incurved. Glumes 2-valved, 1-flowered. Floret blunt. Leaves flat. Root annual. Sea shores, in the south and east of England. Common. Fl. July, August. Annual. Kunth, 462. *Rottboellia incurv.* L. suppl. 114. (E. B. 760., H. 58.) *Ophiurus incurv.* (Lind. 295.)

2. ! *L. filiformis*. (Trin.) *Straight Sea Hard Grass*. Spike tereti-subulate, subcompressed, erect. Calyx 2-valved, 1-flowered. Floret blunt. Leaves channeled. Root perennial. Aberlady, Scotland; and near Dublin; and, probably, the more common species in the south and east of England, as at Gravesend, &c. Fl. July. Perennial. Kunth, 462. *Rottboellia incurv.* β. (H. 58.) *R. filiformis*. (Bot. gal. 527.)

Order CXI. LEMNACEÆ. (Duby in Bot. gal. p. 532.; PISTIACEÆ, Rich.)

Flowers monœcious, enclosed in a thin, membranous, compressed, and sessile sheath. *Male flowers* few, 1—2. *Perigone* none. *Stamen* 1; the *filament* cylindrical, and longer than the pistil. *Anther* with 2 globular distinct cells, dehiscing longitudinally. *Female flower* 1. *Pistil* 1. *Ovary* ovoid, compressed, 1-celled, with 1—5 erect ovules. *Style* thick, terete. *Stigma* concave, truncate. *Capsule* 1- or many-seeded, indehiscent. *Seed* with a fungous testa, and a thickened indurated foramen. *Embryo* monocotyledonous. *Albumen* none. (*Embryo* either in the axis of a fleshy albumen, and having a lateral cleft for the emission of the plumule, or at the apex of the nucleus. Lind.) — Small, annual, floating herbs; composed of lenticularly compressed fronds or leaves. Flowers from the border of the frond.

I. LEMNA. (L. gen. n. 1038., Duby and D. C. bot. gal. 532.)

Character the same as of the order.

Root solitary

leaves (fronds) elliptico-lanceolate, serrated at one
extremity; tapering at the extremity by which } 1. *L. TRISULCA*.
they are united to the neighbouring ones - - -

leaves ovate or obovate

leaves flat - - - - - 2. *L. MINOR*.

leaves hemispherical beneath - - - - - 4. *L. GIBBA*.

Roots numerous - - - - - 3. *L. POLYRHIZA*.

1. ! *L. trisulca*. (L. sp. 1376.) *Ivy-leaved Duckweed*. Clear stagnant waters. Fl. June, July. Annual. E. B. 926., H. 13.

2. ! *L. minor*. (L. sp. 1376.) *Lesser Duckweed*. Stagnant waters. Common. Fl. July. Annual. E. B. 1095., H. 13.

* * *L. arhiza* of Bot. gal. is, according to Sir W. J. Hooker, only a young form of *Lemna minor*.

3. ! *L. polyrrhiza*. (L. sp. 1377.) *Greater Duckweed*. Stagnant waters. Fl. July. Annual. E. B. 2458., H. 13.

4. ! *L. gibba*. (L. sp. 1377.) *Gibbous Duckweed*. Stagnant waters; but not very common. Fl. Sept. Annual. E. B. 1233., H. 13.

Class III. MONOCOTYLEDONOUS, or ENDOGENOUS, CRYPTO- GAMOUS PLANTS. (D. C. bot. gal. p. 533.)

Trunk destitute of a central pith, medullary rays, and true bark; composed of scattered (not concentrically arranged) fibres, encrescing only at the apex, and more indurated externally than in the centre; sometimes abortive, sub-

terranean, and root-like. — Leaves (*fronds*) often sheathing, entire, with simple nerves; or lobed, with branched nerves; never really compound. Flowers indistinct. Embryo with 1 cotyledon, which is composed of cells only, without tracheæ.

Order CXII. ? CHARACEÆ. (D. C. bot. gal. p. 533., Hooker in English flora, vol. v. p. 242.)

Flowers monœcious, axillary, destitute of perigone. — ? Male flower. *Disks* (*globules*, Hooker) solitary, orbicular, red, surrounded by a white ring, formed, externally, of a reticulated translucent membrane; mucilaginous within, and containing articulated filaments, or cylindrical tubes. — Female flower. *Capsule* (*nucules*, Hook.) 1-celled, 1-seeded, with a double covering; the outer one a thin translucent membrane, terminated by 5 projecting teeth; the inner one hard, dry, opaque, with 5 narrow spirally contorted valves. — Submersed aquatic herbs, with thin, branched, hard, and brittle stems; the branches in verticels, bearing the stipitate capsules in their axilla.

I. CHARA. (Vaill., L. gen. n. 1203.)

The character the same as of the order.

Plant more or less pellucid and flexible, not striated
(gen. *Nitella*, Agardh.)

nucules and globules (? males and females) approximated

branches of the whorl simple - - - 1. *C. TRANSLUCENS*.

branches of the whorl compound

branches obtuse; nucules few, with very small bracts } 2. *C. FLEXILIS*.

branches acute; all often fertile, without bracts } 4. *C. GRACILIS*.

nucules and globules (? males and females) distant } 3. *C. NIDIFICA*.

or monœcious; fertile branches crowded - }

Plant opaque, very brittle; striated, often spirally
(gen. *Chara*, Agardh.)

plant smooth; fruit in fours

3 or 4 of the ramuli, or bracts, much longer than } 5. *C. VULGARIS*.

the fruit and flower which they accompany }

3 or 4 ramuli shorter than the fruit - - - 6. *C. HEDWIGII*.

plant rough; fruit solitary

stem not striated, beset with spinules - - - 7. *C. ASPERA*.

stem deeply striated, hispid - - - 8. *C. HISPIDA*.

1. ! *C. translucens*. (Pers.) *Translucent Chara*. Deep stagnant pools. Near Shrewsbury; Browston, Suffolk; and also in Scotland. E. B. 1703., H. E. F. v. p. 245. *Nitella translucens*. (Agardh.)

2. ! *C. flexilis*. (L. sp. 1024.) *Flaccid Chara*. Ditches and lakes. Common. E. B. 1070., H. E. F. v. p. 245. *Nitella flexilis*. (Ag.)

β. *opaca*. Partially encrusted; more opaque. *N. opaca*. (Ag.)

3. *C. nidifica*. (Æd.) *Clustered Chara*. Salt-water ditches; Shoreham. E. B. 1703., H. E. F. v. p. 245. *Nitella nidifica*. (Ag.)

4. *C. gracilis*. (Sm.) *Slender Chara*. Boggy pools; St. Leonard's, Sussex; also in Wales and Jersey. E. B. 2140., H. E. F. v. p. 245. *Nitella gracilis*. (Ag.)

5. ! *C. vulgaris*. (L. sp. 1624.) *Common Chara*. Ditches and slow streams. Common. E. B. 336., H. E. F. v. p. 246.

6. *C. Hedwigii*. (Agardh.) *Hedwig's Chara*. Still pools. Buxstead, Sussex; near Croft, Yorkshire. H. E. F. v. p. 246.

7. *C. aspera*. (Willd.) *Rough Chara*. Pools in the north of England and Scotland. H. E. F. v. p. 246. *C. galioïdes*. (D. C. bot. gal. 534.)

8. ! *C. hispida*. (L. sp. 1624.) *Hispid Chara*. Ditches and turfy bog holes. Common. H. E. F. v. p. 246.

α. *major*. (Hook.) Larger stem spinulose. E. B. 436.

β. *gracilis*. (Hook.) Smaller spinules obsolete.

Order CXIII. Equisetaceæ. (D. C. bot. gal. p. 534.)

Fructifications terminal, in spikes or catkins, consisting of peltate polygonous scales, on the under side of which are from 4—7 involucre, which open

longitudinally, and contain numerous globose bodies (*capsules*) enfolded by 4 filaments, clubbed at their extremities (which some take for *stamens*).—Stems rigid, leafless, jointed, striated; the articulations sheathed at the base. Branches, if any, mostly whorled, and as many of them will be found as there are striæ upon the stem, and teeth to the sheath, if the teeth do not continue, more or less combined. (Hooker in British flora, p. 447.)

I. EQUISETUM. (L. gen. n. 1169.)

Character of the genus the same as that of the order.

Fertile stems naked, succeeded by branched barren ones

- | | | | | |
|--|---|---|---|-------------------|
| stem with upwards of 30 striæ | - | - | - | 1. E. FLUVIATILE. |
| stem with from 12—20 striæ | | | | |
| sheaths closely approximated, the teeth adpressed; | | | | |
| striæ about 20 | - | - | - | 2. E. DRUMMONDII. |

- | | | | | |
|---|---|---|---|-------------------|
| sheaths remote, the teeth loose; striæ 12—14 | - | | | 3. E. ARVENSE. |
| Fertile stem always branched; the branches com- | | | | |
| pound; sheaths lax, with 6—12 teeth | - | - | - | 4. E. SYLVATICUM. |

Fertile stems naked at first, but ultimately becoming branched

- | | | | | |
|-------------------------------|---|---|---|-----------------|
| stem smooth, with 14—18 striæ | - | - | - | 5. E. LIMOSUM. |
| stem rough, with 7—8 angles | - | - | - | 6. E. PALUSTRE. |

Fertile and barren stems always naked, or branched only at the base

- | | | | | |
|--|---|---|---|-------------------|
| stem with 14—18 furrows; teeth of the sheath | | | | |
| black at their extremity, deciduous | - | - | - | 7. E. HYEMALE. |
| stem with 4—12 striæ; teeth of the sheath white in | | | | |
| the centre or at the apex, black at the base, | - | - | - | 8. E. MULTIFORME. |

1. ! *E. fluviatile*. (L. sp. 1517.) *Great Water Horse-tail*. Muddy lakes, sides of rivers, and pools. Frequent. Fl. April. Perennial. E. B. 2022., H. 458.

2. *E. Drummondii*. (Hook.) *Blunt-topped Horse-tail*. Scotland. Rare. Near Belfast, Ireland. Fl. April. Perennial. E. B. 2777., H. 459.

3. ! *E. arvense*. (L. sp. 1516.) *Corn Horse-tail*. Corn fields and road sides. Common. Fl. April. Perennial. E. B. 2020., H. 459.

4. ! *E. sylvaticum*. (L. sp. 1516.) *Branched Wood Horse-tail*. Moist woods; hedge banks. Common in the north. Fl. April, May. Perennial. E. B. 1874., H. 459.

5. ! *E. limosum*. (L. sp. 1517.) *Smooth naked Horse-tail*. Marshy places and ditches. Common. Fl. June, July. Perennial. E. B. 929., H. 459.

6. ! *E. palustre*. (L. sp. 1516.) *Marsh Horse-tail*. Boggy soils. Common. *β. alpinum*. (Hook.) Much smaller, with 4—5 angles, and teeth to the sheaths; upper branches often abortive. Perennial. E. B. 2021., H. 460.

7. ! *E. hyemale*. (L. sp. 1517.) *Rough Horse-tail*. Boggy woods; middle and north of England; in Scotland and Ireland. Fl. July, Aug. H. 460., E. B. 915.

8. *E. multifforme*. (Vauch.) *Many formed Rough Horse-tail*. Sandy places, especially near the sea, in the north of England, Scotland, and Ireland. Fl. July, Aug. Perennial. Bot. gal. 535.

α. variegatum. (Vauch.) Furrows 4—8. Teeth white. *E. variegatum*. (E. B. 1987., H. 460.)

β. Furrows about 12. Teeth long, setaceous, black, and subdeciduous. A most remarkable variety, found in Colin Glen, near Belfast. It has been thoroughly examined by Mr. Thompson, who considers it intermediate between *E. variegatum* and *E. hyemale*.

Order CXIV. FILICES. (Brown, D. C. bot. gal. p. 536.)

Fructification clustered; the *capsules* (*thecæ*) collected into clusters (*sori*) of various shapes. *Sori* generally covered with an involucre (*indusium*); sometimes naked, situated on the under surface or margin of the frond; rarely spiked, or racemed (only of 1 kind, upon the same species, Hooker.) — ? Male flower. ? *Anthers* very small, scattered, apparent in the scarcely unfolded leaves, covered with a thin membrane. — Female flower. *Capsule* (*theca*) 1-celled; generally

surrounded with an elastic ring, rarely 2-valved; filled with very minute and numerous seeds. — Perennial plants, with alternate leaves (fronds) which are often lobed, or much divided, and, while young, rolled up in a circinate manner from apex to base.

- Fructification spiked, or clustered, and racemose
 thecæ (capsules) sessile, smooth; spike or raceme separate from the frond
 spike simple; frond entire - - - 1. OPHIOGLOSSUM.
 spike compound; frond pinnate - - - 2. BOTRYCHIUM.
 thecæ pedicellated and reticulated, terminating }
 a leafy bipinnate frond - - - } 3. OSMUNDA.
- Fructification on the back of the frond
 sori naked (without an indusium)
 sori round - - - - - 5. POLYPODIUM.
 sori linear, oblong, scattered - - - 4. GRAMMITIS.
 sori covered with an indusium
 indusium distinct from the frond; the sori not being covered by its reflexed margin
 sori round
 indusium dehiscing at the margin; remaining attached in the centre, or orbiculari-reniform - - - } 7. ASPIDIUM.
 indusium attached round the margin, caliciform, open, and capillary at the margin - - - } 6. WOODSIA.
 indusium hooded, attached to the under surface of the sorus, opening by a lengthened, free extremity, which points towards the apex of the frond - - - } 8. CISTOPTERIS.
 sori linear
 lines of fructification parallel with the ribs of the frond - - - } 13. BLECHNUM.
 lines transverse or oblique
 lines in pairs; indusia double, occupying both sides of the sorus - - - } 10. SCOLOPENDRIUM.
 lines solitary, indusium from lateral veins, opening towards the central nervure - - - } 9. ASPLENIUM.
 indusium composed of the margin of the frond, covering over the sori
 fructification in linear, or round sori
 sori linear, continued around the margin of the frond - - - } 11. PTERIS.
 sori linear, inserted on the lateral veins, becoming confluent, and then appearing marginal - - - } 12. CRYPTOGRAMMA.
 sori oblong or roundish, in distinct spots along the margin - - - } 14. ADIANTUM.
 fructification in the shape of little cups
 involucre, or cup, 1-valved, pitcher-shaped 15. TRICHOMANES.
 involucre 2-valved, compressed - - - 16. HYMENOPHYLLUM.

Tribe I. OPHIOGLOSSEÆ. (Hook, D. C. bot. gal. p. 536.)

Capsules (thecæ) in spikes or racemes, attached to a leafy frond, dehiscing transversely, 1-celled, 2-valved; subglobose, coriaceous, opaque, sessile, smooth, destitute of a ring. Vernation straight. Stem hollow. (Francis.)

I. OPHIOGLOSSUM. (L. gen. n. 1171.)

Capsules (thecæ) 1-celled, 2-valved, opening transversely, connate, forming a compact 2-ranked spike. H. 446.

1. ! *O. vulgatum*. (L. sp. 1518.) *Common Adder's Tongue*. Moist pastures, and in woods. May, June. Perennial. E. B. 108., H. 458.

II. BOTRYCHIUM. (Swartz., Bot. gal. 536.)

Capsules (thecæ) subglobose, sessile, clustered at the margin, and on one side

of a pinnated rachis; 1-celled, 2-valved; compressed, opening transversely. *Involucre (indusium)* none. H. 446.

1. ! *B. Lunaria*. (Sw.) *Moon Root*. Dry mountain pastures. May, Sept. Perennial. (*Osmunda* Lin., L., E. B. 318., H. 456.)

Tribe II. OSMUNDACEÆ. (Hooker, D. C. bot. gal. p. 536.)

Capsules (thecæ) in clusters, terminating a leafy frond, dehiscing longitudinally, 1-celled, 2-valved, without an elastic-jointed ring; transparent, petiolate, striated. Vernation circinate. Stem solid.

III. OSMUNDA. (L. gen. n. 1172., Bot. gal. 536.)

Capsules subglobose, pedicellate, clustered; striated, half 2-valved. *Involucre (indusium)* none. H. 446.

1. ! *O. regalis*. (L. sp. 1512.) *Osmund Royal, or Flowering Fern*. Boggy places, wet margins of woods. Not unfrequent. Fl. July, Sept. Perennial. E. B. 209., H. 486.

Tribe III. POLYPODIACEÆ. (Kæmpf., D. C. bot. gal. p. 537.)

Capsules (thecæ) in clusters at the back of the frond; 1-celled, dehiscing transversely and irregularly; with an articulated, elastic, more or less complete ring, which is vertical, or a continuation of the footstalks of the thecæ. (Francis.)

IV. GRAMMITIS. (Swartz., H. 444.)

Sori, or clusters of fructification, oblong or linear, straight, scattered. *Involucre (indusium)* none. H. 444.

1. ! *G. Ceterach*. (Swartz.) *Scaly Grammitis*. Rocks and walls in limestone countries; in the south of England and Wales. H. 447. *Scolopendrium Ceterach*. (E. B. 1244.) *Ceterach offic.* (Bot. gal. 537.) *Asplenium Cet.* (L. sp. 1538.)

V. POLYPODIUM. (Adans., D. C. bot. gal. 537.)

Sori roundish. *Involucre (indusium)* none. H. 444.

Fronds pinnatifid	-	-	-	-	1. P. VULGARE.
Fronds bipinnatifid	-	-	-	-	2. P. PHEGOPTERIS.
Fronds tripinnate					
branches drooping, tender	-	-	-	-	3. P. DRYOPTERIS.
branches erect, rigid	-	-	-	-	4. P. CALCAREUM.

1. ! *P. vulgare*. (L. sp. 1544.) *Common Polypody*. Rocks, walls, trunks of trees, and banks. Common. Fl. May, Nov. Perennial. E. B. 114., H. 447.

β. *serratum*. (Willd.) Lobes distinctly, and often doubly, serrated.

γ. *proliferum*. Lobes proliferous, or cloven at the apex.

δ. *cambricum*. Lobes ovate; deeply cleft on the sides. *P. cambricum*. (L. sp. 1546.)

ε. *acutum*. Lobes and fronds long, terminating in a sharp point.

2. ! *P. Phegopteris*. (L. sp. 1550.) *Pale Mountain Polypody*. Shady rocky places in mountainous countries; Norwood, and near Brentford. Fl. June, Sept. Perennial. E. B. 2224., H. 448.

3. *P. Dryopteris*. (Lin. 1555.) *Tender three-branched Polypody*. Dry stony places in mountainous countries. Fl. July, Sept. Perennial. E. B. 616., H. 448.

4. *P. calcareum*. (Sm.) *Rigid three-branched Polypody*. Matlock, and other parts of Derbyshire; Cheddar Cliffs. Fl. June, Sept. Perennial. E. B. 1525., H. 448.

VI. WOODSIA. (R. Brown, Bot. gal. p. 538.)

Sori scattered, roundish, having beneath an involucre (indusium), which is cut at the edge into many, often capillary segments. H. 444.

Pinnæ chaffy beneath, oblong, deeply pinnatifid - 1. W. ILVENSIS.

Pinnæ hairy beneath, ovato-cordate, inciso-pinnatifid - } 2. W. HYPERBOREA.

1. *W. ilvensis*. (Br.) *Oblong Woodsia*. Mountains. Very rare. Fl. July, Sept. Perennial. E. B. 2616., H. 448. *Acrostichum ilvense*. (L. sp. 1528.)

2. *W. hyperborea*. (Br.) *Round-leaved Woodsia*. On Snowdon, Wales;

Ben Lawers and Clova, Scotland. Fl. July, Sept. Perennial. H. 448. Polypodium hyperboreum. (E. B. 2023.)

VII. ASPIDIUM. (Swartz.)

Sori roundish, scattered. Involucre (indusium) orbicular, fixed by the centre; or orbiculari-reniform, and fixed at the sinus. H. 444.

Involucre orbicular, fixed by the centre, hence peltate

(Aspidium, R. Brown.)

fronds pinnate - - - - 1. A. LONCHITIS.

fronds bipinnate

pinnules, or lobes, decurrent; the one next the }
rachis much larger than the others - - } 2. A. LOBATUM.

pinnules petioled; the one next the rachis but slightly larger than the rest

pinnules rigid, subconvex, acute, and awned 3. A. ACULEATUM.

pinnules thin, membranous, flat, blunt, and }
awned - - - - } 4. A. ANGULARE.

Involucre orbiculari-reniform, fixed by the sinus

(Nephrodium, R. Brown)

sori marginal, becoming confluent

pinnæ resinoso-glandular beneath, obtuse; root }
tufted - - - - } 5. A. OREOPTERIS.

pinnæ not glandular, acute; root repent - - 6. A. THELYPTERIS.

sori not marginal, distinct

fronds pinnate; the pinnæ deeply divided; thus

the fronds are almost bipinnate

pinnæ alternate; sori confined to the lower }
half of the pinnæ - - - - } 8. A. FILIX MAS.

pinnæ opposite; sori reaching to near the apex }
of the pinnæ - - - - } 7. A. CRISTATUM.

fronds decidedly bipinnate or subtripinnate

pinnæ alternate; lower pinnules not more di- }
vided than the rest - - - - } 9. A. RIGIDUM.

pinnæ opposite; lower pinnules more divided }
and compound than the rest, often becom- } 10. A. SPINULOSUM.
ing tripinnate at the base - - - - }

1. *A. Lonchitis*. (Swartz.) *Rough Alpine Shield Fern*. Shady clefts of rocks, and under stones on the high mountains of Wales and Scotland. Fl. June, Sept. Perennial. H. 448. Polypod. Lonch. (L. sp. 1548., E. B. 797.)

2. ! *A. lobatum*. (Swartz.) *Close-leaved prickly Shield Fern*. Moist woods, shady banks, and rocky places. Fl. June, Oct. Perennial. E. B. 1563., H. 449.

β. *lonchitidoïdes*. (Hook.) Small; the pinnules combined so as to form only a pinnate frond.

3. ! *A. aculeatum*. (Swartz.) *Soft prickly Shield Fern*. Woods and hedge banks. Abundant near Henfield. E. B. 1562., H. 449.

4. ! *A. angulare*. (Sm. and Willd.) *Angular-leaved Shield Fern*. Woods and hedge banks. Fl. June, Oct. Perennial. E. B. 2776., H. 449. Aspid. aculeatum γ. (Francis.)

β. Subtripinnate. Pinnules, especially the lower ones, and the much larger one next the main rachis, distinctly pinnate.

5. ! *A. Oreopteris*. (Swartz.) *Heath Shield Fern*. Heaths and dry pastures, on mountains. H. 450. Polypodium oreop. (E. B. 1019.)

6. ! *A. Thelypteris*. (Swartz.) *Marsh Shield Fern*. Marshy and boggy places. H. 450. Polypod. Thelyp. (E. B. 1018.)

7. *A. cristatum*. (Swartz.) *Crested Shield Fern*. Boggy heaths. Very rare. Near Holt, Norfolk; Westleton, Suffolk. E. B. 2125., H. 450. Polypod. cristatum. (L. sp. 1151.) Polystichum Callipteris. (B. G. 538.)

8. ! *A. Filix mas*. (Swartz.) *Blunt Shield Fern*. Woods and shady banks. Common. Fl. May, Nov. Perennial. E. B. 1458. and 1949., H. 450. Polypod. Filix mas. (L. sp. 1551.)

β. *variegatum*. (Francis.) White-tipped, and edged with green.

γ. *recurvum*. (Francis.) Pinnæ crisped, turned down. Frond small. Rachis smooth.

δ. *spinosum*. (Francis.) Pinnules serrate; the smaller ones blended together; the larger ones auricled.

9. *A. rigidum*. (Swartz.) *Rigid Shield Fern*. On Ingleborough, Yorkshire. Fl. May, Nov. Perennial. E. B. 2724., H. 450.

10. ! *A. spinulosum*. (Willd.) *Prickly-toothed Shield Fern*. Shady rocky places; moist woods. H. 451.

α. *spinulosum*. Fronds triangulari-ovate. Lower primary pinnæ only once pinnate. ! *A. spinulos*. (E. B. 1460.)

β. *dilatatum*. Fronds triangulari-ovate. Lower primary pinnæ bipinnate. Pinnules often convex. *A. dilatatum*. (Willd.) Moist woods and shady places. E. B. 1461.

γ. Pinnules and segments very unequal in size, and in their spinulose serratures. (? a. *montrosity*.)

δ. *dumetorum*. (Francis.) *Thicket Shield Fern*. Fronds doubly pinnate. Leaflets pinnatifid. Lobes with terminal, sharp, prickly teeth. Common stalk scaly. Cover orbicular, flat, with a deep notch. Stony, rocky, and bushy places in the north of England. Fl. June, Oct. Perennial. *A. dumetorum*. (Sm.)

VIII. CISTOPTERIS. (Bernhardi, Hooker, 451.)

Sori roundish. *Involucre* (*indusium*) inserted, by its broad cucullate base, at the under side of the sorus, opening by a lengthened free extremity, which points towards the apex of the frond. H. 445.

Fronds bipinnate

pinnæ ovate, lanceolate; pinnules obtuse, crenate - 1. *C. DENTATA*.

pinnæ lanceolate; pinnules deeply pinnatifid; the segments toothed - 2. *C. FRAGILIS*.

Fronds tripinnate - 3. *C. ALPINA*.

1. *C. dentata*. (Hooker.) *Toothed Bladder Fern*. North of England and Wales. Common. H. 451.

α. *vulgaris*. Fronds oblongo-lanceolate. *Cyathea dentata*. (E. B. 1588.)

β. *angustata*. Fronds oblong-ovate. *C. angustata*. (E. Fl. iv. p. 301.) Polyp. *rhæticum*. (Dickson.)

2. *C. fragilis*. (Bernh.) *Brittle Bladder Fern*. Rocks and walls in the mountainous parts of Great Britain. *Cyathea fragilis*. (E. B. 1587.) Polypod. *frag.* (L. sp. 1553.)

3. ! *C. alpina*. (Desv.) *Laciniated Bladder Fern*. Wall at Low Layton, Essex, 1836; ? North Wales. H. 452. *Cyathea incisa*. (E. B. 163.)

IX. ASPLENIUM. (L. gen. n. 1178.)

Sori oblong or linear. *Involucres* (*indusium*) of the same shape, superficial, arising from the lateral veins, and opening on one side longitudinally towards the central nerve or midrib. H. 445.

Frond with the stipes naked below, bifid or trifid } 1. *A. SEPTENTRIONALE*
above; the segments linear - - - }

Frond pinnate

pinnæ alternate - - - 2. *A. ALTERNIFOLIUM*.

pinnæ opposite, or nearly opposite

pinnæ oblong; the upper side auricled at } 5. *A. MARINUM*.
the base - - - }

pinnæ subrotund, truncate, wedge-shaped
at the base

rachis black - - - 3. *A. TRICHOMANES*.

rachis green - - - 4. *A. VIRIDE*.

Frond bipinnate

pinnules 3—5 on the partial rachis, bluntly } 6. *A. RUTA MURARIA*.
dentate - - - }

pinnules numerous, sharply serrated

pinnules obovato-cuneate

rachis winged - - - 10. *A. FONTANUM*.

rachis not winged - - - 7. *A. LANCEOLATUM*.

pinnules oblongo-lanceolate; sori very narrow } 9. *A. FILIX FEMINA*.
row - - - }

Frond tripinnate; rachis winged - - - 8. *A. ADIANTUM NIGRUM*.

1. *A. septentrionale*. (Hull.) *Forked Spleenwort*. Clefts of Rocks in mountainous districts. E. B. 1107., H. 452.

2. *A. alternifolium*. (Wulf.) *Alternate-leaved Spleenwort*. Rocks in Scotland. Very rare. E. B. 2258., H. 453.

3. ! *A. Trichomanes*. (L. sp. 1540.) *Common Wall Spleenwort*. Rocks and walls. Common. E. B. 576., H. 453.

4. *A. viride*. (Huds.) *Green Spleenwort*. Moist rocks. E. B. 2257., H. 453.

5. *A. marinum*. (Lin. 1540.) *Sea Spleenwort*. In caves and clefts of rocks, on the sea coast; most common in the north. E. B. 392., H. 453.

6. ! *A. Ruta muraria*. (L. sp. 1541.) *Wall-rue Spleenwort*. Walls and clefts of rocks. Common. E. B. 150., H. 453.

7. ! *A. lanceolatum*. (Huds.) *Green lanceolate Spleenwort*. Rocks in the south of England; Tunbridge Wells. Very rare. H. 453., E. B. 240.

8. ! *A. Adiantum nigrum*. (L. sp. 1541.) *Black-stalked Spleenwort*. Banks and clefts of rocks. Common. E. B. 1950., H. 453. Varies much in form; often scarcely to be distinguished from *A. lanceolatum*.

9. ! *A. Filix fœmina*. (Bernh.) *Short-fruited Spleenwort*. Moist shady places. Common. H. 454. *Aspidium Filix fœmina*. (E. B. 1459.) Polypod. *Filix fœmina*. (L. sp. 1551.) *Athyrium Filix fœmina*. (Bot. gal. 539.)

β. *irriguum*. (Hook.) Frond narrow. Pinnæ distant and tender. *A. irriguum*. E. B. 2199.

10. *A. fontanum*. (Br.) *Smooth Rock Spleenwort*. Walls and rocks; Westmoreland. Very rare. H. 454. *Aspidium fontan.* (E. B. 2024.)

X. SCOLOPENDRIUM. (Smith.)

Sori linear, transverse, on lateral nerves. *Involucre* (*indusium*) double, occupying both sides of the sorus, superficial, opening, as it were, by a longitudinal suture. H. 445.

1. ! *S. vulgare*. (Sym.) *Common Hart's Tongue*. Moist shady banks, and damp, rocky, or stony places. E. B. 1150., H. 454. Fl. May, Nov. Perennial. *Asplenium scolopend.* (L. sp. 1537.) Varies in the border of the frond being curled, or the apex bifid.

XI. PTERIS. (L. gen. n. 1174., Hooker, 454.)

Sori continuous, linear, marginal. *Involucres* formed of the inflexed margin of the frond, frequently dilated into a membrane, opening internally. H. 445.

1. ! *P. aquilina*. (L. sp. 1533.) *Common Brake*. Woods, heaths, and stony or sandy soils. Common. Fl. June, Oct. Perennial. E. B. 1679., H. 454.

XII. CRYPTOGRAMMA. (R. Brown, Hooker, 454.)

Sori linear or roundish, oblique, inserted upon the lateral nerves of the pinnule; at length confluent, and thus appearing marginal. *Common involucre*, or *indusium*, formed by the revolute margins of the pinnules, which, in a young state, meet at the back; *partial indusium* none. H. 445.

1. *C. crispa*. (R. Brown.) *Curled Rock Brake*. Among loose stones in mountainous countries in the north of England. H. 455. *Pteris crispa*. (E. B. 1160.)

XIII. BLECHNUM. (L. gen. n. 1175., Hooker, 455.)

Sori linear, longitudinal, contiguous, parallel; one on each side of the rib. *Involucre* (*indusium*) superficial, continuous, opening interiorly.

1. ! *B. boreale*. (Swartz.) *Northern Hard Fern*. Woods and heaths. Common. Fl. May, Nov. Perennial. E. B. 1159., H. 433.

XIV. ADIANTUM. (L. gen. n. 1180., Hooker, 445.)

Sori oblong or roundish. *Involucres* (*indusia*) membranaceous, arising from distinct portions of the margin of the frond, turned in, opening interiorly.

1. *A. Capillus Veneris*. (L. sp. 1558.) *Maiden Hair*. Moist rocks and walls, especially near the sea; south and south-west of England. Rare. Fl. May, Nov. Perennial. E. B. 320., H. 455.

XV. TRICHOMANES, (L. gen. n. 1181., Hooker, 446.)

Sori marginal. *Capsules* (*thecæ*) upon an elongated receptacle, within a cylindrical or suburceolate, monophyllous involucre (*indusium*), which is of the same texture as the frond, opening above.

1. *T. brevisetum*. (R. Brown.) *Short-styled Bristle Fern*. Wet rocks in mountainous countries; Yorkshire; Wicklow, and Killarney, Ireland. H. 455. *Hymenophyllum alatum*. (E. B. 1417.)

XVI. HYMENOPHYLLUM. (Smith, Hooker, 446.)

Sori marginal. *Capsules* (*thece*) upon a narrow receptacle, within a 2-valved involucre, which is of the same texture as the frond, opening above.

Fronds tender; pinnae vertical, distichous; involucre, } 1. H. TUNBRIDGENSE.
or cup, serrate; rachis strongly winged - }
Fronds rigid; pinnae recurved; subunilateral invo- } 2. H. WILSONI.
lucres, or cups, entire; rachis slightly margined - }
towards the extremity - - - - - }

1. *H. tunbridgense*. (Smith.) *Tunbridge Filmy Fern*. Moist rocks, among moss, in mountainous countries; Tunbridge. Abundant. Fl. May, Nov. Perennial. E. B. 162., H. 455.

2. *H. Wilsoni*. (Hooker.) *Scottish Filmy Fern*. Wet rocks, north of England and Wales, in the Highlands of Scotland, and in Ireland. Fl. May, Nov. Perennial. E. B. 2686., H. 456.

Order CXV. MARSILEACEÆ. (R. Brown prod. p. 166.,
D. C. bot. gal. p. 542.)

Fructifications radical. *Involucre* subspherical, indehiscent, coriaceous, or membranous, 1- or many-celled; containing both sexes, and afterwards numerous seeds.

Tribe I. MARSILÆ. (D. C. bot. gal. p. 542.)

Involucres coriaceous, thick, indehiscent, or many-valved, many-celled, with membranous dissepiments; in each cell, 2 kinds of organs are inserted on the parietes; 1 kind few (ovaries, or rather seeds), with a double integument; the outer covering pellucid, moist, and tumid; the inner hard and coriaceous, the seed surrounded by a gelatinous substance, and altogether free; the other kind of organs more numerous, appear like membranous utricles, moist and tumid, dehiscing at the apex, and holding, in a gelatinous mucus, numerous spherical globules, much smaller than the seeds. — Young leaves convolute, like ferns.

I. PILULARIA. (L. gen. n. 1183., Bot. gal. 542.)

Involucres solitary, nearly sessile, globose, coriaceous, 4-celled; each cell containing 2 different kinds of bodies (? anthers, and ? pistils). H. 447.

1. ! *P. globulifera*. (L. sp. 1563.) *Creeping Pillwort*. Margins of lakes and pools, and in places that are partially overflowed. Roehampton; Claremont Park, Surrey; Iver Heath, Middlesex. Fl. May, Nov. Perennial. E. B. 1084., H. 458.

Order CXVI. LYCOPODIACEÆ. (Richard, D. C. bot. gal. p. 543.)

Fructifications crustaceous, sessile, situated in the axilla of the leaves, and then said to be axillary; or of bracts, and then spiked. *Capsules* either uniform, with many seeds, or of 2 forms; the one more common (? males), filled with spherical pulverulent globules; the other more rare (probably females), containing spherical subscabrous seeds, marked with 3 prominent ribs beneath.

Tribe I. ISOETIDÆ. (D. C. bot. gal. p. 543.)

Capsules indehiscent.

I. ISOETES. (L. gen. n. 1184., Bot. gal., l. c.)

Fructifications subradical, immersed in the base of the frond. (*Involucres* formed by the swollen base of the leaves, 1-celled. Hooker). *Capsule* (*coccula*) indehiscent, oblong, many-seeded. (*Seeds* angular, inserted upon many filiform receptacles. Hooker). Leaves radical.

1. *I. lacustris*. (L. sp. 1563.) *European Quillwort*. Bottoms of lakes, in the north of England, Scotland, Wales, and Ireland. Fl. May, Nov. Perennial. E. B. 1084., H. 458.

Tribe II. LYCOPODIÆ. (D. C. bot. gal. p. 543.)

Capsules (*thecae*) dehiscent, without a ring, 2—3-valved.

II. LYCOPodium. (L. gen. n. 1185., Hooker, 446., Bot. gal. 543.)

Diœcious or monœcious. ? *Male flowers* bivalved, filled with powder. — Female flower. *Capsules* (*coccula*) 4-valved, 1—4-seeded. — Herbs, of a dry habit; the cauline leaves numerous, imbricated, or in 2 rows.

Fructification spiked; stem creeping

spikes in pairs, stalked - - - 1. *L. CLAVATUM*.

spikes solitary, sessile

leaves scattered; branches few, simple

leaves linear-acute, curved upwards - 3. *L. INUNDATUM*.

leaves lanceolate, subpatent, ciliato-dentate - 4. *L. SELAGINOIDES*.

leaves in 4—5 rows; branches dichotomous

leaves in about 5 rows, lineari-lanceolate, mucronate, serrulate, patent - } 2. *L. ANNOTINUM*.

leaves in 4 rows, oblong, convex, acute, adpressed - } 5. *L. ALPINUM*.

Fructification axillary; stem erect - - - 6. *L. SELAGO*.

1. ! *L. clavatum*. (L. sp. 1564.) *Common Club-moss*. Heathy pastures; especially in mountainous countries. Fl. May, Nov. Perennial. E. B. 224. H. 457.

2. *L. annotinum*. (L. sp. 1566.) *Interrupted Club-moss*. Stony mountains; North Wales, very rare; and in the Highlands of Scotland. Fl. May, Nov. Perennial. E. B. 1727., H. 457.

3. ! *L. inundatum*. (L. sp. 1565.) *Marsh Club-moss*. Moist heathy places, but not very common. Fl. May, Nov. Perennial. E. B. 239., H. 457.

4. ! *L. selaginoides*. (L. sp. 1565.) *Lesser Alpine Club-moss*. Boggy and springy spots on mountains in the North; also on Esher Common, Surrey. Fl. May, Nov. Perennial. E. B. 1148., H. 457.

5. *L. alpinum*. (L. sp. 1567.) *Savin-leaved Club-moss*. High mountains in the north of England and Scotland. Fl. May, Nov. Perennial. E. B. 234., H. 457.

6. ! *L. Selago*. (L. sp. 1565.) *Fir Club-moss*. Heathy and stony places in mountainous countries. Common. Fl. May, Nov. Perennial. E. B. 233., H. 457.

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