DUPLICATA DE LA BIBLIOTHÈQUE
DU CONSERVATOIRE BOTANIQUE DE GENÈVE
VENDU EN 1922
FLORA HIBERNICA

COMPRISING THE
FLOWERING PLANTS FERNS CHARACEÆ
MUSCI HEPATICÆ LICHENES
AND ALGÆ
OF
IRELAND

ARRANGED ACCORDING TO THE NATURAL SYSTEM
WITH A
SYNOPSIS OF THE GENERA
ACCORDING TO THE LINNÆAN SYSTEM

BY
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ASSOCIATE OF THE LINNÆAN SOCIETY &c &c

—-"Behold the tribes
Of vegetable race, from lichen small
That o'er the naked rock a vesture flings
Of gold and purple, to the branchy oak
Or cedar on the brow of Lebanon,
How infinitely varied!"
W. H. Drummond.

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TO THE

REVEREND DOCTOR LLOYD,
PROVOST,

AND THE SENIOR FELLOWS OF TRINITY COLLEGE,
DUBLIN,

BY WHOSE MOST LIBERAL ASSISTANCE HE HAS BEEN MAINLY ENABLED TO LAY
THE FLORA OF IRELAND BEFORE THE PUBLIC,

THIS WORK

IS RESPECTFULLY INSCRIBED BY THEIR

MOST OBEIDENT HUMBLE SERVANT,

J. T. MACKAY.

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INTRODUCTION.

It has been matter of complaint that the history of the natural productions of Ireland has hitherto been neglected; but when all circumstances are considered, it will appear that the censure is one of too great severity. We have no means of ascertaining to what extent a knowledge of plants was possessed in ancient times by the Celtic inhabitants of the country; but when we are told that the Irish language is rich in names of plants, and also that the names of the letters of the Irish alphabet are taken from vegetable productions, it will be admitted, that, even in periods of remote antiquity, the study of plants was not altogether neglected: nor is this at all surprising, since it is well known that the surface of Ireland formerly presented a very different aspect with regard to vegetation than its present features would lead us to suspect. Formerly Ireland might have been considered as one vast forest—a circumstance to which it was perhaps indebted for what, we are informed, was one of its most ancient names (Innis Fiodh, or Woody Island.) The former existence of extensive forests is not a matter of vague tradition; it is attested by the remains of pines, oaks, yews, &c. which are found in all our bogs in prodigious quantity, and by the undoubted fact that many of these forests existed until a comparatively recent period; and some of them are described by Dr. Boates, who wrote in 1652, as then existing. These forests were destroyed, partly to facilitate military operations, and sub-
sequently, in more tranquil times, a vast quantity of timber was consumed for the smelting of iron. The remembrance of the wooded state of Ireland will be indelibly preserved in the names of many towns and districts throughout the country, proving that an abundance of trees formed a very characteristic feature of its scenery; nor is a knowledge of this circumstance calculated merely to gratify the curiosity of the antiquarian, but it is interesting to the zoologist and botanist, inasmuch as it renders probable the disappearance of several species of indigenous plants and animals which must have followed the destruction of the forests. Such birds as fed on the seeds of trees, and found protection amid their branches, must have disappeared, or have been greatly diminished in number, from a deficiency of food and shelter, and many species of insects may have been extirpated, or at least had their geographical range much circumscribed; and doubtless the same occurrences had a similar effect in limiting the range and number of such plants as flourish in the shade. It is well known that some seeds retain their vitality for many years when buried in the earth, and vegetate when called forth by favourable circumstances; we may therefore hope that as plantations increase, not only will the country reassume its former beauty, but rare plants may become more frequent, or some that have been apparently lost may again appear.

It is only in the incidental notices of historians that we obtain any knowledge of the extent of the Irish forests, or the trees they contained; and it was not till a recent period that any attempt was made to investigate the vegetable productions of the country. The first attempt towards a natural history of Ireland was by Dr. Boates, who published, in 1652, a work entitled "Ireland's Natural History," which contains interesting matter respecting the forests of Ireland, but no systematic catalogue of its indigenous plants. Dr. Boates is the only writer of any note until Threlkeld's work made its appearance in 1727; but, in the intermediate period, the Botany of Ireland was not altogether neglected. The Rev. Mr. Heaton, who resided in Dublin, communicated several rare plants to How and Merret. About this time also two eminent English Botanists, Lliwyd and
INTRODUCTION.

Sherrard, visited the country, and bestowed some attention on its natural history. To Dr. Sherrard we are indebted for the first notice of *Subularia aquatica* in Ireland, which he found growing in Lough Neagh. Threlkeld's work, entitled "Synopsis Stirpium Hibernicarum," is extremely imperfect, as the characters of the plants are seldom given, and the arrangement is alphabetical; it is, however, a work written, as Dr. Pulteney observes, in a quaint and amusing style, containing many sound observations, and evincing a pretty extensive learning. In 1735 Dr. K'Eogh published a similar treatise, which is now rare, and of inferior value to that of Threlkeld.

By far the most eminent Irish naturalist of this period was Dr. Molyneaux, the earliest describer of the Fossil Elk, and who first made known the occurrence of the remains of the Fossil Elephant in Ireland. He also contributed a catalogue of rare plants, which is published in an appendix to Threlkeld's work: and it is to be regretted that so excellent an observer has not enriched our literature with more extensive publications. These observers were succeeded by the writers of the statistical surveys of the different counties; works chiefly undertaken under the auspices of the Royal Dublin Society, and which contain valuable information on statistics and agriculture, and some of them useful botanical details. I may more particularly mention the histories of Cork and Kerry by Dr. Smith, which possess very considerable merit and accuracy with regard to the localities of plants, as I found during my botanical excursions through that part of the country. In 1772 Doctor Rutty published his Natural History of the county of Dublin—a work conceived on a good plan, and containing much useful information. The next botanical works were those of Dr. Wade, who published his *Flora Dubliniensis* in 1794, and in 1804 his *Plantæ Rariores, or Habitats of the rarer plants found by him in Ireland*. These publications are not without merit, and were considered by him as only preparatory to a more extensive work (a *Flora Hibernica*), which he stated his intention of publishing. This work, he says, was deferred until "as soon as genuine and valuable materials could be collected for the purpose, conceiving that no work of a
similar nature ought to make its appearance, or be considered genuine and valuable, unless the author has it in his power to answer for the habitats or places of growth of the different objects noticed." In 1804 the Muscologiae Hibernicse Spicilegium of Dawson Turner, Esq. appeared, which has the merit of being the earliest publication devoted to the mosses of Ireland—an elegantly written and accurate work, containing figures of the rarer species. About this time I was appointed assistant Botanist in Trinity College; and to the liberality of that learned body I am indebted for many facilities afforded me of investigating the Botanical productions of Ireland. In 1806 I published a catalogue of the rarer plants of the country, which were principally observed by me during two very extensive excursions made through the southern and western counties. This catalogue appeared in the 5th volume of the Transactions of the Dublin Society.

In 1810, Mr. James Drummond, then Curator of the Cork Botanic Garden, published a catalogue of the plants of the county of Cork—a catalogue highly creditable to that acute and zealous Naturalist, who now fills the situation of Colonial Botanist at Swan River, and whose labours will, no doubt, illustrate the Botany of that interesting region.

In 1824, I gave to the Royal Irish Academy, for publication, a Catalogue of all the Phænogamous Plants and Ferns which I had then ascertained to be natives of Ireland. This catalogue was the result of twenty years observation during numerous excursions made to almost every part of the country that was likely to afford interesting matter to the Botanist. A few inaccuracies occur in this and the former Catalogue, which subsequent experience has enabled me to rectify. Whilst thus employed, I always looked forward to the publication of an Irish Flora as the final result of my investigations—an intention which I had announced in the preface to my Catalogue which appeared in 1825.

I however then contented myself with recording accurately the habitats of such plants as I had observed, or which had been communicated to me by able Botanists, being induced to postpone the publication of the work till a later period, with the view of making it as complete as possible: nor is this delay
to be regretted, as I have since had an opportunity, by excursions made to Cunnamara and other parts of the country, of adding several interesting plants to our Flora; and valuable contributions have continued to be made by my friends, down to the last hour of going to press.

In 1833 a small volume appeared, entitled the *Irish Flora*, containing short descriptions of most of the Phænogamous Plants and Ferns of Ireland that were known up to that time.

The limits of a preface do not permit my entering into detail; but almost every page of the work bears evidence of the zealous assistance of my Botanical friends, and the extent of my obligations. I cannot, however, omit mentioning the late Mr. Templeton of Malone, near Belfast, who greatly contributed to our knowledge of the plants and animals of the north of Ireland. To Doctor Drummond of Belfast I am indebted for several interesting species of Algae, thus rendering that part of the work more complete than it otherwise would have been.

Mr. David Moore, my late pupil, has supplied some of the more recent and interesting additions to our Flora, among which I may mention *Pyrola secunda*, *Rosa Sabini*, and *Carex Buxbaumii*, as the most interesting. He has distinguished himself, during the last two years, by his researches in the County of Derry, where he has been employed as Botanist to the Ordnance Survey; which, under the able superintendence of Colonel Colby and Captain Portlock, is likely to throw much light on every branch of natural history connected with Ireland.

The first part of the work contains the Phænogamous, or Flowering Plants, Ferns, and Characeae, arranged according to the natural method, on the plan adopted by Professor De Candolle in his Théorie Élémentaire, 2d ed., and Professor Lindley in his Synopsis of the British Flora. I have been induced to adopt the natural system, not only because it is the method followed by Dr. Allman, the learned Professor of Botany in Trinity College, and which, although more difficult to beginners, is best calculated to give the student an accurate knowledge of the science; but as the Linnaean method enables us to ascertain
the genus of a plant with greater facility, a Synopsis of the Genera according to that system has therefore been prefixed; thus, it is hoped, combining to a considerable extent the advantages of both methods.

In describing the genera and species in the body of the work, I have adopted pretty much the characters of Sir W. J. Hooker, as given by him in his excellent British Flora, it being the book I principally consulted in the examination of my specimens, from which I have also taken the etymologies of the generic names.

The second and not least valuable part of the work contains the Orders, Musci, Hepaticæ, and Lichenes, by Doctor Taylor, (the well-known coadjutor of Sir W. J. Hooker in the Museologia Britannica,) who of all the Botanists of Ireland, was best qualified for the task. It will be seen that he has added a new genus \( \text{Hydrophyta} \) in the order Hepaticæ, and in the order Lichenes a good many hitherto undescribed species, six of which appear in the Addenda.

W. H. Harvey, Esq. the well-known Algologist, (before his departure to the Cape of Good Hope,) kindly undertook to describe the Algae. This he accomplished from the examination of a full collection in my possession, chiefly formed by the late amiable and accomplished Miss Hutchins, a lady who for many years was unremitting in her investigation of the Botany of the south of Ireland. To these he has added his own numerous discoveries, and those of other Botanists, whose names are mentioned; and since his departure I have been fortunate enough to add nine species new to Ireland, communicated by several botanical friends, as will appear in that portion of the work.

Dublin, 10th May, 1836.
### TABLE OF LINNAEAN ARTIFICIAL CLASSES AND ORDERS.

**Div. I.** Plants with conspicuous flowers. **Phanerogamia.**

#### A. Stamens and pistils in the same flower.

- **Stamens free and equal.**

<table>
<thead>
<tr>
<th>Cl.</th>
<th>Class</th>
<th>Stamens</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td><strong>Dodecandria</strong>, 11 to 19 stamens.</td>
<td>12.</td>
</tr>
</tbody>
</table>

#### Orders.

- In the first 13 classes the orders depend solely on the number of pistils, and they are named—**Monogynia**, **Digynia**, **Trigynia**, **Tetragynia**, **Pentagynia**, **Hexagynia**, **Heptagynia**, **Octagynia**, **Enneagynia**, **Decagynia**, **Dodecagynia**, and **Polygynia.**

- **Stamens free, unequal.**

<table>
<thead>
<tr>
<th>Cl.</th>
<th>Class</th>
<th>Stamens</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.</td>
<td><strong>Didynamia</strong>, 4 stamens, 2 longer than the others.</td>
<td>1.</td>
</tr>
<tr>
<td>15.</td>
<td><strong>Tetrodynamia</strong>, 6 stamens, 4 longer than the others.</td>
<td>2.</td>
</tr>
</tbody>
</table>

- **Filaments united.**

<table>
<thead>
<tr>
<th>Cl.</th>
<th>Class</th>
<th>Stamens</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.</td>
<td><strong>Polyadelphia</strong>, filaments forming more than 2 sets.</td>
<td></td>
</tr>
</tbody>
</table>

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

- **Anthers united.**

<table>
<thead>
<tr>
<th>Cl.</th>
<th>Class</th>
<th>Stamens</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.</td>
<td><strong>Syngenesia</strong>, 5 stamens, the anthers united (compound flowers.)</td>
<td>1.</td>
</tr>
<tr>
<td>21.</td>
<td><strong>Monoclia</strong>, stamens and pistils on the same individual.</td>
<td>3.</td>
</tr>
<tr>
<td>22.</td>
<td><strong>Diecia</strong>, stamens and pistils on different individuals.</td>
<td>4.</td>
</tr>
<tr>
<td>23.</td>
<td><strong>Polygynia</strong>, perfect and unisexual flowers either on the same or different individuals.</td>
<td>5.</td>
</tr>
</tbody>
</table>

#### Div. II. Plants with inconspicuous flowers. **Cryptogamia.**

- **Cryptogamia**, neither stamens nor pistils.

<table>
<thead>
<tr>
<th>Cl.</th>
<th>Class</th>
<th>Stamens</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.</td>
<td><strong>Cryptogamia</strong>, neither stamens nor pistils.</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.</td>
</tr>
<tr>
<td></td>
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<td>3.</td>
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<td>4.</td>
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<td>5.</td>
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<td></td>
<td>6.</td>
</tr>
</tbody>
</table>
SYNOPSIS OF GENERA, (IN PART FIRST) ACCORDING TO THE LINNÆAN SYSTEM.

Class I. **Monandria.** Stamen 1.
   Order I. **Monogynia.** Pistil 1.
   *

   (See Valeriana rubra in Cl. iii.; Alchemilla arv. in Cl. iv.; Zostera in Cl. xxi.; Chara in Cl. xxiv.)

   Order II. **Digynia.** Pistils 2.
   (See Callitriche in Cl. xxi.)

Class II. **Diandria.** Stamens 2.
   Order I. **Monogynia.** Pistil 1.
   *
   **Flowers inferior, monopetalous, regular.**

   **Ligustrum.** Cor. 4-cleft. Berry with four seeds. *Oleinae*, p. 178.

   **Fraxinus.** Cor. none, or deeply 4-cleft. Capsule compressed, with 1 or 2 seeds. Some flowers without stamens. *Oleinae*, p. 178.
   *

   **Pinguicula.** Cor. ringent, spurred. Caps. of 1 cell. Cal. 5-cleft. *Lentibulariae*, p. 196.

   *

   *
   *

   **Cladium.** Cor. none. Glumes chaffy, sheathing; the outer ones empty. Drupe without bristles at the base. *Cyperaceæae*, p. 324.
   (See Salicornia in Cl. i. *Schoenus*, Cl. iii. *Carex*, Cl. xxii. *Lepidium* and *Coronopus*, Cl. xv.)
SYNOPSIS OF GENERA.

Order II. Digynia. Pistils 2.


Class III. Triandria. Staminia 3.

Order I. Monogynia. Pistil 1.

* Flowers superior.

Valeriana. Cor. 5-cleft, protuberant at the base. Seed 1, with a feathery radiating crown. Valeriancae, p. 140.

Fedia. Cor. 5 cleft, protuberant at the base. Caps. crowned with the toothed calyx, without valves, of 1—3 fertile cells. Seeds solitary. Valeriancae, p. 159.

Crocus. Cor. in 6 deep equal segments; tube longer than the limb. Stigmas folded. Irideae, p. 274.

Iris. Cor. in 6 deep unequal segments, alternately reflexed. Stigmas 2-lipped, like petals. Irideae, p. 273.

* * Fl. inferior, chaffy. Seed 1.


Rynchospora. Cor. none. Spike of very few flowers. Glumes imbricated all round, with many smaller, empty, external ones. Seed beaked with the dilated, hardened, permanent base of the style. Cyperaceae, p. 319.


Blysmus. See p. 319.

Eleocharis. Cor. none. Glumes imbricated all round, uniform, expanded. Seed crowned and articulated with the dilated hardened base of the style. Cyperaceae, p. 320.

Eriophorum. Cor. none. Glumes imbricated all round, uniform, expanded. Seed subtended by numerous very long hairs. Cyperaceae, p. 323.


(Some Junci; see in Cl. vi.

Order II. Digynia. Pistils 2.

True Grasses. Gramineae.

* Flowers dispersed. Cal. of 2 or 3 valves, with a solitary stioret.

Alopecurus. Cal. of 2 valves. Cor. of 1 valve; simple at the summit; awned at the base. Styles combined. p. 295.

Phalaris. Cal. of 2 close, parallel valves, concealing the double corolla of 3 or 4 valves; 2 innermost downy, subsequently hardened, investing the seed. p. 295.

Ammophila. Panicle spiked. Cal. of 2 nearly equal, keeled valves, longer than the corolla, surrounded at the base by a tuft of hairs. p. 296.


Milium. Cal. of 2 timid, close valves, enclosing the cor. of 2 valves. Seed coated with the hardened corolla. p. 297.
SYNOPSIS OF GENERA.

**Calamagrostis.** Panicle loose. Cal. of 2 valves, longer than the two valves of the corolla. p. 297.

**Agristis.** Cal. of 2 acute valves, shorter than the cor. which is membranous, tufted with hairs at the base, unchanged. Seed loose. p. 298.

* * * Fl. dispersed. Cal. of 2 valves, containing 2 or 3 florets.

**Catabrosa.** Panicle spreading. Cal. of 2 valves, membranaceous, very obtuse, much shorter than the spikelets, 2 or 3-flowered, often with a fourth imperfect floret. Cor. 2-valved, coriaceous, membranous only at the extremity, ribbed, truncated, awnless, erosive, nearly equal. p. 299.

**Aira.** Florets 2, without any intermediate rudiment. Seed loose. Cor. unchanged. p. 299.

**Melica.** Florets 1 or 2, with the rudiments of 1 or 2 intermediate ones. Seed coated with the hardened cor. p. 300.

**Holcus.** One floret barren. Cor. awned. Seed coated with the hardened corolla. Cal. keeled. p. 301.

**Aeghoenatherum.** Panicle lax. Cal. of 2 valves, 2-flowered; lowermost floret with stamens only, and a long twisted awn above the base, upper one perfect, with a short straight bristle below the point. p. 302.

**Sesleria.** Florets 2 or 3, all perfect. Outer valve of the cor. toothed; inner cloven. Seed loose. Styles combined. p. 302.

* * * Fl. dispersed. Cal. containing many florets.

**Poa.** Cor. awnless, compressed, keeled, ovate, acute. Seed loose, elliptic-oblong. p. 302.

**Triodia.** Cor. orbicular, expanded, obscurely ribbed, deeply cloven, with an intermediate point; both valves concave. Seed loose, depressed. p. 306.

**Briza.** Cor. awnless, tunicated, expanded, concave, without a keel. Seed depressed, united to the corolla. p. 306.

**Dactylis.** Cor. awned at the summit, lanceolate, keeled, compressed; inner valve folded, 2 ribbed. Seed loose, oblong. Cal. compressed, taper-pointed, unequal. p. 307.

**Cynosorus.** Cor. awned at the summit, lanceolate, keeled, concave; inner valve flat, 2-ribbed. Seed loose, elliptic-oblong. Cal. awned, equal. Spikelets in pairs; 1 entirely neuter. p. 307.

**Festuca.** Cor. awned at the summit, or pointed, keeled, nearly cylindrical, concave; inner valve flat, 2-ribbed, downy at the ribs. Seed loose, oblong. Cal. concave, acute, very unequal. p. 307.

**Bromus.** Cor. awned at the back, cloven, concave; inner valve flat, 2-ribbed, bristly at the ribs. Seed elliptic-oblong, united to the inner valve. p. 310.

**Avena.** Cor. awned at the back, cloven, nearly cylindrical; inner valve flat, ovate. Seed elliptic-oblong, united to the hard outer valve. p. 312.

**Arundo.** Cor. surrounded with long permanent hairs. Florets 1 or many. p. 313.

* * * * Fl. aggregate, on a jointed, or toothed, common stalk, with lateral excavations.

**Elymus.** Cal. of 2 parallel valves, aggregate, with two or more florets. p. 313.

**Hordeum.** Cal. of 2 parallel valves, aggregate, ternate, with one floret. Central flower only perfect. p. 314.

**Triticum.** Cal. of 2 transverse opposite valves, solitary, many-flowered. p. 315.
SYNOPSIS OF GENERA.

Brachypodium. Spikelets alternate, remote, cylindrical-compressed. Cal. 2-valved, many-flowered; valves opposite, transverse, unequal. Cor. 2-valved, the valves lanceolate; ext. one generally awned at the extremity; int. retuse. p. 316.

Lolium. Cal. of 1 principal valve, opposite to the stalk, fixed, many-flowered. p. 316.

Rottbollia. Cal. of 2 parallel, sometimes combined valves, opposite to the stalk, imperfectly 2-flowered. p. 317.

Order III. Trigynia. Pistils 3.


Class IV. Tetranda. Stamens 4, equal.

Order I. Monogynia. Pistil 1.

* Fl. monopetalous, superior, single-seeded.


Knautia. Involucre many-leaved. Cal. double; ext. minute; int. cup-shaped. Fruit upon a short stalk; compressed, with 4 pores on depressed points. Dipsaceae, p. 142.


* * Fl. monopetalous, superior, 2-seeded.


Asperula. Cor. tubular. Fruit without a crown. Stellatae, p. 132.

Sherardia. Cor. tubular. Fruit crowned with the calyx, each seed with 3 teeth. Stellatae, p. 132.

* * * Fl. monopetalous, inferior.


Plantago. Cor. reflexed. Stam. very long. Caps. bursting all round, of 2 or 4 cells. Plantagineae, p. 175.


Some Gentianaceae.

* * * * Petals 4.


(See Euonymus in Cl. V. Cardamine and Coronopus, in Cl. xv.)

* * * * Petals wanting.

Alchemilla. Cal. 8-cleft, inferior. Seed 1, or 2, naked. Rosaceae, p. 105.

Order II. Digynia. 2 styles.
(See Alchemilla in Ord. II. Some Gentiana and Cuscuta in Cl. V.)

Order III. Tetragynia. Pistils, or Stigmas, 4.

Ilex. Cor. wheel-shaped, of 1 or 4 petals. Berry with 4 seeds. Styles 0. Some fl. barren. Ilicineæ, p. 71.


Class V. Pentandria. Stamens 5.

Order I. Monogy'Nia. Pistil 1.

* Flowers monopetalous, inferior, with 2 or 4 naked seeds. (Asperifoliae, Linn.)


Borago. Cor. closed with awl-shaped or notched valves; limb wheel-shaped. Boragineæ, p. 169.


Myosotis. Cor. half closed with rounded valves, salver-shaped; lobes obtuse. Seeds perforated at the base, borne by the calyx. Boragineæ, p. 170.


** Fl. monopetalous, inferior, with numerous covered seeds.


SYNOPSIS OF GENERA.

**MENYANTHES.** Caps. of 1 cell. Cor. hairy. Stigma divided. Gentianaceae, p. 183.


**Convolvulus.** Caps. of 1 or 3 cells, with 2 seeds in each. Cor. bell-shaped, plaited. Stigmas 2. Convolvulaceae, p. 172.

**Polemonium.** Caps. of 2 cells. Cor. deeply 5-cleft; tube closed by 5 valves. Stam. between the valves, opposite to the segments. Polemoniaceae, p. 174.


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**Samolus.** Caps. of 1 cell, with 5 recurved valves. Cor. funnel-shaped, 5 cleft, with intermediate scales. Primulaceae, p. 195.


**Lobelia.** Caps. of 2 or 3 cells. Cor. irregular, split lengthwise. Stigma capitate, hairy. Lobeliaceae, p. 139.

**Campanula.** Caps. of 2 or 3 cells, with torn fissures at the base. Cor. bell-shaped. Stigma 2- or 3-cleft, revolute. Campanulaceae, p. 137.

**Lonicera.** Berry of 1 or more cells, with many seeds. Cor. irregular. Caprifoliaceae, p. 183.

---

**Rhamnus.** Berry of several cells. Cal. funnel-shaped, bearing the petals. Rhamnaceae, p. 71.

**Euonymus.** Caps. of 4 or 5 cells. Seeds with a fleshy tunic. Cal. flat. Celastrinaceae, p. 72.

**Viola.** Caps. of 1 cell and 3 valves. Cal. of 5 leaves, extended at the base. Cor. irregular, spurred. Violaceae, p. 31.

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**Ribes.** Berry with many seeds. Cal. bearing the petals. Style divided. Grossulariaceae, p. 106.

** SYNOPSIS OF GENERA. **

* * * * * Petals wanting.


Order II. ** Digynia. ** Pistils 2.

* Fl. monopetalous, inferior.

** Gentiana. ** Caps. of 1 cell. Cor. tubular at the base, destitute of nectariferous pores. Gentianaceae, p. 187.


* * Petals wanting. Seed solitary.

** Chenopodium. ** Seed lenticular, tunicated, superior. Chenopodaceae, p. 227.

** Beta. ** Seed kidney-shaped, imbedded in the fleshy calyx. Chenopodaceae; p. 229.


* * * Fl. of 5 petals, superior. Seeds 2. Umbellate.

Obs. The genera of this division form the Natural Order Umbelliferae. See p. 113—129.

Order III. ** Trigynia. ** Pistils 3.

* Fl. superior.

** Viburnum. ** Cor. 5-cleft. Berry with 1 seed. Caprifoliaceae, p. 134.

** Sambucus. ** Cor. 5-cleft. Berry with 3 seeds. Caprifoliaceae, p. 134.

Order IV. ** Tetragynia. ** Pistils 4.

** Parnassia. ** Nectaries fringed with bristles, bearing globes. Caps. of 4 valves. Saxifrageae, p. 64.

Order V. ** Pentagynia. ** Pistils 5.


** Statice. ** Pet. 5. Seed 1, clothed with the base of the funnel-shaped calyx. Plumbaginaceae, p. 176.

(See Cerastium and Spergula in Cl. x.)

Order VI. ** Hexagynia. ** Pistils 6.

** Drosera. ** Pet. 5. Caps. of 3 valves, with many seeds. Droseraceae, p. 34.

Class VI. ** Hexandria. ** Stamens 6, each 2 equal.

Order I. ** Monogynia. ** Pistil 1.

* Fl. with both calyx and corolla.

** Berberis. ** Cor. of 6 petals. Cal. of 6 leaves, inferior. Berry with 2 seeds. Berberidaceae, p. 11.
SYNOPSIS OF GENERA.


(See Lythrum in Cl. xii.)

* * * Fl. without a calyx, superior.

Galanthus. Cor. sup. of 6 petals, 3 innermost shortest, abrupt, notched. Amaryllideae, p. 283.

Narcissus. Cor. sup. of 6 petals, attached to a bell-shaped nectary, which conceals the stamens. Amaryllideae, p. 283.

* * * Fl. without a calyx, inferior.


* * * Fl. without petals.


(See Peplis in Ord. I. Polygonum in Cl. viii.)

Order II. Digynia. Pistils 2.


Order III. Trigynia. Pistils, or Stigmas, 3.


(See Elatine in Cl. viii.)

Order IV. Polygynia. Pistils numerous.


Class VII. Heptandria. Stamens 7.

Trientalis, the only British genus in this class, has not yet been observed in Ireland.
SYNOPSIS OF GENERA.

Class VIII. Octandria. Stam. 8.

Order I. Monogynia. Pistil 1.

* Fl. complete.


Chlora. Cor. in 8, or 6, deep segments. Cal. inferior, of as many leaves. Caps. of 1 cell. Gentianaceae, p. 169.

Vaccinium. Cor. of 1 petal. Cal. 4-cleft. Berry inferior. Vaccinaceae, p. 130.


Calluna. Cor. of 1 petal. Cal. double; each of 4 leaves. Caps. superior; partitions from the column, alternate with the valves. Ericaceae, p. 179.

(See Monotropa in Cl. x.)

Digynia. Styles 2.

(See Polygonum in Ord. ii., Chrysosplenium and Scleranthus in Cl. x.)

Order II. Trigynia. Pistils 3.

Polygonum. Cal. coloured, in several deep segments, inferior. Cor. 0. Seed 1, naked. Polygonaceae, p. 223.


(See Sagina Cl. iv.)

Class IX. Enneandria. Stamens 9.


Class X. Decandria. Stamens 10.

Order I. Monogynia. Pistil 1.

* Fl. polypetalous.

Monotropa. Pet. 10, or 8; 5, or 4, outermost protuberant at the base. Anthers of 1 cell, and 2 valves. Pyrolaceae, p. 194.

* * Fl. monopetalous, equal.


(See Vaccinium 1. Cl. viii.)

Order II. Digynia. Pistils 2.


Order III. Trigynia. Pistils 3.


(See Polygonum in Cl. viii.)

Order IV. Pentagynia. Pistils 5.

Cotyledon. Caps. 5, each with a scale at the base. Cor. of 1 petal. Crassulaceae, p. 60.

Sedum. Caps. 5, each with a scale at the base. Cor. of 5 petals. Crassulaceae, p. 160.


Lychnis. Caps. of 5 cells, or of 1, with many seeds. Cal. tubular, membranous. Caryophylleae, p. 43.


(See Silene and Stellaria in Order iii.—Adoxa in Cl. viii.)
Class XI. Dodecandria. Stamens 12—20.

Order I. Monogynia. Pistil 1.


Order II. Digynia. Pistils 2.


Order III. Trigynia. Pistils 3.


(See Euphorbia in Cl. xxi.)

(Tetragynia, 4 Styles.
See Tormentilla in Cl. xii.)

Order IV. Dodecagynia. Pistils 12.


Class XII. Icosandria. Stamens 20 or more, from the rim of the calyx.

Order I. Monogynia. Pistil 1.


(See Crataegus in Ord. Pentagynia.)

Order II. Pentagynia. Pistils 2—5.


Order III. Polygynia. Pistils numerous.

Rosa. Cal. 5-cleft; tube finally pulpy, lined with hairs, and with numerous bristly seeds. Rosaceae, p. 95.


Dryas. Cal. 8- or 10-cleft. Pet. 5 or 8. Seeds each with a feathery tail. Rosaceae, p. 94.


SYNOPSIS OF GENERA.

COMARUM. Cal. 10-cleft. Seeds naked, even, on the surface of a spongy hairy permanent receptacle. Rosaceae, p. 92.


Class XIII. POLYANDRIA. Stamens numerous, from the receptacle.

Order I. MONOGYNIA. Pistil 1.

* Petals 4.


* * Petals 5.

HELIGNTHEMUM. Cal. of 3 equal leaves, or 5, of which 2 outer ones are smaller. Pet. 5. Stigma capititate. Caps. 3-valved. Cistineae, p. 33.

Tilia. Caps. of several close cells. Seeds few. Cal. in 5 deep, valvar, equal segments, deciduous. Tiliaceae, p. 53.

* * * Petals numerous.


Order II. PENTAGYNIA. Pistils 2—6.


Order III. POLYGYNIA. Pistils numerous.

THALICTRUM. Cal. 0. Pet. 4 or 5, imbricated. Seeds without any appendage. Ranunculaceae, p. 5.


Class XIV. Didynamia. Stamens 4, 2 outermost longest.

Order I. Gymnospermia. Seeds naked, 4 at most.

* Calyx in 5 segments, nearly regular.


Lamium. Corolla toothed at each side of the throat. Labiatae, p. 216.

Galeopsis. Lower lip of the corolla with a pair of hollow prominences at the base in front. Labiatae, p. 217.


* * Calyx 2-lipped.

Scutellaria. Cal. when in fruit closed by a dorsal lid. Labiatae, p. 218.


Origanum. Cal. without ribs. Invol. of numerous, dilated, flat leaves, 1 to each flower, collected into a spurious catkin. Labiatae, p. 220.

Prunella. Filaments forked, 1 of the points bearing the anther. Labiatae, p. 219.

Order II. Angiospermia. Seeds in a capsule, generally numerous.

* Calyx 4-ovarii.

SYNOPSIS OF GENERA.


** Calyx 5-cleft.

SCROPHULARIA. Caps. of 2 cells. Cor. reversed; tube inflated; limb rounded, much shorter. Scrophulariae, p. 205.

SIBORTHIA. Caps. of 2 cells, with transverse partitions. Cor. nearly wheel-shaped. Stam. converging laterally in pairs. Scrophulariae, p. 204.

VERBENA. Cal. with 1 of the 5 teeth abrupt. Cor. nearly equal, curved. Stam. in the tube. Verbenaceae, p. 203.


LINARIA. Cal. 5-parted. Cor. personate, spurred at the base, the mouth closed by a projecting palate. Caps. ventricose, 2-celled, opening by valves or teeth. Scrophulariae, p. 203.

ANTIRRHINUM. Caps. of 2 cells, bursting unequally at the summit. Cor. closed with a palate, prominent or spurred at the base behind. Scrophulariae, p. 204.


** ** Calyx of 2 leaves.


Class XV. TETRADYNAMIA. Stamens 6, 2 opposite ones shortest. (Nat. Ord. Cruciferæ, Juss.)

Order I. SILICULOSA. Fruit a short roundish pod, or pouch.

* Cotyledons accumbent.

DRABA. Pouch entire, laterally compressed; valves nearly flat. Seeds numerous. p. 20.

CRAMBE. Pouch globose, stalked, coriaceous, of 1 cell, without valves, deciduous. Seed solitary. p. 29.

CAKILE. Pouch angular, of 2 joints, each of 1 cell, without valves; the uppermost deciduous. Seeds solitary. p. 22.


THLAPSI. Pouch laterally compressed, emarginate; valves winged at the back, many-seeded. Cotyledons accumbent. p. 22.

* * Cotyledons incumbent.


**ISATIS.** Pouch entire, deciduous, bordered, transversely compressed, of 2 valves, and 1 cell. *Seed* solitary. p. 27.

**CAMELINA.** Pouch entire; valves tumid. Seeds numerous, not bordered. Filam. all simple. p. 25.


Order II. **SILIQUOSA.** Fruit a long many-seeded pod.

* * Cotyledons flat, incumbent.

**CHEIRANTHUS.** Pod rather compressed, straight. *Stigma* either of 2 spreading lobes, or capitate. *Calyx* closed; 2 of the leaves prominent at the base. p. 17.

**MATTHIOLA.** Pod nearly cylindrical, straight. *Stigma* of 2 converging lobes, either thickened or protuberant at the back. *Calyx* closed; 2 of the leaves prominent at the base. p. 17.

**NASTURTIUM.** Pod nearly cylindrical, oblique; valves concave, without keels. *Stigma* obtuse, notched. *Calyx* spreading, equal at the base. p. 17.


**CARDAMINE.** Pod linear; valves flat, without ribs, bursting elastically from the base. *Seeds* on capillary stalks. p. 20.

* * Cotyledons flat, incumbent.


* * * Cotyledons folded, incumbent.


Class XVI. **MONADELPHIA.** Filaments combined; in one set.

Order I. **PENTANDRIA.** Stamens 5.

**ERODIUM.** *Style* 1. Fruit beaked, of 5 aggregate capsules, each tipped with a spiral *awn*, bearded on the inside. *Geraniaceae*, p. 57.

(See *Linum* in Cl. V. Ord. I.—*Geran. pusillum* in Ord. Decandria.) *Oxalis* in Cl. X.
Order II. Decandria. Stamens 10.


Order III. Polyandria. Stamens numerous.


Class XVII. Diadelphia. Filaments combined; in two sets.


Fumaria. Cal. of 2 leaves. Cor. ringent, prominent, and bearing honey at the base. Each filament with three anthers. Fumariaceae, p. 16.

Corydalis. Cal. of 2, small, deciduous leaves. Pet. 4, one of them gibbous or spurred at the base. Pod 2-valved, compressed, many-seeded. Fumariaceae, p. 15.

Order II. Octandria. Stamens 8.


* Stamens all connected at the base, the tube mostly split along its upper side.

The plants of this Order constitute the Natural Order Leguminoseae.

Spartium. See Cytisus, p. 75.


Ulex. Cal. of 2 leaves, nearly as long as the legume. p. 74.

Anthyllis. Cal. inflated, including the legume. p. 75.


* * Stigma, or style, downy; without the character of the former section.

Orobus. Style linear, nearly cylindrical. Stigma along the upper side, downy. p. 84.


Lathyrus. Style flattened vertically. Stigma along the dilated upper half of the style, downy. p. 83.

Vicia. Style bearded in front, below the stigma. p. 82.

Ervum. Stigma capitate, all over downy. p. 81.
Legume more or less perfectly 2-celled; without the former characters.

**Astragalus.** Legume tumid, of 2 longitudinal cells. p. 76.

* Legume with scarcely more than 1 seed; without the former characters.

**Trifolium.** Legume hardly longer than the calyx, with 1 seed, rarely more, deciduous, not bursting. p. 76.

**Melilotus.** Legume 1- or few-seeded, indehiscent, longer than the calyx. Flowers racemose. Leaves ternate. p. 76.

* Legume either jointed, or spiral; without the former characters.

**Ornithopus.** Legume somewhat cylindrical, curved, of many close, single-seeded joints. Keel rounded. p. 85.

**Medicago.** Legume spiral, compressed, somewhat membranous. Pistil pressing the keel downwards. p. 80.

* Legume of 1 cell, with numerous seeds, without the former characters.

**Lotus.** Legume cylindrical, spongy within. Wings converging at their upper edges. Filam. partly dilated. p. 79.

Class XVIII. **Polyadelphia.** Filaments combined, in more than two sets.

Order I. **Polyandria.** Stamens numerous.


Class XIX. **Syngenesia.** Anthers united into a tube. Flowers compound. (Nat. Ord. Composite, Juss.)

Order I. **Æqualis.** All the florets perfect.

* All the Corollas ligulate or strap-shaped. Cichoraceæ, Juss.

**Tragopogon.** Receptacle naked. Down stalked, feathery. Cal. simple, of several equal scales, in 2 rows. p. 165.

**Picris.** Involucre double, inner of many compact, upright, equal scales, outer of several lax, small, linear ones. Recept. naked. Pappus sessile, slightly feathery. Fruit transversely striated. p. 162.

**Helminthia.** Involucre double; inner of eight close scales, outer of four large, lax, leafy ones. Recept. naked. Pappus feathery, stalked. Fruit transversely striated. p. 161.

**Sonchus.** Recept. naked. Down sessile, simple. Cal. simple, imbricated, swelling at the base. p. 150.

SYNOPSIS OF GENERA.


THRINCIUM. Involucre nearly simple, multipartite, with a few small scales at the base. Recept. naked, pitted. Pappus of the florets of the circumference scaly, those of the centre feathery, sessile. p. 165.


CHICORYEA. Recept. slightly chaffy. Down chaffy, shorter than the seed. Cal. double. p. 166.

* * Corollas all tubular, and generally spreading, so as to form a hemispherical head. CINAROCEPHALE, Juss.

ARCTIUM. Cal. globose; scales spinous, hooked, inflexed. p. 156.

SAUSSUREA. Invol. oblong, imbricated with unarmed scales. Recept. setose or chaffy. Pappus double, sessile; ext. of short, rough bristles, persistent; int. feathery, united at the base. Anthers below setose. p. 154.


CARLINA. Cal. swelling; outer scales spinous; inner coloured, polished, radiant. Recept. chaffy. Down feathery. p. 156.

(See CENATHEA, in Ord. Frustranea.)

* * Corollas all tubular, erect and parallel, crowded, forming a level top, without a ray. (Part of CORYMBIFERA, Juss.)


(See Tanacetum, Senecio, Aster and Anthemis, in Ord. II.)

Order II. SUPERFLUA.

Florets all perfect and fertile, though those of the circumference have no stamens.

* Corolla of the marginal florets obsolete, or wanting.—Discoid. (CORYMBIFERA, Juss.)


SYNOPSIS OF GENERA.


(See Petasites, Aster, and some sp. of Senecio, in the following section.)

* * Corollas of the circumference or ray ligulate.—(Radiate.)


SENECIO. Recept. naked. Down simple. Cal. double; the innermost cylindrical, of numerous equal scales; outer of several minute ones; scales all withered at the extremity. p. 146.


PULICARIA. Invol. hemispherical, closely imbricated with narrow scales. Anth. with bristles at the base. Pappus double; outer one short, cup-shaped, membranous, toothed; inner long, rough. Fl. yellow. p. 143.


PYRETHRUM. Recept. naked. Seed crowned with a border. Cal. hemispherical, imbricated; scales rather acute, membranous at the edges. p. 149.


Order III. FRUSTRANEA.

Florets of the disk perfect and fertile; those of the circumference neuter.

(Part of CINAROCEPHALAE, Juss.)

Class XX. **Gynandria.** Stamens situated either on the style or germin.

Order I. **Monandria.** Stamen, or Sessile Anther, 1.

* Anther of 2 distinct vertical cells, fixed to the summit of the column. (All belong to the Nat. Ord. Orchideae.)


* * Anther parallel to the stigma, of 2 cells close together, permanent.

**Neottia.** Cal. converging, embracing the base of the flat nectary, which is without a spur. Pet. converging. Column without wings. p. 278.


* * * Anther terminal, fixed.

**Epipactis.** Nect. without a spur; tumid underneath at the base; contracted in the middle, undivided at the end. p. 280.

* * * * Anther a terminal deciduous lid.

**Malaxis.** Nect. embracing the column with its concave base, without a spur, sessile. Pet. spreading. p. 281.

Class XXI. **Monecia.** Stamens and Pistils in separate flowers, on the same plant.

Order I. **Monandria.** Stamen 1.


(For Chara see Cl. Cryptogamia.)

Order II. **Diandria.** 2 stamens.

(See Callitriche in Ord. I. Carex in Ord. III.)

Order III. **Triandria.** 3 stamens.

**Typha.** Barr. fl. Cathia hairy. Cal. none. Cor. none. Anth. about
SYNOPSIS OF GENERA.

3 on each filament. Fert. fl. Catkin hairy. Seed 1, on a hairy stalk. Typhaceae, p. 262.


Order IV. TETRANDRIA. Stamens 4.


(See Eriocaulon in Ord. VI. Myrica in Cl. xxii.)

Order V. PENTANDRIA. Stamens 5.


(See Fagus and Quercus in Ord. Polyandria. Atriplex in Cl. Polygania.)

Order VI. HEXANDRIA. Stamens 6.


(See Quercus in Ord. Polyandria.)

Order VII. POLYANDRIA. Many Stamens.


POTERIUM. Barr. fl. Cal. 3-leaved. Cor. deeply 4-cleft. Stam. 30-50. Fert. fl. Cal. 3-leaved. Cor. deeply 4-cleft. Pistil 1 or 2. Nut coated, of 1 or 2 cells. Rosaceae, p. 106.


FAGUS. Barr. fl. in a catkin. Cal. in several segments. Cor. none. Stam. 5-20. Fert. fl. Cal. double; outer inferior, prickly, in several deep segments, 2- or 3-flowered; inner superior, 5- or 6-cleft, Cor. none. Styles
5 or 6. Nuts 2 or 3, loosely invested with the spreading outer calyx. *Amen-
taceae*, p. 254.

**CASTANEA.** See *Amentaceae*, p. 255.

**QUERCUS.** Barr. fl. in a catkin. Cal. in several segments. Cor. none. Stam. 3 or more. Fert. fl. Cal. double; outer inferior, scaly, undivided; inner superior, in 6 deep segments. Cor. none. Style 1. Nut solitary, closely invested at its base with the hemispherical outer calyx. *Amentaceae*, p. 255.


**Order VIII. MONADELPHIA.** Stamens united into one set.

**PINUS.** Barr. fl. in a catkin, naked. Stam. numerous, on a common stalk. Fert. fl. in a catkin, of close, rigid, 2-lipped, 3-flowered scales. Seeds 2 to each scale, winged. *Conifere*, p. 258.

**Class XXII. DIOECIA.** Stamens and Pistils in separate flowers, on different plants.

(MONANDRIA. 1 Stamen. For some Salices see Ord. II.)

**Order I. DIANDRIA.** Stamens 1—5, mostly 2.


**Order II. TRIANDRIA.** Stamens 3.

**EMPETRUM.** Barr. fl. Cal. in 3 deep segments. Pet. 3. Stam. ca-

(See Valeriana dioica in Cl. III. Some Salices in Ord. I.)

**Order III. TETRANDRIA.** Stamens 4.

Order IV. Pentandria. Stamens 5.


Order V. Octandria. Stamens 8.


(Ord. Decandria. See Silene and *Lychnis* in Cl. X.—Ord. Icosandria. See *Rubus* and *Fragaria* in Cl. XII.—Ord. Polyandria. See *Stratiotes* in Cl. xiii. See *Populus* in Ord. V.)

Order VII. Monadelphia. Stamens combined.


Class XXIII. Polygamia.

Stamens and pistils separate or united, on the same or on different plants, and having 2 different kinds of perianth.

Order I. Monoechia. Flowers different on the same plant.


Class XXIV. Cryptogamia. (Part of.)

* Stamens and pistils not visible.

**Filices.**


For Characece, see p. 351.
THE NATURAL ORDERS.
TABLE OF THE NATURAL ORDERS.

VASCULARES OR FLOWERING PLANTS.

CLASS I. Exogenæ or Dicotyledonous Plants.

SUBCLASS I. Dichlamydeæ. Thalamifloræ. D.C.

<table>
<thead>
<tr>
<th>Order</th>
<th>Family</th>
<th>Page</th>
<th>Order</th>
<th>Family</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ranunculaceæ</td>
<td>4</td>
<td>10</td>
<td>Polygaleæ</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>Berberidæ</td>
<td>10</td>
<td>11</td>
<td>Malvacæ</td>
<td>36</td>
</tr>
<tr>
<td>3</td>
<td>Nymphaæaceæ</td>
<td>11</td>
<td>12</td>
<td>Hypericinæ</td>
<td>38</td>
</tr>
<tr>
<td>4</td>
<td>Papaveraceæ</td>
<td>12</td>
<td>13</td>
<td>Caryophylleæ</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>Fumariææ</td>
<td>15</td>
<td>14</td>
<td>Linææ</td>
<td>51</td>
</tr>
<tr>
<td>6</td>
<td>Crucifæræ</td>
<td>16</td>
<td>15</td>
<td>Tiliaæ</td>
<td>52</td>
</tr>
<tr>
<td>7</td>
<td>Violaceæ</td>
<td>31</td>
<td>16</td>
<td>Acerinææ</td>
<td>53</td>
</tr>
<tr>
<td>8</td>
<td>Cistinææ</td>
<td>33</td>
<td>17</td>
<td>Geraniææ</td>
<td>54</td>
</tr>
<tr>
<td>9</td>
<td>Droséææ</td>
<td>34</td>
<td>18</td>
<td>Oxalidææ</td>
<td>58</td>
</tr>
</tbody>
</table>

SUBCLASS II. Dichlamydeæ. Calycifloræ. D.C.

<table>
<thead>
<tr>
<th>Order</th>
<th>Family</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Portulacææ</td>
<td>59</td>
</tr>
<tr>
<td>20</td>
<td>Crassulacææ</td>
<td>59</td>
</tr>
<tr>
<td>21</td>
<td>Saxifragææ</td>
<td>62</td>
</tr>
<tr>
<td>22</td>
<td>Salicinææ</td>
<td>69</td>
</tr>
<tr>
<td>23</td>
<td>Rhamnææ</td>
<td>70</td>
</tr>
<tr>
<td>24</td>
<td>Illicinææ</td>
<td>71</td>
</tr>
<tr>
<td>25</td>
<td>Celastrinææ</td>
<td>72</td>
</tr>
<tr>
<td>26</td>
<td>Leguminosææ</td>
<td>75</td>
</tr>
<tr>
<td>27</td>
<td>Rosacææ</td>
<td>65</td>
</tr>
<tr>
<td>28</td>
<td>Pomacææ</td>
<td>106</td>
</tr>
<tr>
<td>29</td>
<td>Grossulacææ</td>
<td>108</td>
</tr>
<tr>
<td>30</td>
<td>Onagrarææ</td>
<td>109</td>
</tr>
</tbody>
</table>

SUBCLASS III. Dichlamydeæ. Corollifloræ. D.C.

<table>
<thead>
<tr>
<th>Order</th>
<th>Family</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>Boragineæ</td>
<td>157</td>
</tr>
<tr>
<td>43</td>
<td>Convolvulaceæ</td>
<td>172</td>
</tr>
<tr>
<td>44</td>
<td>Polemoniaceæ</td>
<td>174</td>
</tr>
<tr>
<td>45</td>
<td>Plantagineæ</td>
<td>174</td>
</tr>
<tr>
<td>46</td>
<td>Plumbaginææ</td>
<td>176</td>
</tr>
<tr>
<td>47</td>
<td>Oleinææ</td>
<td>178</td>
</tr>
<tr>
<td>48</td>
<td>Ericææ</td>
<td>179</td>
</tr>
<tr>
<td>49</td>
<td>Pyrolaceææ</td>
<td>182</td>
</tr>
<tr>
<td>50</td>
<td>Apocynææ</td>
<td>184</td>
</tr>
</tbody>
</table>

SUBCLASS IV. Monochlamydeæ. D.C.

<table>
<thead>
<tr>
<th>Order</th>
<th>Family</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>Polygonææ</td>
<td>220</td>
</tr>
<tr>
<td>61</td>
<td>Chenopodææ</td>
<td>226</td>
</tr>
<tr>
<td>62</td>
<td>Scleranthææ</td>
<td>231</td>
</tr>
<tr>
<td>63</td>
<td>Urticææ</td>
<td>232</td>
</tr>
<tr>
<td>64</td>
<td>Resedææ</td>
<td>234</td>
</tr>
<tr>
<td>65</td>
<td>Euphorbiaceæ</td>
<td>235</td>
</tr>
<tr>
<td>66</td>
<td>Epimetrææ</td>
<td>237</td>
</tr>
</tbody>
</table>
### Table of the Natural Orders

#### Class II. Endogène or Monocotyledonous Plants

**Subclass I. Petaloideæ. Lindl.**

<table>
<thead>
<tr>
<th>Class</th>
<th>Subclass</th>
<th>Order</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>II. Endogenæ or Monocotyledonous Plants</td>
<td>I. Petaloideæ</td>
<td>Aroidæ</td>
<td>261</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Typhaceæ</td>
<td>262</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fluviales</td>
<td>264</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pistaææ</td>
<td>268</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Juncaginæ</td>
<td>270</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alismaceæ</td>
<td>271</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hydrocharideæ</td>
<td>272</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Irideæ</td>
<td>273</td>
</tr>
<tr>
<td></td>
<td>II. Glumaceæ</td>
<td>Orchideæ</td>
<td>274</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Melanthaceæ</td>
<td>282</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Amaryllideæ</td>
<td>283</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asphodeleæ</td>
<td>284</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Smilaceæ</td>
<td>286</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Butomææ</td>
<td>287</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Restiaceæ</td>
<td>288</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Juncææ</td>
<td>289</td>
</tr>
</tbody>
</table>

**Subclass II. Glumaceæ. Lindl.**

<table>
<thead>
<tr>
<th>Class</th>
<th>Subclass</th>
<th>Order</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II. Glumaceæ</td>
<td>Gramineæ</td>
<td>294</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cyperaceæ</td>
<td>318</td>
</tr>
</tbody>
</table>

### Cellulares or Flowerless Plants

**Div. I. Filicoidæ, or Fern-like Plants.**

<table>
<thead>
<tr>
<th>Class</th>
<th>Subclass</th>
<th>Order</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I. Filicoidæ</td>
<td>Filices</td>
<td>336</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lycopodideæ</td>
<td>346</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marsileaceæ</td>
<td>348</td>
</tr>
</tbody>
</table>

**Div. II. Muscoideæ, or Moss-like Plants.**

<table>
<thead>
<tr>
<th>Class</th>
<th>Subclass</th>
<th>Order</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II. Muscoideæ</td>
<td>Musci (in part 2d.)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hepaticæ</td>
<td>47</td>
</tr>
</tbody>
</table>

**Div. III. Aphylææ, or Leafless Flowerless Plants.**

<table>
<thead>
<tr>
<th>Class</th>
<th>Subclass</th>
<th>Order</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>III. Aphylææ</td>
<td>Lichenæ</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Algæ</td>
<td>157</td>
</tr>
</tbody>
</table>

**Obs.**—The Orders, Musci, Hepaticæ, and Lichenæ, having been printed off before the other parts of the work, were inadvertently numbered 2, 3, 4, according to their respective Orders in the Class Cryptogamia, instead of the above arrangement; viz. 96, 97, 98.
FLORA HIBERNICA.

PART FIRST,

COMPRISING THE

FLOWERING PLANTS AND FERNS

OF IRELAND,

ARRANGED ACCORDING TO

THE NATURAL SYSTEM.
VASCULARES,

OR

FLOWERING PLANTS.

Plants furnished with flowers, and spiral vessels.—Phænogamous or Phanerogamous Plants of Authors.

Substance of the plant composed of cellular tissue, woody fibre, ducts, and spiral vessels. Leaves composed of parenchyma, and of veins consisting of woody fibre and spiral vessels. Cuticle with stomata. Flowers consisting of floral envelopes, stamens, and pistilla. Seeds distinctly attached to a placenta, covered with a testa, and containing an embryo with one or more cotyledons; germinating at fixed points, the plumula and radicle.

Vasculares are divided into two classes Exogena or Dicotyledonous, and Endogena or Monocotyledonous plants.

Class I. EXOGENA or DICOTYLEDONS.

Trunk more or less conical, formed of three parts, one within the other, viz. the bark, the wood, and the pith, of which the wood is enclosed between the two others; increasing by an annual deposition of new wood and cortical matter between the wood and bark. Leaves always articulated with the stem, with branching reticulated veins, often opposite and divided. Flowers generally with a distinct calyx and a quinary division of the floral envelopes. Embryo with two or more opposite cotyledons, which often become green and leaf-like after germination; radicle naked, i. e. elongating into a root without penetrating any external case.

Exogenous plants have their seeds either enclosed in a pericarpium (Angiospermae), or naked (Gymnospermae). The latter only contains one order of indigenous plants viz. Coniferae.
Subclass I. Thalamiflorae. De Cand.

Calyx of many sepals or pieces (sometimes combined at the base). Petals many, distinct, and as well as the stamens, inserted upon the receptacle, not upon the calyx; hence hypogynous, (from ὑπό, beneath and γυνη, the pistil.)


Perianth double, free, hypogynous (inserted below the Gernens or Ovaries). Sepals 3—6, usually 5. Petals equal in number to the sepals, or double or triple, free, with an imbricated estivation, rarely none, sometimes formed of the dilated filaments, and then plane, sometimes from the transformed anthers, and then cuculate. Stamens free, indefinite: anthers adnate in the true species of Ranunculus and reversed. Pistils many, inserted upon the receptacle, rarely, by imperfection, or by their union, solitary. Carpels (small clustered pericarps) either achenia, berries capsules or follicles, one—or many-seeded. Seeds sometimes solitary and erect, or pendulous, sometimes many arranged on each side in series, along the margins of the carpels. Albumen horny, large. Embryo very minute. Herbs, undershrubs, or climbing shrubs. Roots fasciculate, granulated or fibrous. Leaves alternate or in the Clematidæ opposite, often variously divided, their bases dilated into a semiamplexical sheath, simple. hairs none, or simple.

The plants of this order are usually acrid and poisonous, and some have a powerful episptic effect, and when applied to the skin, produce ulcers which are difficult to heal.

§ Genuine Ranunculaceae.


Sepals 4—8, coloured. Petals none, or shorter than the sepals. Pericarps (Cariopsides) numerous, terminating in a bearded tail.—Roots perennial. Leaves exactly opposite. Name from Κλάμα, the shoot of a vine, which its long branches somewhat resemble. Polyandria. Polygynia.


Very abundant in woods at Baronston, County of Westmeath, climbing to the tops of the highest trees, where it has probably been planted; Mr. John Bain. Hedges near Raheny, and other places in
the vicinity of Dublin, naturalized. *Fl. May, June. 17.—Petioles acting as tendrils, Flowers greenish white. Fruit very beautiful, with its long white feathery awns.

2. Thalictrum. Linn. Meadow-Rue.

Seps 4—5. Petals none. Cariopsides dry, not awned, sometimes stipulate, sometimes with a longitudinal furrow.—Name from *θαλλω, to be green or flourishing.

Polyandria. Polygynia.


Moist limestone rocks on Ben Bulben, County of Sligo, where it had been previously found by Mr. Edward Murphy. *Fl. July. 2.—Root-leaves upon long stalks, biternate; leaflets roundish, crenate or lobed, dark green. Stamens 10—12. Germens 2—4. Flowers few.

2. T. minus, Linn. Lesser Meadow-Rue. Leaves 3—4 pinnae; leaflets roundish, glabrous, trifid, and toothed, glaucous beneath; panicle diffuse, its branches alternate; flowers mostly drooping. *Br. Fl. 1. p. 262. E. Fl. v. iii. p. 41. E. Bot. t. 11.

On the sand hills near Baldoyle and Portmarnock in great abundance; on Ireland's Eye, and on dry cliffs at the Gap of Dunloe, near Killarney. Near Headford, County of Galway; *Mr. Shuttleworth. Fl. June, July. 2.—Stem zigzag, from six inches to two feet high, mostly glaucous. Leaflets small. Fruit narrow, ovate, sulcate.


Stony places, among loose rocks at the base of the mountain, at the ascent from Kilkeel to Slieve-Donard, in company with Mr. Templeton and Dr. Stokes, in 1808. Near Headford, County of Galway, in 1832; *Mr. Shuttleworth. Fl. June. 2.—From a foot and a half to three feet high, of a much more robust habit than the last. Leaves broader and dark green above.


Banks of rivers and ditches. Marsh in Sir Robert Staples' woods, Queen's County, and Gleneree, County of Wicklow. Frequent in meadows near the Blackwater, County of Armagh; *Mr. Campbell, Curator of the Belfast Botanic Garden. County of Derry; *Mr. D. Moore. Fl. June, July. 2.—Flowers very numerous, yellow. Lobes of the leaves varying in breadth.

Involucre of three cut leaves distant from the flower. Sepals and petals 5—15 in number, coloured, passing gradually into each other, so that they cannot be distinguished. Named from *anemos*, the wind; because many of the species grow in very exposed situations. Polyandria. Polygynia.


β. Whole plant much larger, especially the flower, which is of a deep reddish colour.

Moist woods, and on wet banks by the side of mountain rivulets: Dargle and Powerscourt woods abundant. In moist banks in most of the narrow sheltered glens through the Dublin and Wicklow mountains. β. Found by Doctor Harvey, in large quantity, by the river Lee, near Dunscombe's Wood, along with the common variety; presenting a very striking contrast. *Fl.* April, May. 4.—*Flowers* white, tinged with purple on the outside.


Rare, and probably not indigenous. This beautiful plant was observed by the late Mr. Underwood, above thirty years ago, growing in shady spots near the ground now occupied by the Glasnevin Botanic Garden, where it had probably been introduced. *Fl.* April. 2.—*Flowers* light and bright blue.


Calyx of 5 sepals, which are not elongated at the base. Petals 5—10 with a nectariferous scale at the base. Stamens numerous. Pericarps, (*Cariopsides*) ovate, somewhat compressed, ending in a short horn or mucro, arranged in a globose or cylindrical head. Roots fascicled. Name from *Rana*, a Frog; from the plants' delighting to grow where frogs abound. Polyandria. Polygynia.

* Pericarps transversely wrinkled. Petals white.


Lakes, ditches, and rivers abundant. *Fl.* May, June. 2.—Very
variable in the length of its stems and form of its leaves, according to the depth and stillness of the water.


Wet places, shallow pools, and where water has stood throughout the summer. *Fl.* May—Aug. 4.

* * Pericarps not transversely wrinkled. Nectary with a small scale. *Fl.* yellow.

† Leaves undivided.


Sides of lakes and rivers; not very common. On the margin of a lake in Lord Oriël's demesne at Collon; banks of Lough Erne, in various places; Lough Eske, near Donegal, and by the banks of the river Fergus, a little above the bridge of Ennis. In several small lakes near Ecclesville, County of Down; *Mr. Campbell.* *Fl.* July. 4.—Stem 2—3 feet high. *Flowers* large, handsome.


Pastures, woods, and bushy places. *Fl.* April, May. 2.—Root consisting of many large fasciculated tubers. *Leaves* petiolate, 2—3 on the 1-flowered stem. *Flowers* glossy, yellow.

† † Leaves divided. Pericarps smooth.


7. R. sceleratus, Linn. *Celery-leaved Crowfoot.* Leaves gla-

Sides of pools and ditches, frequent. *Fl.* June. 2. — Stem stout, succulent, 1—2 feet high. Lower leaves very broad and glossy. *Flowers* extremely small, pale yellow.


Meadows and pastures, common. *Fl.* June, July. 4. — Stem two feet high, branched in the upper part, many flowered; segments of the leaves pointed, becoming narrow from the root upwards. *Flowers* large, bright yellow.


Meadows and pastures, common. *Fl.* May. 4. — One foot high, hairy. Lobes of the lower leaves subovate; upper leaves cut into linear segments.

† † † *Leaves divided.* *Pericarps* tuberculated or muricatet. *Annual.*


Rare in Ireland; moist grounds on Galtymore, County of Tipperary, and at the base of Magilligan rocks, County of Derry. *Fl.* Oct. 2. — Stem one foot or more high, upright, more or less branched, leafy, round, hollow, rough, with spreading rigid hairs.


Corn fields on the lands of Beldrummond near the Man-of-War in a stiff soil. *Fl.* June. 2. — *Pericarps* very large and prickly. *Flowers*
small, pale yellow.—Said to be extremely poisonous and injurious to the cattle in some countries.

13. R. parviflorus, Linn. Small flowered Crowfoot. Stem spreading; leaves hairy, 3-lobed and cut; peduncles opposite the leaves; calyx as long as the petals; pericarps muricated. Br. Fl. 1. p. 267. E. Fl. v. iii. p. 53. E. Bot. t. 120.

Corn fields between Baldoyle and Howth. Near Carrigrohan Castle, County of Cork; Mr. J. Drummond. Fl. May, June. ☉—Well distinguished by its spreading stems, lateral flower-stalk, and small narrow petals, one or two often wanting.


Calyx coloured of 5—10—15 sepals, which are deciduous and petaloid. Petals 5—10, small, tubular at the base, one lipped. Stamens and ovaries numerous. Follicles numerous, sessile, subcylindrical, many-seeded.—Upright herbaceous plants, with palmate multifid leaves and fascicled roots.—Name, said to be "derived from trol or trolen, a ball or globe in old German, and bearing the same meaning as our English word Globe-flower."

Polyandria. Polygynia.


Moist mountain pastures. County of Donegal; Mr. Templeton, Convoy and Lough Garton, in same county; Mr. E. Murphy. Fl. June, July. ☄.—Leaves in five, deep segments, which are again cut and serrated. Flowers large, handsome.


Calyx and petals 5 in number, undistinguishable from each other, coloured. Ovaries 5—10. Follicles 5—10, compressed, spreading, many-seeded.—Perennial very smooth herbaceous plants.—Name from Kaklados, a cup, which its flowers resemble. Polyandria. Polygynia.


Marshy places and ditches, common. β. On the side of the Bann river, near Fortadown; Mr. Templeton. Fl. March—June. ☄.—Stem about a foot high, hollow, branched. Flowers large, yellow.


Calyx of 5 persistent sepals. Petals 8—10, small, tubular, 2-lipped, nectariferous. Pericarps or follicles nearly erect,
many-seeded.—Name, ελεύ, to injure, and βοπα, food, from the poisonous nature of the plant. Polyandria. Polygynia.


A specimen in the herbarium, left by Mr. J. Drummond at the Cork institution, was found by him near Cork. The late Doctor Wade states that it was found sparingly on rocky and copyse pasture ground at Drummartin, near Dundrum, but I have not seen Irish specimens. Fl. April, May. 2.—The H. fatalis, which is very common in gardens, has not been found in a wild state in Ireland.


Calyx of 5 sepals, deciduous, petaloid. Petals 5, gaping upwards; their upper lip large and flat; their lower very small, each elongated downwards into a hollow spur, callous at the apex, and projecting between the sepals. Ovaries 5. Follicles the same number, erect, many-seeded, pointed by the styles.—Named from Aquila, an Eagle, whose claws the nectaries resemble. Polyandria. Pentagynia.


Woods and coppices in several places; probably often the outcast of gardens. Fl. June. 2.—Found plentifully on Knockmaroon hill, in 1804, (before it was so much broken up, as it now is, for strawberry beds,) growing among furze bushes. In a furze brake at the upper end of Duncombe’s Wood, near Cork; Mr. J. Drummond. On limestone rocks and pastures, between Headford and Cong, in a truly wild state; Mr. J. Shuttleworth. Abundant on the shore of Lough Neagh, near Salterstown; Mr. D. Moore. My specimens from Mr. Shuttleworth have the flowers of a light blue, which is the general colour in its wild state. In gardens it varies very much in the colour of its flowers, and often becomes double; when the spurs of the petals disappear.

Ord. 2. BERBERIDEÆ. Vent. Barberry Family.

Sepals 3—4—6, deciduous, in a double series, accompanied by scales. Petals equal in number with the sepals and opposite to them, rarely twice as many, often furnished with a gland or scale within. Stamens as many as there are petals, and opposite to them: filaments short; anthers oblong, adnate, 2-celled, opening by valves. Ovary solitary, 1-celled; style very short, oblique; stigma suborbicular. Fruit baccate or capsular; seeds 1—3. Albumen fleshy or somewhat horny; embryo straight, in the axis of the albumen. Radicle inferior. Cotyledons
plane.—_Shrubs or herbs, with perennial roots, mostly glabrous. Inhabitants of temperate or cold climates, in both hemispheres._

The berries of Berberis vulgaris and other species are acid and astringent, and form with sugar an agreeable refreshing preserve. Their acid is the oxalic.

1. **Berberis. Linn. Barberry.**

*Sepals* 6, in a double row, externally scaly. *Petals* 6, with two glands at the base of each. *Fruit* fleshy 1-celled, 2—3-seeded. *Shrubs* with spiny stems and leaves, and yellow racemose flowers.—Name; *Berberys*, according to Theis, is the Arabic name of this fruit. *Hexandria. Monogynia.*


Frequent in hedges at Ballyarthur, near Fermoy; Mr. J. Drummond. *Fl. June.* 2.—_Shrub* with upright twiggy stems. *Flowers* yellow, smelling disagreeable. *Stamens* highly curious in their formation and in their elastic property when touched. *Berries* oblong, a little curved, red, tipped with the black style: they are agreeably acid, and much used for preserves, particularly the stoneless variety. The leaves and young shoots are very subject to mildew.

**Ord. 3. Nymphaeaceae. D C. Water-Lily Family.**

*Sepal* 4—6, coloured within, often passing into the petals, which are numerous, and arranged in several series. *Stamens* numerous, in many series, inserted, as well as the perianth, on a more or less enlarged portion of the receptacle; filaments often petaloid; *anthers* adnate, 2-celled, opening longitudinally. *Ovaries*, or carpels, 8—24, half immersed in the enlarged foveolated receptacle, (Nelumbium), or entirely included in an urceolate (resembling a solitary ovary or carpel), 1-styled, membranaceous, indehiscent, 1—2—or many-seeded. *Styles*, in the free ovaries, distinct with a simple stigma; in the included carpels combined with the stigmas, adnate at their base, and radiating (as in *Papaver*); *seeds* in the former 2 or 1, in the latter very numerous, fixed to the sides of the carpels, covered by a gelatinous arillus; the cells filled with gelatine in maturity. *Albumen* farinaceous, none in *Nelumbium*. *Embryo* minute, somewhat terminate, on the outside of the albumen, and included in a membranous bag.—*Aquatic herbs, with peltate or cordate leaves, and splendid flowers.*

1. **Nymphaea. Linn. White Water-Lily.**

*Sepals* 4. *Petals* and *stamens* numerous, inserted into a disk which surrounds the sides of ovarium, and adheres to it.
Stigmata radiating.—Name; the Νυφαία of the Greeks, so called from its inhabiting the waters, as the Nymphs or Naiads were wont to do. Polyandria. Monogynia.


Lakes and still waters, frequent. Lough Dan and Glandelough, County of Wicklow; lakes near Killarney, and in Cunnamara; lakes at Farnham and elsewhere in Cavan, very abundant. Not unfrequent in the northern countries. Fl. June, July. 2.—Leaves floating, a span broad. Flowers splendid, white. In Cunnamara the roots are used for dying wool black.


Sepals 5—6. Petals 10—18, inserted along with the numerous stamens into a disk which surrounds the base of the ovary. Stigma radiating. De Cand.—Name the Νυφαία of Dioscorides, given to this plant. The Arabic name is Noufar according to Forskal. Polyandria. Monogynia.


Lakes and ditches, frequent; all over the country. Fl. July. 2. Leaves heart-shaped, floating. Peduncles round. Flowers about two inches wide, yellow in every part. Calyx leaves much larger than the petals, which are small.

Grd. 4. PAPAVERACEÆ. Juss. Poppy Family.

Sepals 2, deciduous. Petals 4, rarely 8—12 or wanting, irregularly plaited before expansion. Stamens distinct, usually numerous: filaments filiform; anthers 2-celled, opening longitudinally. Ovary 1, free. Style short or none, bearing as many stigmas as there are placentæ, alternate with them and arranged, when many, in a stellated manner. Fruit 1-celled, siliqueform, with 2 placentæ, or a capsule with several parietal placentæ, and often opening by pores beneath the stigma. Albumen fleshy and oily. Embryo minute, at the base of the albumen, with plano-convex cotyledons.—Annual or perennial herbs or undershrubs, abounding in narcotic juice. Root fibrous. Leaves alternate, simple or lobed. Peduncles elongated, single-flowered. Flowers white, yellow or red, never blue.

The plants of this order afford a narcotic juice. Opium is prepared from Papaver somniferum, but the seeds of the plant are mild and stimulent, yielding an oil which is sold as an article of food.

Sepals 2, convex. Petals 4. Stamens numerous. Style none. Stigmata 4—10, radiating, sessile, on the top of the ovarium. Capsule 1-celled, dehiscing by minute valves, concealed beneath the projecting rim of the top. Placentae projecting into the cavity, and forming incomplete dissepiments.—Herbaceous plants, with divided leaves and white milky juice, the peduncles inflexed before flowering.—Name given because it was used with pap, papa, in Celtic, to induce sleep.

Polyandria. Monogynia.

* Capsules bristly.


Corn fields in sandy grounds. Fl. June. — Near Kilbarrick Church, and old gravel pits near Ball's Bridge.

** Capsules smooth.


Abundant in corn fields. Fl. June, July. — Sandy fields, near Kilbarrick, with the two last. Distinguished from the last by its short capsule and the spreading hairs of its footstalks. Petals broad, deep scarlet. The double French Poppy of the gardens, so much admired, is a variety of this.

5. P. somniferum, Linn. White Poppy. Capsule globose,
PAPAVERACEÆ.

PAPAVERACEÆ.

Chelidonium.

PAPAVERACEÆ.

Chelidonium.

PAPAVERACEÆ.

Chelidonium.

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Chelidonium.

PAPAVERACEÆ.

Chelidonium.

PAPAVERACEÆ.

Chelidonium.
smooth, brittle, tender leaves, and an acrid yellow juice.—
Named from χελίδων, a swallow; probably from the plant
flowering at the time of the arrival of those birds.

Polyandria. Monogynia.

E. Fl. v. iii. p. 4. E. Bot. t. 1581.

Waste places, especially near towns and villages. Fl. May, June.
2.—Plentiful on hedge banks by the way side near Dundalk, and
other places in the County of Louth. About two feet high, slightly
hairy, brittle, full of yellow foetid juice. Leaves pinnatifid, with about
five decurrent leaflets, which are broadly ovate, lobed, and crenated.
Flowers in long stalked umbels, yellow, rather small. Pod long,
somewhat turgid.

ORD. 5. FUMARIAEÆ. D C. Fumitory Family.

Sepals 2, small, deciduous. Petals 4, irregular, more or less
united below; 2 exterior, alternating with the sepals; one, the
upper, or both, gibbous, or prolonged at the base into a spur;
2 inner somewhat callous at the extremity, where they cohere
and enclose the anthers and stigma. Stamens 6: filaments
diadelphous, opposite the outer petals; anthers 6, small, the
middle one of each bundle 2-celled, the lateral ones 1-celled.
Ovary one, free; style filiform; stigma bilamellate. Fruit sili-
quiform, 2-valved, many-seeded, somewhat indehiscent, 1—2
seeded. Seeds affixed to lateral placenta, with an arillus or
caruncle. Albumen fleshy, including the embryo in its base.
Cotyledons plane.—Delicate herbs, of temperate latitudes, slightly
bitter and diaphoretic, containing a watery, not milky juice. Flowers
purple, white or yellow.


Petals 4, of which one is calcarate at the base. Pod 2-valved,
compressed, many-seeded. De Cand.—Name from χορυσάλας,
the Greek name for the Fumitory, with which the present
genus was, till lately, united. Diadelphia Hexandria.

much branched, climbing; leaves pinnate; pinnæ stalked, tern-
ate, or pedate; leaflets elliptical, entire; petioles ending in
tendrils, pedicels very short, scarcely so long as the minute
v. iii. p. 254. E. Bot. t. 103.

Rocks, walls, and on tops of old thatched houses. On thatched
cabins between Ballinteer and the little Dargle, and way-side between
Dundrum and the Dublin mountains. Fl. June, July. ©.—Stems
long, very slender. Whole plant very delicate. Flowers small, pale
yellow, almost white.
2. FUMARIA. Linn. De Cand. Fumitory.

Petals 4, the 3 upper connate at the base, the intermediate one being saccate. Fruit indehiscent, monosperous, not pointed by the style. De Cand.—Name from fumus, smoke, it is said, on account of the smell. Diadelphia. Hexandra.


Corn fields and waste grounds. Fields near Kilbarrick Church. Gravel pits near Ball's Bridge. Fl. May, Aug. .—A very variable plant. Stems generally climbing, sometimes only diffuse. Leaves bipinnate. Leaflets usually very broad. Best distinguished by its large petals and calycine leaves.

2. F. officinalis, Linn. Common Fumitory. Calycine leaflets ovato-lanceolate, acute, sharply toothed, scarcely so long as the globose, very abrupt, or obcordate fruit; bracteas 2 or 3 times shorter than the fruit-bearing pedicel. Br. Fl. 1. p. 317. E. Fl. v. iii. p. 255. E. Bot. t. 589.

In dry fields and road sides, common; also frequent in highly cultivated fields and gardens, when it becomes more diffuse or climbing. Fl. throughout the summer. .


Cape Clear Island; Mr. J. Drummond. Fl. Aug. Sept. .—Flowers rose coloured. Leaves of a lively or yellowish green.


Sepals 4, deciduous, two often gibbous at the base. Petals 4, cruciate, alternate with the sepals, unguiculate, rarely unequal. Stamens 6, tetradynamous, two solitary, shorter, opposite the lateral sepals, 4 longer in pairs, alternating with them, distinct, rarely combined at the base, sometimes with a tooth. Ovary 2-celled and style single: green glands at the base of the germen and stamens. Stigmas 2, opposite the placentæ. Fruit a siliqua or silicula, 2, rarely 1-celled, 2-valved, the valves separating from the placentæ. rarely valveless, 1—or many-seeded. Seeds pendulous, without albumen. Embryo curved upwards towards the margins of the Cotyledons (|=), or against the back of one of them ( ||), opposite to the hilum.—Herbaceous,
rarely suffruticose plants. Leaves alternate. Flowers in corymbs or racemes.

The universal character of Crucifere is to possess antiscorbutic and stimulent qualities, combined with an acrid flavour.

Suborder Pleurorhizeæ. De Cand. \(\bigcirc = \)

Tribe I. Arabiææ. De Cand.
Siliqua dehiscent; septum linear, somewhat broader than the seeds. Seeds oval, compressed, often bordered. Cotyledons flat, accumbent, parallel with the septum. De Cand.


Pod rounded or compressed, crowned with the connivent, two lobed stigma, the lobes either thickened at the back, when the cotyledons are incumbent (\(\bigcirc ||\)), or with a point at the base. Cal. erect. Longer filaments dilated. Br.—Named in honour of an Italian Physician, Peter Andrew Matthioli. Tetradynamia. Siliquosa.


In a small island called Straw Island, near the largest island of Arran, 1805. Fl. May—Aug. \(\delta\).—Flowers purple, large, fragrant at night.


Pod compressed or two-edged. Cotyledons accumbent (\(\bigcirc = \)). Cal. erect, opposite leaflets saccate at the base. Stigma placed on a style, two-lobed, the lobes patent or capitate. Br.—Name from the Arabic Khepry, not however originally applied to this genus. Tetradynamia. Siliquosa.


Old walls and ruins. Fl. April, May. \(\delta\).—A variety, with larger, more highly coloured, and more flaccid petals, is commonly cultivated in gardens, of which the double bloody wall-flower is a variety.


Pod nearly cylindrical, sometimes short. Valves concave,
neither nerved nor keeled. *Cotyledons* accumbent, \(\bigcirc:\bigcirc\).  
*Cal.* patent. *Br.*—Name from *Nāsus tortus*, a *convulsed* nose, an effect supposed to be produced by the acrid and pungent quality of this plant. *Tetradynamia*. *Siliquosa*.


Brooks and rivulets, frequent. *Fl.* July. \(\bigcirc\).—A well known aquatic, and an excellent and wholesome salad. *Lower-leaves* of 5—7 distant leaflets, the terminal one the largest and roundest; *cauline-leaflets* subovate; all rather succulent, glabrous, more or less curved, or toothed. *Flowers* white. *Pods* about an inch long, patent.

*Br. Fl.* i. p. 305.  


3. *N. terrestre*, *Br.* *Marsh Nasturtium*. Leaves lyrato-pinnatifid unequally toothed, glabrous; root simply fibrous; petals not longer than the *calyx*.  
*Br. Fl.* i. p. 305.  

Watery places. Low wet grounds between Mark’s Church and Ringsend, and elsewhere near Dublin, and other places, plentiful. *Fl.* June—Sept. \(\bigcirc\).

4. *N. amphibium*, *Br.* *Amphibious Nasturtium*. Leaves oblong, pinnatifid or serrated; root simply fibrous; petals longer than the *calyx*.  
*Br. Fl.* i. p. 305.  

Watery places, frequent. By the side of the pond opposite to the Zoological Gardens, Phenix Park. Banks of Lough Erne; *Dr. Scott.* *Fl.* June—Aug. 2.—Two or three feet high, branched. If any leaves grow under the water, they are deeply-pinnatifid, otherwise deeply serrated. *Pods* short, small, roundish, generally abortive.


*Pod* 4-angled, and sometimes two-edged. *Cotyledons* acuminant \(\bigcirc:\bigcirc\). Seeds in a single row. *Calyx* erect. *Glands*
between the shorter filaments. *Br.*—Name, this plant was formerly dedicated to *St. Barbara*.

**Tetradynamia. Siliquosa.**


In a laeue near the North Circular-road, F. Whitta, Esq. *Fl. April—Oct. 3.*—One to two feet high; more slender than the last in every part. Flowers smaller; pods long.

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5. **Arabis. Linn.** Rock-cress.

Pod linear, crowned with the nearly sessile stigma; valves veiny or nerv’d. *Seeds in one row. Cotyledons acum- bent (O = ). Cal. erect. Br.*—So named, because originally an Arabian genus. **Tetradynamia. Siliquosa.**


Gravelly beach by the sea-shore at Rynville, Cunnamara, in Oct. 1805. On the western point of Bear Island, County of Kerry, and on the shore at Derrinane; *Mr. J. Drummond. Fl. July, Aug. 3.*—Four to six inches high. *Root-leaves* several, oval, or obovato-oblong, obtuse, cauline ones small. Pods nearly erect.


Walls and calcareous rocks. On the stone roof of St. Doulagh’s Church, and church-yard wall. Rocks at Feltrum; also on rocks near Corrofin, County of Clare, and other places. *Fl. June. 3.*—One foot or more high, erect, stiff. *Stem rough with spreading hairs, bearing many leaves. Flowers small, white. Pods numerous, erect. For *Arabis thaliana* see *Sisymbrium.*

*Pod* linear, the valves flat, generally separating elastically, nerveless. *Seed stalks* slender. *Cotyledons* accumbent (O═). Name, *Kapcia*, the *heart*, and *čapaw*, to *fortify*: from its supposed strengthening qualities.

*Tetradynamia.* *Siliquosa.*


Wet meadows near Toom Bridge, and by the side of the Mayola river, near Castle Dawson; *Mr. D. Moore.* *Fl.* April—June. 2. — One foot high. Well distinguished from the following by the broad angulato-dentate leaflets of its upper leaves, and the large white flowers, and purple anthers.


Wet meadows, abundant. *Fl.* May. 2. — One to two feet high. *Flowers* large, blush coloured; sometimes found double, in which state the leaflets are known to produce new plants, when they come in contact with the ground, while still attached to the parent plant.


Moist shady places, abundant; very common near Dublin. *Fl.* March—June. 0. — Varying much in size and luxuriance, according to soil and situation. From four inches to one foot and more in height. *Leaflets* more or less angled, or toothed; upper ones ovate, or even linear, hairy or glabrous. *Flowers* small, white.

**Tribe II. Alyssinea.** De Cand.

Silicula dehiscing longitudinally. Septum broad, oval, membranous; valves flat or concave. *Seeds* compressed, often bordered. *Cotyledons* flat, accumbent, parallel with the septum.


*Pouch* entire, oval or oblong; *valves* plane or slightly convex, *cells* many-seeded. *Seeds* not margined. *Cotyledons* accumbent. (O═) *Filaments* simple. (*Draba and Erophila, De Cand.*)—Named from ἐραβην, acrid, as are the leaves of many of this tribe. *Tetradynamia.* *Siliquosa.*

Frequent on walls, rocks, and dry banks, sand and gravel-pits, about Sandymount and Ball’s Bridge, and walls near Stillorgan; also on Feltrum hill. *Fl.* March—May. ©.


Mountain rocks. Cliffs on Magillicuddy’s Reeks, County of Kerry. Ben Bulben and other mountains in the County of Sligo. Mr. Moore finds it on the sandy flat of Magilligan, as well as on the adjoining mountain of Benyevena. *Fl.* June, July. 3.—From 4—6 inches to a foot and more high, sometimes throwing out lateral branches. Lower leaves frequently entire, upper ones deeply toothed, almost cut, acute. *Pouch* erect, glabrous.

8. **COCHLEARIA**. Linn. Scurvy-grass.


Rocks and muddy places by the sea coast, as well as upon the elevated mountains. *Fl.* May, June. ©.—*Leaves* succulent, more or less entire ; those of the stem semiamplexicaul by their generally toothed bases.


Muddy and rocky sea-shores, and margins of salt-water rivers, frequent. Banks of the Dodder, near Haiz’s distillery. River side below Cork, and shore near Bantry; *Mr. J. Drummond*. *Fl.* May, June. ©. Generally smaller than *C. officinalis, with more entire leaves* and elliptical *pouches*.


Sea coast, in a stony and muddy soil, frequent. Salt marshes below the Dublin Custom House; on the old thatched roofs of houses in Kinsale, and on Cork-beg, near Cove. Shore of Belfast Lough; *Mr.*
Templeton. Fl. May. ♂.—The smallest of the species, with very angular and stalked leaves.


Apparently wild in various places near Dublin, but probably only the outcast of gardens. Meadows near Mallow; Mr. J. Drummond. Fl. May. ♀.

Tribe III. Thlaspiæ. De Cand.
Silicula dehiscing; septum very narrow; valves keeled, navicular. Seeds oval, sometimes bordered. Cotyledons flat, accumbent, at right angles with the septum.

Pouch laterally compressed, emarginate. Valves winged at the back, many-seeded. Cotyledons accumbent (O=).—Name from δακός, to flatten, on account probably of its compressed seeds or seed-vessels. Tetradyamia. Siliculosa.


Fields, and by road sides, but not common. Side of the road between Ballybracken and Kilkenny, and in a field between Mrs. Hannington's house and the shore, south side of the Hill of Howth, where it was first noticed by Major Percy Pratt. In corn fields near Dundrum, County of Down; Mr. Templeton. Fl. June, July. ♂.—One foot high, branched above. Flowers extremely small, white. Pouch very large, with unusually broad wings.

Tribe IV. Cakilineæ. De Cand.
Silicula or silicula separating transversely into joints, with one or two cells, and one or two seeds. Seeds not bordered. Cotyledons flat, accumbent, parallel with the septum, when there is one.

Pouch angular, of two, 1-seeded, indehiscent joints, the upper joint deciduous, bearing an upright, sessile seed, the lower one (sometimes abortive) pendulous. Cotyledons accumbent (O=).—Name, an old Arabic word, applied probably to this, or some allied genus. Tetradyamia. Siliculosa.

1. C. maritima, Willd. Purple Sea-Rocket. Joints of the pouch two-edged, the upper one with two teeth at the base;
leaves fleshy, pinnatifid, somewhat toothed. *Br. Fl.* l. p 293. 
**E. Fl.** v. iii. p. 183.—*Bunias Cakile*, Linn.—*E. Bot.* t. 231.


**SUBORDER NOTORHIZEAE.** De Cand. O 11


**Tribe V. Sisymbrieae.** De Cand.

*Siliqua* two-celled, dehiscing lengthwise. *Valves* concave or keeled. *Seeds* ovate or oblong, not bordered. *Cotyledons* flat, incumbent, at right angles with the septum.

11. **Hesperis.** Linn. Dame’s Violet.

*Pod* 4-sided or two-edged. *Stigma* nearly sessile, the lobes connivent. *Cotyledons* incumbent (⊙ || |), plane. *Calyx* erect. *Br.—Named from ἐσπέρω, the evening;* at which time the flowers yield a powerful fragrance.

**Tetradynamia. Siliquosa.**


Hilly pastures, but often the outcast of gardens. *Fl.* May, June.

2. In a meadow close to Knocknahatna, near Oldcastle, County of Cavan; *Rev. N. J. Halpin*; who says, “I have observed this plant growing for ten years—at first I found it all through the field, but by constant mowing it is now confined to the ditch. There are no gardens near from which it could have escaped.” The double purple rocket of the gardens is a variety of this. The double white rocket of the gardens appears to belong to another variety, common in gardens, with larger and lighter coloured *flowers*.

12. **Sisymbrium.** Linn. Hedge Mustard.

*Pod* rounded or angular. *Cotyledons* incumbent (⊙ || |) (sometimes oblique), plane. *Calyx* patent, sometimes erect. *Br.—Name σισυμβρίον;* given by the ancients to some plant, perhaps allied to this. **Tetradynamia. Siliquosa.**

Waste places, and by way-sides, plentiful. *Fl.* June, July. ○.—
One or two feet high, branched. The deep and cut serrated lobes are not always sufficiently decurved to constitute a *runcinate* leaf; the terminal lobe is very large, roundish in the lower leaves, and oblong in the upper ones. *Flowers* very small, pale yellow.


Waste grounds, rubbish, and way-sides, common, especially near large towns; very common about Dublin. It covered the ground in the spring after the great fire in London. Haller records the same tendency in the preceding species, *Smith.* *Fl.* July, Aug. ○.—
*Flowers* yellow. *Pods* two inches long, erect.


*Arabis thaliana*, Linn.—*E. Bot. t.* 901.

Walls, dry banks, and gravelly soils; not very common about Dublin. On walks between Step-aside and the Scalp. Old walls, Friar’s Walk, Cork; *Mr. J. Drummond.* *Fl.* April, May. ○.—Six to ten inches high, slender, with few leaves, and those mostly radical. *Flowers* small, white. The *cotyledons* are incumbent here, not accumbent as in the true *Arabis*. *Hook.*


*Tetradynamia*. *Siliquosa*.


Fields, gardens, and waste places. Sunday’s Well, near Cork; *Mr. J. Drummond.* *Fl.* July, Aug. ○.—One or two feet high, branched. *Flowers* small, yellow.

2. *E. Alliaria*, Linn. Jack by the Hedge, or Sauce alone.

Hedge banks and waste places. Fl. May, June. ♂.—Two to three feet high, branched. Leaves large, veined, well known from their garlic-like smell. Flowers white. Pods erect, on horizontal stalks.

Tribe VI. Camelinae. De Cand.

Silicula with concave valves. Septum elliptical in its chief diameter. Seeds ovate. Cotyledons flat, incumbent, at right angles with the septum.


Tetradynamia. Siliculosa.


Fields, occasionally among flax, with which it has been imported. Fl. June, July. ♀.—Two to three feet high, paniced above. Flowers small, yellow. Pouches very large, on long stalks.

Tribe VII. Lepidinae. De Cand.

Silicula with a very narrow septum. Valves keeled, or very concave. Seeds solitary or very few, ovate, not bordered. Cotyledons flat, incumbent, parallel with the septum.


Pouch two-lobed, without valves or wings. Seeds solitary in each cell. Cotyledons linear, incumbent (O || ).—Name, Koprowny, a Crow, and πους, a foot; the cut leaves somewhat resembling a bird’s foot.

Tetradynamia. Siliculosa.


Waste grounds and road-sides; very common about Dublin, Cork, and other places. Fl. June—Sept. ♂.—A much branched spreading weed. Leaves bipinnate, their segments linear. Flowers very small, white, in lateral axillary corymb. Pouch large in proportion to the flower, curiously crested.

Seneciera didyma, E. Fl. v. iii. p. 180.—S. pinnatifida, De Cand.—Lepidium didymum, Linn.—E. Bot. t. 248.

Waste ground near the sea. Plentiful on sandy grounds near the harbour at Youghal, and on dry banks near Ross. Road-side near Clerk's Bridge, Cork; Rev. William Hincks, F.L.S. Plentiful about the Lough at Cork; Charles Halpin, Esq. Fl. July. ©.


Pouch laterally compressed, obcordate-cuneate; the valves sharply keeled, without wings, many-seeded. Cotyledons incipient, (O ||).—Name, the diminutive of Capsula; a little capsule or box.

Tetradyamia. Siliculosa.


Corn fields and waste places, everywhere, most abundant. Fl. the whole summer. ©.—Very variable, from three inches to 1—2 feet high. Radical leaves more or less pinnatifid, cauline ones lanceolato-sagittate, all generally toothed, and rough with hairs. Flowers small. It differs in the embryo as well as in the pouch from Thlaspi. This, however, according to Sir J. E. Smith, is the true Thlaspi of Dioscorides.


Pouch with the cells one-seeded, the valves keeled. Petals equal.

Cotyledons incipient (O ||); rarely accumbent (O ==). Br.—Name; λεπίς, a scale, from the form of the little pouches.

Tetradyamia. Siliculosa.


Wet shady places near the sea, and salt marshes. Cork-beg, near Cove, 1804, where it had been previously noticed by Smith. Fl. July. ©.—Two or three feet high, branched, erect, with large leaves. Flowers numerous, small, in many terminal and axillary clustered racemes.


Waste places near the sea, and among rubbish. Sea-shore opposite Kilbarrick Church; Dr. Osborne. Fl. June. ©.—Stems sometimes a foot high, much branched. Seed-vessels numerous. Cotyledons incumbent, as in most of the genus.

3. L. campestre, Br. Common Mithridate Pepper-wort. Pouch ovate emarginate, winged, rough with minute scales; style scarcely longer than the notch; cauline leaves sagittate, toothed.

This species, though common in England and Scotland, is rare in Ireland. It has been observed by Mr. J. Drummond in the County of Cork. Fl. July. O.—Ten or twelve inches high. Stems solitary, branched above. Lower leaves almostspathulate, all slightly pubescent, as well as the racemes and pedicels. Pouch curiously scaly.


Borders of fields and hedges. Plentiful on the Hill of Howth, ditch banks above Dundrum, and many other places near Dublin. Near Warrenpoint; Mr. Templeton, Fl. June, July. $—Six to eight inches high. Stems many, from the same perennial, or, perhaps, biennial, root. Much resembling the last, but truly distinct from it, with a whiter and more abundant pubescence. Stems and racemes hairy. Pod with a much larger style, quite glabrous, and smooth or even; except that rarely, in the middle of the back, there are a few very minute scales.

Tribe VIII. Isatisæ. De Cand.

Silicula with indistinct or indehiscent keeled valves, one-celled, one-seeded, with an imperfect septum. Seed ovate, oblong. Cotyledons flat, incumbent, parallel with what should be the septum.

18. ISATIS. Linn. Woad.

Pouch 1-celled, 1-seeded, laterally compressed. Valves keeled eventually separating. Cotyledons incumbent (O ||).—Named from σαφεω, to make even, because it was supposed to have the property of reducing the inequalities of the skin.

Tetradynamia. Siliculosa.


Cultivated fields, scarcely indigenous. Fields near Woodlands, County of Dublin. Fl. July. $—Cultivated for the sake of the blue dye which it yields, and used by the ancient Britons to paint their bodies.

Suborder Orthoploceæ.” De Cand. O >>

Cotyledons incumbent, folded lengthwise, so as to receive the radicle in the folds. Seeds generally round, never bordered.
Tribe IX. *Brassiceae*. De Cand.


*Pod* 2-valved (with a sterile, one, or many-seeded beak). *Cotyledons* conduplicate (O>). *Calyx* erect. *Br.*—Name derived from the Celtic *Bressie*, a Cabbage, according to Theis. *Tetradynamia* · *Siliquosa*.


Corn fields and waste grounds, frequent. *Fl.* May, June. 5.—One to two feet high. *Lobes* of the lower leaves crenate; upper leaves entire, somewhat glaucous. *Petals* yellow, rather small. *Pods* torulose. Cultivated for the oil produced by its seeds, which, after pressure, are formed into cakes, and found useful for manure and feeding of cattle.


Borders of fields and waste places. Very common about Dublin, often mistaken for the last, but may be readily distinguished by its larger flowers, which are of a much brighter yellow, and more orbicular roots. *Fl.* April, May. 5.—Varying exceedingly in height according to soil. Upper leaves amplexicaul, ovate-acuminate, somewhat glaucous; all more or less toothed. *Flowers* yellow, rather large.


Corn fields near Dundrum, 1805, and near the village of Faughan, County of Donegal; *Mr. Templeton*. *Fl.* June, July. 0.—Root fusiform, but slender. *Stem* hispid below. *Flowers* yellow. *Pods* upright, cylindrical, or obscurely four-angular, veiny; the seeds forming slight prominences; the beak awl-shaped, striated, square at its base.


Cliffs by the sea. On the cliffs near Youghal, sparingly; *Mr. J. Drummond*. *Fl.* May, June. 5. Varying in height, 1—2 feet.
Leaves thick, somewhat fleshy, the uppermost undivided, but toothed. Flowers large, yellow. The origin of our garden cabbage.


Pod 2-valved, sometimes of two joints, (of which the upper one is without valves.) Cotyledons conduplicate (O > > ). Cal. patent. Br. (Sinapis and Diplotaxis, De Cand.)—Name from the Greek αιαντ, which again θεις derives from Celtic Nap, a turnep or cabbage. Tetradynamia. Siliculosa.


Corn fields, too frequent. Fl. May, June. O.—One to six feet high, rough. Flowers rather large, yellow.


Waste places, frequent. Plentiful at Portmarnock and many other places about Dublin. Fl. July. O.—Stem one foot to one and a half foot high, hairy. Lobes of the leaves variously cut and toothed, or erose. Flowers large, yellow. Well distinguished by its long beak. This plant, while in a young state, is eaten under the name of mustard as an ingredient in salads.


Under hedges and in waste places, equally common as the last. Fl. June. O.—Three to four feet high. Lower leaves large, lyrate, rough. Flowers yellow. Pod with a very short beak, or rather only the persistent style and stigma at its summit, quadrangular, its surface scarcely rugged. The seeds yield the mustard of our tables.

Tribe X. Raphaneae. De Cand.

Silicula or siliqua separating transversely into one or few seeded points or cells. Seeds globose. Cotyledons folded together.


Pouch with the upper joint globose, indehiscent, deciduous, bearing one seed, inverted, upon a stalk arising from the bottom of the cell; lower joint abortive, resembling a pedicel. Cotyledons conduplicate (O > > ) Wilson.—Name, Κραμβος, of the Greeks. Tetradynamia. Siliculosa.

1. C. maritima, Linn. Sea-Kale. Longer filaments forked; pouch pointless; leaves roundish, sinuated, waved, toothed,
glaucescent, and as well as the stem, glabrous. *Br. Fl. 1. p. 294. E. Fl. v. iii. p. 184.* *E. Bot t. 1660.*

Sea-coast, in sandy or stony soils, but not very general. Sandy coast between Portmarnock and Malahide. Strand near Bantry; Mr. J. Drummond. *Fl. June.* 2.

22. **Raphanus.** *Linn.* Radish.

*Pod without valves.* **Cotyledons** conduplicate. *(O > >).* **Calyx** erect. *Br.—Name, pa, quickly, and φαυνομαι, to appear; from its rapid vegetation.* *Tetradynamia Siliculosa.*


Corn fields, frequent. *Fl. June, July.* 0.—One foot to one foot and a half high. *Leaves* stalked, rough. *Flowers* yellow, veined.


Sea coast, near the salt works, at the Curren of Larne; Mr. Templeton. On the shore, south side of the Hill of Howth, where it was first observed by the late Mr. Underwood. *Fl. June.* 3.—Three to four feet high. All the *leaves* rough, and the lobes toothed. *Flowers* rather large, yellow.

**Suborder Diplecolobeae.** *De Cand.* O || || ||

**Cotyledons** incumbent, linear, folded twice in a transverse direction (bicrures). *Seeds* depressed.

**Tribe XI. Subulariae.** *De Cand.*

Silicula oval; septum elliptical; valves convex; cells many-seeded; stigma sessile; cotyledons twice folded.

23. **Subularia.** *Linn.* Awl-wort.

*Pouch* oval, pointless, many-seeded. **Valves** turgid. **Cotyledons** incumbent *(O ||)*, linear, curved. **Hook.** —Name, *subula,* an awl, the leaves being subulate or awl-shaped. *Tetradynamia. Siliculosa.*


Shallow margins of alpine lakes, rare in Ireland. In a lake on Milrea mountain, County of Mayo, fifteen hundred feet above the level of the sea. Lough Carlan, a little north-west of the Gap of Barnsmore, Donegal; Mr. E. Murphy. Said to have been found in Lough Neagh, by Sherrard. *Fl. July.* 0.—*Roots* of numerous, long, white fibres. *Leaves* few, radical, awl-shaped, one to three inches long. Scape two to four inches high. *Flowers* small, which have
been seen in perfection when entirely submerged. Pouch nearly approaching that of Draba, but with more turgid or convex valves. Embryo with cotyledons linear, long, and the curvature takes place above the base of the cotyledons, not at the very base, as in most of the Cruciferae. Hook.

ORD. 7. VIOLACEAE. Juss. Violet Family.

Sepals 5, persistent, with an imbricated aestivation, often produced at the base. Petals 5, generally unequal, with an oblique convolute aestivation. Stamens 5, on an hypogynous disk, often unequal: filaments dilated beyond the anthers, two often with an appendage: anthers opening inwards, 2-celled. Ovary 1-celled, mostly with many ovules: placentae 3, parietal: style 1, persistent, often curved, with an oblique and frequently perforated stigma. Capsule of 3-valves which bear the placentae. Seeds often carunculated at the base. Embryo straight, in the axis of a fleshy albumen.—Herbs or small shrubs. Leaves simple, stipuled.

VIOLA. Linn. Violet.

Calyx of 5 sepals extended at the base. Petals 5, unequal, the under one spurred at the base. Anthers connate, two of them spurred behind. Capsule of one cell, and three valves.—Name according to some from "A vi olandi" from the power of its scent.

* Stemless, or nearly so.

1. V. hirta, Linn. Hairy Violet. Leaves cordate, rough, as well as the petioles and capsules with hairs; calyx-leaves obtuse, lateral; petals with a hairy central line; creeping scions none. Br. Fl. 1. p. 105. E. Fl. v. i. p. 301. E. Bot. t. 894.

Sandy fields, banks and woods. Plentiful on banks by the sea between Clontarf and Kilbarrick Church. On the sand hills and on ditch banks at Portmarnock, and elsewhere about Dublin. Wood at Blarney, near Cork; Rev. Dr. Hincks. Fl. April, May. 2. —Stigma an oblique point in this and the four following species. Flowers pale, rather dingy blue, scentless, nearly allied to V. odorata; distinguished, as Mr. Curtis well observes, by the short and creeping scions, by the greater hairiness of the plant, and the situation of the little bractæ of the scape; here below, in V. odorata above the middle. I have frequently observed, at Portmarnock, this species, immediately after flowering, elongate its flower-stalks, in a downward direction, to a very considerable length, and bury the ripening capsule two or three inches under the sand in the dry banks where it grows. Dr. Hooker remarks that this and the following species are often destitute of petals and yet bear fruit.

2. V. odorata, Linn. Sweet Violet. Leaves cordate, and as well as the petioles nearly glabrous; calyx-sepals obtuse; lateral

Woods, banks, and hedges. Hedge banks between Killiney Hill and Bray; also near Finglass. Farnham woods, Millbrook, and Oldcastle, County of Cavan; Rev. N. J. Halpin. Fl. March, April. 2. —Flowers deep purple, fragrant, often white; which last colour is the prevailing one in the plants I have seen near Dublin. A third variety has the flowers of a lilac colour. All the varieties are much cultivated in gardens, both in the single and double state, and are much esteemed in spring for their fragrant flowers.


Mossy bogs and marshy grounds. In Glencree, and near Powerscourt Waterfall, and other places in the counties of Dublin and Wicklow. It is also very common in rather elevated marshes in the south of Ireland, as stated by Mr. J. Drummond. Fl. June, and even in July, in the colder regions 2. —Flowers very pale blue, with purple sheaths. "The petals are slightly hairy on one side at the base, as Mr. Wm. Wilson well observes; the lateral ones not having a distinct line of hairs." Hooker.

* * Furnished with an evident Stem.


β. minor. V. flavicornis, Sm. E. Fl. v. i. p. 304. Forst. in E. Bot. Suppl. t. 2736.

Woods, banks, and dry pastures, frequent, and in clefts of rocks at a considerable elevation. Fl. April—Aug. 2. —Variable in regard to size. In mountainous situations the blossoms are often numerous, and large in proportion to the size of the plant. Flowers scentless, blue, purple, or sometimes almost white. 5. smaller in all its parts, having a short, blunt, yellowish spur, and short, firm, rigid, very even heart-shaped leaves, and by the deeper colour of the corolla. I, however, perfectly agree with Dr. Hooker in considering it only a variety of V. canina.


On mountains and boggy heaths. Mountains near Castletown; Mr. J. Drummond. Fl. May. 2. —A small plant with narrower leaves than the last, almost lanceolate, and pale blue or almost white flowers. An intermediate plant between this species and V. canina, with light coloured flowers, was found by Doctor Taylor on Brandon mountain.

6. V. tricolor, Linn. Pansy Violet or Heart’s Ease. Mostly

β, petals shorter than the calyx. V. arvensis, Murr.—Forst. in E. Bot. Suppl. t. 2712.

Banks and cultivated fields, frequent. Fl. the whole summer. ♀. or ♂.—Extremely variable, especially in the size and colour of its flowers. Stigma capitate, obliquely perforated.


Mountains near Castletown, County of Cork; Mr. J. Drummond. Fl. May—Sept. ♀.—Flowers generally of a pale yellow or sulphur colour, much larger than any of the wild varieties of V. tricolor. Upper petals often purple.

8. V. Curtisii, Forst. Yellow Sea Pansy. Stem decumbent, angular, rough; leaves oblong, crenate, naked; leaf-stalks hairy; stipules palmate, lobes acuminated, ciliated; bracteas minute; spur the length of the calyx. Forst. in E. Bot. Suppl. t. 2963.

Abundant on the sand hills at Portmarnock, and other places on the coast, where it has frequently been mistaken for V. lutea, and is probably the plant alluded to by Doctor Hooker as a small var. of that species, found by Mr. Tozer at the Land’s-end, Cornwall. Although I have followed Mr. Forster in giving it the rank of a species, I think it is nothing more than a variety of V. tricolor. Lower petals pale yellow, upper ones deep yellow, sometimes purple; both streaked with purple at the base. Fl. May—Sept. ♀.


Sepals 5, generally unequal, the two outer smaller, the three inner with a twisted aestivation. Petals 5, caducous, equal, wrinkled in aestivation and twisted in a direction opposite to that of the sepals. Stamens indefinite, erect, distinct: anthers ovate, 2-celled, inserted by their base. Style 1, filiform. Stigma simple, capsule 3—5-rarely 10-valved, 1-celled, with the valves bearing a single longitudinal placenta, or 3—5-celled, the sepiments from the centre of the valves, extending to the axis, and bearing the numerous seeds. Albumen nearly including a spiral or curved Embryo. Shrubs or herbs. Leaves simple, lower ones generally opposite, the rest alternate. Stipules 2 and foliaceous, or none. Flowers racemose, very fugacious, white, yellow, or purple.

1. HELIANTHEMUM. Tourn. Rock-rose.

Calyx of three equal sepals, or five, of which the two outer ones
are smaller. **Petals 5. Stigma capitate. Capsules 3-valved.** — Name from ἤλως, the sun, and ἄνθος, a flower. The same as *Helianthus*. **Polyandria. Monogynia.**

1. **H. vulgare, Gaert. Common Rock-rose.** Shrubby, procumbent, stipuled; leaves opposite, ovate, or oblong, nearly flat, green above; racemes terminal, bracteated; calyx of 5 sepals, the inner furrowed and scariose at the edge; style bent at the base, somewhat clavate at the apex; seeds black. Br. — Br. Fl. 1. p. 258. — *Cistus Helianthemum*, Linn. — E. Bot. 1321.

Limestone rocks, south isles of Arran. Cape Clear Island, southern coast; Mr. J. Drummond. Fl. July, Aug. T. Ord. 9. **DROSERACEÆ. D C. Sun-dew Family.**

Sepals 5, persistent, equal, with an imbricated aestivation, Petals 5. Stamens distinct, marcescent, equal in number to the petals and alternate with them, or 2, 3, or 4 times that number. Anthers 2-celled, opening longitudinally. Ovary 1, sessile. Styles 3—5, more or less combined. Capsule 1—3-celled, 3—5-valved, bearing the seeds along the middle, or at the base of the valves. Seeds sometimes furnished with an arillus. Embryo straight, in the centre of a fleshy or cartilaginous albumen. Radicle directed to the hilum. — Delicate herbaceous plants, frequently clothed with glandular hairs, and in the Droserae the leaves and peduncles have a circinnate vernation.

1. **Drosera. Linn. Sun-dew.**

**Calyx 5-cleft. Petals 5. Capsules 1-celled, 3-valved, many-seeded. Herbaceous plants with leaves clothed with beautiful glandular hairs.** — Name derived from ἤρως, dew. The glands exude a pellucid fluid, which makes this plant appear as if it were covered with dew. In Latin, *Ros-solis*, the same as the English Sun-dew. **Pentandria. Hexagynia.**


Bogs and moist heathy grounds, frequent. Bog near the summit of Howth, at the base of the Dublin mountains, and many other places. Fl. July. 2. — Leaves in all our species covered with red pedunculated viscid glands, which retain insects. Scape two to five inches high, glabrous. Flowers racemed, drooping, small. Styles variable in number.

2. **D. longifolia, Linn. Spathulate-leaved Sun-dew.** Leaves radical spathulate, very obtuse, erect, on long glabrous petioles;

Bogs and moist heathy grounds in many parts of Ireland, not uncommon; more frequent in the southern and western counties. All the three species are found in an elevated bog on a mountain near Florence court, County of Fermanagh. Fl. July. 2.—Well distinguished from the following by its rough, and not loose, coat to the seeds. Styles often eight. Stigmas deeply cloven.


Bogs in the southern, western, and northern counties, frequent. Fl. July, Aug. 2.—This has much larger and longer leaves than the last; and, as Dr. Hooker remarks, would better deserve the name of longifolia. It has been thought by some botanists to be only a variety of that species. "Now, however, that Mr. Wilson has observed the true nature of its seed, an important and invariable character is established. Here the seed, as in Pyrola and Orchis, and in D. rotundifolia, has a very loose, articulated, even coat. In D. longifolia the coat firmly adheres to the rest of the seed, and is rough or papillose." Hooker. "Embryo at the lower end of the seed, dicotyledonous." Wilson.


Sepals 5, with an imbricated aestivation, 2 interior ones often petaliform, 3 exterior smaller, of which the two anterior are sometimes combined, and the third is posterior. Petals 3—4, more or less connected by means of the staminal tube. Filaments of the stamens combined with the petals, monadelphous, but divided into two equal portions: anthers 8, 1-celled, opening by a pore at the extremity: ovary 1, distinct, 2-rarely 1—3-celled; style 1, incurved: stigma funnel-shaped or two-lobed. Fruit capsular or drupaceous, 2-or 1-celled, the valves bearing the dissepiments. Seeds solitary in each cell, pendulous, often carunculated, sometimes hairy or comate. Embryo straight, in the axis of a fleshy albumen; the latter sometimes wanting.—Herbs or shrubs. Leaves mostly alternate, entire. Flowers racemose.

1. POLYGALA. Linn. Milk-wort.

Calyx of 5 sepals, two of them wing-shaped and coloured. Petals combined by their claws with the filaments, the lower one keeled. Capsules compressed. Seeds downy, crested at the hilum.—Name, πολύκαλος, much, and γάλας, milk; from some fancied property in the plant. Diadelphia. Octandria.

1. P. vulgaris, Linn. Common Milk-wort. Keel crested; flowers in a terminal raceme; bracteas three to each pedicel;

Dry billy pastures, frequent. *Fl.* June, July. IV.—*Stems* four to eight inches long. *Corolla* beautifully crested, blue, purple, pink or white. *Sepals* persistent, enclosing the fruit.

**Ord. 11. MALVACEÆ. Br. Mallow Family.**

Sepals 5, rarely 3 or 4, more or less combined at the base, with a valvate aestivation, often bearing bracteas forming an involucrre and resembling an outer calyx. Petals 5, equal, alternate with the sepals, with a twisted aestivation, often adnate at their base with the base of the staminal tube. Stamens 5 or indefinite; filaments united into a tube, unequal; anthers 1-celled, reniform, opening transversely. Ovary composed of many carpels or combined, placed around a common axis, distinct: styles as many as there are carpels, distinct or united; stigmas equal in number with the carpels, distinct or united. Carpels distinct or united into a many-celled capsule, each 1—2 or many-seeded, opening opposite the disseipments or between them. Seeds sometimes villous; embryo curved; cotyledons folded.—*Herbs, shrubs or trees, mostly inhabiting warm and hot regions. Leaves alternate, petiobate, toothed, or lobed, often clothed with a stellated pubescence. Stipules two to each leaf, often deciduous. Peduncles usually axillary.*

Our indigenous species afford abundance of mucilage, and are employed for fomentations and cataplasing.

1. **Malva. Linn. Mallow.**

*Styles* numerous. *Calyx* double; ext. of 3 *sepals*. *Capsules* numerous, circularly arranged, 1-seeded.—Name; altered from *μαλακχη* soft, in allusion to the emollient nature of the species. *Monadelphia. Polyandria.*


Waste places and way-sides, frequent. *Fl.* June—Aug. IV.—*Stem* two to three feet high, branched. *Flowers* large, three or four together, axillary. *Petals* large, obcordate, purplish rose-colour, with deeper veins (rarely white) combined by the base of their claws. Whole *plant*, especially the *fruit*, mucilaginous and emollient; and has hence a place in the *Materia Medica*.


Meadows, pastures, and road-sides, especially in a gravelly soil. Dry banks about Enniskerry, and road-sides, County of Kilkenny. Near Hollywood and other places near Belfast; *Mr. F. Whitta,* *Fl.* July, Aug. *Flowers* large, beautiful, rose-coloured, (occasionally white,) one to two from the axils of the terminal leaves. The *leaves* yield a faint musky smell if drawn through the hand.


*Styles* numerous. *Calyx* double; *exterior* of 6—9 *leaves.* *Capsules* numerous, circularly arranged, 1-seeded.—Name, *mallow,* to cure; from its healing properties. *Monadelphia. Polyandra.*


Marshes, but mostly near the sea. Marshy grounds north of the Shannon a little above Limerick. Cable Island, near Youghal, and Cape Clear Island; *Mr. J. Drummond.* Road-side between Lahinch and Miltown, County of Clare; *Mr. W. Andrews. Fl.* Aug., Sept. *Flowers* three to four together, on axillary stalks, large, pale rose-colour.—Affords an abundant mucilage, and a decoction of it is of general use in England and Ireland. The common road-side *mallow* (*M. sylvestris*) is often sold as *Marsh mallow,* and has pretty much the same properties.


Maritime rocks. On old walls near the harbour of Galway; on
HYPERICINEÆ.

cliffs on the south isles of Arran; near Dingle, and on Ireland's Eye. Near Ballintoy; Mr. Templeton. Fl. July, Aug. 4.


Calyx 4—5 cleft, or of 4—5 sepals, persistent, often unequal, with an imbricated aestivation, and dotted or glandular. Petals 4—5, alternate with the divisions of the calyx, often with oblique veins, sometimes with black glands, the aestivation contorted. Stamens indefinite, usually polyadelphous at the base; filaments long; anthers small, versatile. Ovary 1. Styles several, often combined; stigmas simple or capitate. Fruit a many, or 1-celled capsule or berry. Placentæ entire, central, or several at the margins of the valves. Seeds numerous. Albumen none (De Cand.) Embryo straight. Radicle inferior.—Herbaceous or shrubby plants, variously and copiously glandular, the leaves (which are entire and mostly opposite) often with pellucid dots. Flowers generally yellow.

A small but very extensively distributed family, yielding a resinous and slightly purgative and febrifugal juice.

1. HYPERICUM. Linn. St. John's-wort.

Calyx inferior, in 5 deep divisions. Petals 5. Filaments united at the base into 3 or 5 sets. Capsules many-seeded.—Name, the ἰπερικός, of Dioscorides.

Polyadelphia. Polyandra.

* Styles 5.


Woods at Mucruss, 1804; in Powerscourt woods, perfectly naturalized; it has also been observed, apparently wild, near Cork, by Mr. J. Drummond, but in each case it is probably only the outcast of gardens. Commonly cultivated in shrubberies on account of its beauty. Fl. July—Sept. ½.—Flowers very large, yellow, as in all the genus. Sets of stamens, five.

* * Styles 3. Calyx segments entire at the margins.


Hedges and shrubby places. Hedges and woods in the County of Dublin, County of Down, and various other parts of the country. Fl.


Woods, thickets, and hedges, &c. frequent. *Fl. July.* 4.—One foot to two feet or more high, branched. There are minute dots on the tips of the calyx, corolla, and often on the leaves. This plant was formerly in great repute for its supposed tonic or stimulating qualities; it was also esteemed as a vulnerary, and became the "balm of the warrior's wound."


Rather mountainous woods, but no where in great plenty. Ditch banks between Cullenagh and Stradbally; near Innistioge, County of Kilkenny; and ditch banks on the road-side between Powerscourt gate and the lower Dargle gate. *Fl. July, Aug.* 4.—Similar in many respects to the last; for which, perhaps, it is not unfrequently mistaken. Corolla often marked with small black dots.


Gravely, boggy pastures, and road-sides, frequent. *Fl. July.* 4.—Stem slender, about a span long. Corolla with black dots, as well as the calyx, on which they are frequently seen near the edge, but not so distinctly so as in those of the next section.

*** * * Styles 3. Margins of the calycine segments with glandular serratures.**


Woods and thickets. Plentiful at the Salmon-leap, near Leixlip, and at Woodlands. At Macedon Point, near Belfast; Mr. Templeton. *Fl. July.* 4.—Two feet high. Leaves rather large, more or less downy, especially beneath.

8. **H. pulchrum**, Linn. **Small upright St. John's-wort.**
CARYOPHYLLEÆ. [Dianthus.

Styles 3; calyx with (black) glandular serratures; stem erect; leaves cordate, embracing the stem, glabrous. Br. Fl. 1. p. 337. E. Fl. v. iii. p. 329. E. Bot. t. 1227.

Dry woods and heaths, frequent. Fl. July. 4.—One foot to two feet high, slender, erect, rigid, branched. Flowers beautiful, in loose panicles, yellow, tipped, before expansion, with red. Anthers red.


Sepals 4—5, continuous with the peduncle, distinct or cohering into a tube, persistent. Petals 4—5, hypogynous, in some (especially Stellaria uliginosa) almost perigynous, at other times, along with the stamens, inserted upon the receptacle, sometimes wanting. Stamens as many as, or twice the number of the petals, distinct or slightly united at the base: anthers 2-celled, opening longitudinally. Ovary inserted on a more or less evident torus. Styles 2—5. Capsule 1—5-celled, 2—5-valved, valves often dentiform. Placentæ central, in the 2—5-celled capsules, adhering to the edge of the dissepiments. Seeds indefinite. Albumen mealy, around which the embryo is generally more or less curved. Radicle directed to the hilum.—Herbaceous plants, of the temperate and colder regions, rarely suffrutescent. Leaves opposite, often connate, entire, in Arenaria rubra and its allies having membranaceous stipules.


Sepals united into a cylindrical, 4 or 5-toothed tube.

1. Dianthus. Linn. Pink.

Calyx monophyllous, tubular, 5-toothed, with about 4, imbricated, opposited scales or bractæ at the base. Petals 5, clawed. Caps, cylindrical, 1-celled.—Name derived from ζευς, εός, Jupiter, and αὐτός, a flower; dedicated as it were to Deity itself; to express the high value that was set upon this charming genus of plants.

Decandria. Digynia.

1. D. plumarius, Sprengel. Garden Pink. Stem erect, few flowered; scales of the calyx mucronate, very short, appressed;
petals lanciniato-multifid, bearded; leaves sublinear, glaucous, with a rough margin.—*Dianthus hortensis*, Schrad.—*Spreng. Syst. v. ii. p. 379.

I insert this on the authority of Mr. J. Drummond, who found it in an old quarry near Black Rock, Cork, and on cliffs at Hop Island, near Cork, and who remarks that this may be the plant mentioned by Smith, in his history of the County of Cork, under the name of *Dianthus Caryophyllus*, as growing on an old castle near Kinsale, which is now demolished, and that this pink is still to be found on old thatched houses in that neighbourhood. I have only seen one specimen, sent by Mr. Drummond to the late James Brodie, Esq. now in the possession of Mr. Stewart of Edinburgh; but until I have an opportunity of examining recent specimens, I cannot pronounce with certainty that I have been right in referring it to *D. plumarius*, to which species the Pheasant-eye Pink of the gardens belongs.

2. **Saponaria.** *Linn.* Soapwort.

*Calyx* tubular, 5-toothed, naked at the base. *Petals* with claws the length of the calyx. *Stamens* 10. *Stigmas* 2. *Capsule* 1-celled. Named from *Sapo*, soap. The plant yields a mucilaginous juice, which has been employed in lieu of that useful article. 

*Decandria Diggia.*


Fields of Odin, above Rathfarnham, and on the banks of the Dodder, between Donnybrook and Rathfarnham, mostly with double flowers. County of Clare; Mr. Andrews. *Fl. July, Aug. 2.*—One foot to one foot and a half high, with a rather stout cylindrical stem. Leaves ribbed, opposite, and connate. Panicle of numerous, large rose-coloured flowers. Limb of the corolla obcordate. This plant makes a lather with water.

3. **Silene.** *Linn.* Catchfly.

*Calyx* tubular, often ventricose, 5-toothed. *Petals* 5-clawed, mostly crowned at the mouth, and the limb generally notched or bifid. *Caps*. 3-celled, 6-toothed, many-seeded.—Name, supposed to arise from *σαλων*, *Saliva*, in allusion to the viscid moisture on the stalks of many species; hence too, the English name Catchfly. *Decandria Trigynia.*

*Stems tufted, short. Peduncles single-flowered.*


Plentiful on the limestone cliffs of Ben Bulben and other mountains.
in the County of Sligo. On trap rocks at Magilligan, County of Derry; Mr. Templeton, and Mr. D. Moore. Fl. June, July. 2. —Stems short, two to three inches high, much branched and tufted. Leaves patent. Flowers beautiful purple.—One of the greatest ornaments of our mountains.

* * Stems elongated. Flowers solitary or panicled. Calyx inflated, bladdery.


Fields, gravelly banks, and road-sides, common. Fl. June—Aug. 2.—Whole plant glaucous, variable in the size and shape of its flowers. Petals pure white.


Frequent upon the sea-shore and on mountain cliffs. Plentiful on the shore at Killiney and Howth, and on Ben Bulben and other mountains in the County of Sligo. Fl. June—Aug. 2.—This, although it has smaller stems and leaves than the last, has larger flowers; Sir James E. Smith says that it is certainly distinct, and that its characters are preserved in cultivation, which I have long observed to be the case.

* * * Stems elongated, branched. Flowers in leafy racemes, alternate.


Sandy and gravelly fields. Fields near Castletown, Bearhaven; Mr. J. Drummond. In rye fields, Benone, County of Derry; Mr. D. Moore. Fl. June, July. 2.

* * * * Stem elongated. Flowers corymbose. Calyx clavate.

5. S. Armeria, Linn. Common or Lobel's Catchfly. Panicles forked, corymbose, with crowded flowers; petals notched, and crowned with awl-shaped scales; calyx clavate, and as well as the leaves, glabrous; leaves ovato-lanceolate; stem viscid. Br. Fl. 1. p. 203. E.Fl. v. ii. p. 296. E. Bot. t. 1398.

Sandy corn field by the river Roe, County of Derry, sparingly; Mr. D. Moore. Field near Kilrush, County of Clare; Mr. Andrews. Fl. July, Aug. 3.—"A doubtful native," extremely common in gar-
CARYOPHYLLEÆ.


Calyx tubular, 5-toothed. Petals 5-clawed, crowned at the mouth; mostly divided at the border.—Name from λυχνος, a lamp, the thick cottony substance of the leaves of some species, or some similar plant, having been employed as wicks to lamps.

Decandria. Pentagynia.


Moist meadows and pastures, frequent. Fl. June. 4.—One to two feet high, hairy below, reddish-green, clammy above. Leaves lanceolate. Calyx and flowerstalks reddish-purple. Petals rose-coloured.


β. flowers white. E. Bot. t. 1580.—L. vespertina, Sibth. Ox.

γ. flowers dingy white, with stamens and pistils together.

α. In rather moist shady places, as in Powerscourt demesne, near the Cherry orchard, and within the walls at Glenluce Castle, near the Giant’s Causeway. β. and γ. In open situations, as in most of the sandy fields about Kilbarrick Church, Baldoyle and Portmarnock. Fl. α. about May—July.—β. γ. June—Sept. 2.—One to two feet high, panicled above, pubescent, viscid in a slight degree above the joints of the stem. Leaves ovate, or ovato-lanceolate. Calyx in the anther bearing flowers subcylindrical, in the fruit bearing ones ovate. In β. the petals are pure white, and the flowers fragrant in the evening. The double red French Campion of the gardens is a variety of α.


Calyx tubular, coriaceous, with 5 teeth. Petals 5-clawed, their border undivided. Capsules opening with 5 teeth, 1-celled.—Name, a αγρης στεμμα, Crown of the field, peculiarly applicable to our species, which is a great ornament to corn-fields.

Decandria. Pentagynia.


Corn fields, frequent, especially where the soil is of a sandy
nature, as at Kilbarrick and other places near Howth. Fl. June, July. 2.

Tribe II. Alsineæ. De Cand.

Sepals 4—5, distinct, or cohering only at the base.


Calyx of 5 sepals. Petals 5, undivided. Capsules ovate, 5-celled, 5-valved.—Name from spargo, to scatter; from the seeds being so widely dispersed. Decandria. Pentagynia.


Corn fields, frequent; especially in light sandy or stony soils. Fl. June—Aug. 2.—Stems six to twelve inches high, swollen at the joints. Leaves one to two inches long, narrow, terete, glabrous or a little pubescent, in two fascicles from each joint, spreading in a whorled manner. Panicle of many flowers. Petals white, ovate, rather longer than the calyx. Stamens often five. Seed varying exceedingly in the width of its margin. It is said that cattle are fond of this plant, and that it is an object of culture in Holland.


Wet, sandy, and marshy places, frequent. Fl. July, Aug. 2.—Three to four inches high, branched and decumbent at the base, where the leaves are three-fourths of an inch long, but they gradually become smaller upwards. Flowers large, white, three to four on the terminal branches, peduncled. Whole plant glabrous. Calyx nerveless.


On mountains near Bantry; Miss Hutchins. On Bear Island, near the Telegraph; Mr. J. Drummond. Fl. June, July. 2.—Stems many from the root, procumbent below, two or three inches tall. Leaves numerous and rather long at the base; shorter, in remote pairs, upon the stem. Flowers drooping before and after expansion.


Dry, gravelly, and stony places. Between Portstewart and Port-
CARYOPHYLLEÆ.

7. ELATINE. Linn. Water-wort.

Calyx 3—4 parted, persistent, inferior. Petals 3—4. Stam. 3—4, or 6—8. Styles 3 or 4, very short. Capsules 3—4-valved, 3—4-celled, many-seeded, the dissepiments alternate with the valves. Seeds cylindrical, curved, furrowed, and transversely striated, attached to a central receptacle. —Name said to be derived from ελατίνη, a pine, to which nothing can be less similar than our present plant.

Octandria. Tetragnia.

... E. hexandra, De Cand. Small Water-wort. Leaves opposite, rough, with minute points, spathulate; flowers alternate, pedicellate, hexandrous, tripetalous. Br. Fl. 1. p. 185.—E. tripetala, Sm. E. Fl. v. ii. p. 243.—E. Hydropiper, E. Bot. t. 955. (not Linn.)

Margins of lakes, rare. On the muddy border of Castlewellan Lake, County of Down, where it was first pointed out to me, in 1808, by Mr. Templeton. Abundant in Enagh Lough, near Derry, and by the side of the river Banu, below Coleraine; Mr. D. Moore. Fl. July, Aug. 24.—A minute, procumbent, much branching plant, with small solitary flowers. Petals rose-coloured. Seeds most beautifully ribbed, and transversely striated.

8. SAGINA. Linn. Pearl-wort.

Calyx of 4 sepals. Petals 4, (shorter than the calyx.) Capsule of 1-cell, 4 valves.—Name signifying meat which fattens, but which is little applicable to any of the minute plants belonging to this genus.

Tetragynia. Tetragnia.


Waste places and dry pastures, frequent. Fl. May—Aug. 24.—Stems spreading, two to four inches long, often sending out roots from different parts of the stem at the insertion of the leaves, and these throwing up new plants. Leaves linear-subulate, connate, membranous at the margins at the base. Peduncles solitary, axillary and terminal, about an inch long. Flowers at first drooping.


Dry gravelly places, frequent. Fl. May, June. 24.—More slender
than the last, smaller and annual. Leaves narrower, more bristle-pointed, more glaucous, and slightly hairy at the margins, sometimes glabrous. Stems also hairy. Petals always present, according to Mr. W. Wilson, obcordate, or wedge-shaped and truncated. Hooker.

3. S. maritima, Don. Sea Pearl-wort. Annual, glabrous; stems erect or procumbent only at the base; leaves fleshy, obtuse; petals none; calyx rather longer than the capsule. Br. Fl. 1. p. 78. E. Bot. t. 2195.—S. stricta, Fries.

Sea coast, not unfrequent. Gravelly places near Ringsend, at Narrow-water near Newry, and other places on the coast, also on rocks on the shore below Sligo, very abundant. Fl. May—Aug. O.—A very distinct and well marked species, with a reddish or purplish tinge, especially on the stems and calyces.

9. ARENARIA. Linn. Sandwort.

Calyx of 5 sepals. Petals 5, undivided. Capsule 1-celled, many-seeded.—Named from arena, sand; the greater number of species growing in sandy soils.

Decandria. Trigynia.

* Stipules none.


On sandy sea shores, frequent, Fl. July. 2.—Root long and creeping, slender. Stems decumbent at the base; branches erect, leafy upwards. Leaves large, decussate, connate, fleshy, shining, a little curved. Flowers solitary, or two or three together, in the axils of the upper leaves, nearly sessile, closing in the shade. Petals white, small, scarcely longer than the calyx, distant, broadly ovate, shortly clawed; surrounding the germin are ten glands, alternating with the stamens. Capsule large, roundish, three to five valved, with comparatively few, large, and black seeds. The habit of this is very different from the rest of the genus, and it is said that the flowers are dioecious. It is certain that very extensive patches of the plant have abortive flowers, as Doctor Hooker well remarks. The curved embryo, common to all the plants of this order, is very conspicuous in the large seeds of this species when in a recent state.


Shady woods and moist places. Hedge banks by the road-side between Powerscourt gate and the Dargle gate, and other places in the County of Wicklow, not unfrequent. Fl. May. 2.—Stems one foot high, much branched, pubescent. Upper leaves sessile. Flowerstalks an inch or more long, from the forking of the extremities of the stem; in fruit spreading, the upper part deflexed. Petals oblong, ovate, white, scarcely longer than the acute segments of the calyx.

Walls and dry waste places, frequent. *Fl.* June. ○.—Two to six inches high, erect or procumbent, much branched, pubescent. *Leaves* rather small, rigid. *Flowers* white, on short stalks, from the forking of the upper part of the stem, or the axils of the leaves. *Petals* as long as the calyx.


Limestone cliffs on Sea-Fin, and Ben Bulben, County of Sligo. *Fl.* June, July. ○.—*Leaves* in pairs, rather fleshy. *Flowers* terminal, on long stalks, large, white, conspicuous.

**Stipules at the base of each pair of leaves.**


Gravelly or sandy soils, frequent. *Fl.* June. ○.—Very much branched and spreading. *Stipules*, a pair of ovate, acute, white, membranaceous scales, united at their base. *Flowers* numerous, in the axils of the upper leaves, solitary. *Calyx*, nerveless, and, as well as the rather short *peduncles*, glandular and viscid. *Petals* ovate, red, about as long as the calyx. *Peduncles*, after flowering, slightly bent back. The *seeds* constitute the essential character by which this is known from the following species.


Frequent upon the sea-coast. *Fl.* June, July. ○ or folio.—Much larger and stouter in all its parts than the last, besides the difference arising from the seed.


Trap rocks on Magilligan, County of Derry, where it was first observed by Mr. Templeton. Between Luncnagh Castle and Kilferna, County of Clare; Doctor Osborne. Island of Arran; Mr. R.
Ball. Fl. May, June. 2.—Stem three to four inches high, slightly hairy, as are the calyces and peduncles. Lower leaves crowded, often curved, upper ones distinct.


Calyx of 5 sepals. Petals 5, cloven. Capsules bursting at the top with 10 teeth (5 in C. aquaticum.)—Name, *icepas*, a horn, from the rather long and curved capsules of some species.

Decandria. Pentagynia.

* Petals not longer than the Calyx.


Fields, pastures, and road-sides, common. Fl. April—June. 2.—Six to ten inches high, branched below, dichotomous above. Petals narrow, bifid at the extremity. Capsules cylindrical, as long again as the calyx, curved upward.


Pastures, waste places, and wall tops. Fl. the whole summer. 2.—Much resembling the last, but a larger, coarser, and spreading plant, with longer and narrower leaves. Calyces shorter than the footstalks in general, especially when in fruit.

3. C. semidecandrum, Linn. Little Mouse-ear Chickweed. Hairy, viscid, suberect; leaves oblongo-ovate; bracteas membranaceous at the margin; flowers somewhat panicled; calyces ovate shorter than the pedicel; segments with broad membranaceous margins; petals slightly cloven; stamens 5. Br. Fl. 1. p. 213. E. Fl. v. ii. p. 331. E. Bot. t. 1630.—C. pumilum, Curt.

Dry waste places in sandy soil, and on wall tops, frequent. Fl. March, April. 2.—This, as Sir James E. Smith well observes, displays itself, in early spring, on every wall, and withers away before the C. viscosum begins to put forth its far less conspicuous blossoms. Calyx-segments acute. Mr. W. Wilson thinks this may be but an early flowering state of C. viscosum.

4. C. tetrandrum, Curt. Four-cleft Mouse-ear Chickweed. Hairy and somewhat viscid; flowers 4-cleft with four stamens;
petals inversely heart-shaped, shorter than the taper-pointed calyx, which is nearly as long as the capsule. (Smith.) Br. Fl. 1. p. 214. E. Fl. v. ii. p. 332.—Sagina cerastoides, E. Bot. t. 166.

Waste grounds, walls, and sandy places, especially near the sea. Hill of Howth, on the Sutton side, where it was first observed, above thirty years ago, by the late Mr. Underwood. Fl. May, June. O.—Herb light green. Stems several, spreading, two to six inches high. Leaves elliptic-oblong. Petals four, white.

** ** Petals longer than the calyx.


Dry, sandy, and gravelly places. Plentiful between Clontarf and Howth, and many other places along the coast. Fl. June, July. 2.—Stems branched and decumbent at the base, a span long, slender. Flowers large, pearl white, two or three on terminal stalks. Capsules scarcely longer than the calyx.


Sides of rivers and ditches. Fl. July. 2.—I have not seen Irish specimens of this plant, but the Rev. Dr. Hincks assures me that there are specimens of it in the Herbarium of the Cork Institution, gathered on the banks of the river Lee. Stems one to two feet long, branched and straggling. Leaves large, lower ones only on footstalks, with short scattered hairs on their surface and margins. The capsule opens with five teeth or valves.


Calyx of 5 sepals. Petals 5, deeply cloven. Capsules opening with 6 teeth, many-seeded.—Name from stella, a star; because the corolla is spread in a star-shaped like manner.

Decandria. Trigynia.


Road-sides and waste places, abundant. Fl. almost the whole year. O.—Stem with alternate lines of hairs between each pair of leaves, by which the species is admirably distinguished. Leaves on footstalks, except the uppermost; glabrous. Flowers small, white, on solitary axillary and terminal stalks. It is frequently given to birds, who are fond of its seeds.

Woods and hedges, frequent. *Fl. May.* 4.— *Plant* one foot to one foot and a half high, rather rigid and brittle, somewhat glaucous. *Flowers* large, and with much broader petals than the two following, pure white. *Panicle* of few flowers, leafy.


Dry pastures, fields and heaths, common.  *Fl. May.* 4.— One foot high, more slender than the last, and readily distinguished by its much smaller flowers, large and spreading *panicle*, three-nerved calyx, and entire leaves.


Wet marshy places and margins of lakes. Plentiful in Glencree, between Enniskerry and Lough Bray.  *Fl. June, July.* 4.— Equally slender with the last, one foot high. *Flowers* next in size to those of *S. holostea*. Readily known from that and *S. graminea* by its narrower, glaucous leaves, solitary, axillary flowers, and the narrow sepals, which, like the last, are three-nerved.


In ditches and rivulets, frequent.  *Fl. June.* 0.— "This species, besides having the *sepals* combined at the base, has the *stamens* and *pistils* truly perigynous. Hence St. Hilaire, who makes of it his Genus *Larbræa*, (in honour of the Abbe de Larbre,) seems to think it more allied to his *Paronychia* than to the *Caryophyllæa*. Its general habit, however, is surely that of a *Stellaria*, from all the other species of which it is distinguished by its comparatively minute petals."  *Hooker.*


On a high mountain near Bantry, rare; *Miss Hutchins*.  *Fl. July,*
Aug. 2.—Four to six inches long. Lower part of the stem bare of leaves and much branched. Leaves subsecund and subfalcate, their points callous. Flowers large, pure white. Intermediate between Stellaria and Cerastium.


Sepals 3—5, with an imbricated aestivation. Petals 3—5, unguiculate, alternate with the sepals and with a twisted aestivation. Stamens as many as there are petals, united at their base, alternate with the petals, with intermediate teeth, or abortive filaments: anthers ovate, 2-celled. Ovary subglobose, generally with as many cells and capitate styles as there are sepals, rarely fewer. Capsule globose, often apiculated with the base of the persistent styles, each cell imperfectly separated into two, by a spurious dissepiment, and opening with two valves at the extremity. Albumen scarcely any. embryo straight, fleshy and oily. Radicle towards the hilum.—Herbs or undershrubs. Leaves entire, without stipules. Flowers pedunculated. Petals very fugacious.

1. LINUM. Linn. Flax.

Calyx of 5 sepals, persistent. Petals 5. Capsules globose, mucronate, with ten valves and ten cells. Seeds ovate, compressed.—Named from Lin, thread, in Celtic, (Theis).

Pentandria. Pentagynia.

* Leaves alternate.


Corn fields, not unfrequent. Fl. July. O.—One foot or one foot and a half high, slender, branched above. Leaves distant. Flowers large, purplish blue. This yields, in the strong fibres of its bark, the valuable flax of commerce, whilst from the seed a precious oil is expressed, known by the name of Lint-seed oil. These seeds, too, are highly mucilaginous, and much employed in poultices, fomentations, &c.


Limestone grounds near Monkstown, County of Cork; Mr. J. Drummond. Fl. June, July. 2.

Sandy fields and gravelly places. Fields above Dundrum, on Killiney Hill, and in the Phoenix Park, near Chapelizod, &c. *Fl.* July. 2. — All the three species of this division have a great similarity in their habit. The best characters, as Sir James E. Smith remarks, are taken from the calyx. In the present the petals are of a paler blue than in the preceding species, and smaller in proportion to the size of the calyx.

**Leaves opposite.**


Dry pastures, common. *Fl.* June, July. 0. — Stem slender, upright, two to six inches high. *Flowers* gracefully drooping before expansion, white, small.


Calyx of 4 sepals, united to their middle, and mostly 3-cleft. Petals 4. *Capsules* of eight cells and eight valves.—"Name from radius, a ray, I presume in consequence of the ray-like segments of the calyx." Hook. *Tetrandria*. *Tetragynia*.


Moist, gravelly, and boggy soils. Plentiful about Ballylickey, near Bantry, and near Bandon. It has also been observed to grow in the Rosses, small islands on the coast on Donegal; Mr. E. Murphy. County of Clare; Mr. Andrews. County of Derry; Mr. D. Moore. *Fl.* July, Aug. 0.


Sepals 4—5, with a valvate aestivation, without bracteas. Petals 4—5, alternate with the sepals, entire, with a little hollow at the base. Stamens distinct, generally indefinite: anthers oval or roundish, 2-celled, opening longitudinally. Glands on the stalk of the ovary, as many as there are petals, and opposite to them. Ovary 1, composed of 4—10 combined carpels: styles as many, united into one: stigmas often free. Capsule of several cells. Seeds numerous. Albumen fleshy. Embryo
straight: cotyledons plane, foliaceous.—Trees or shrubs, rarely herbs, of which one genus alone is European. Leaves simple, stipulated, often toothed. Flowers axillary.


Calyx 5-partite, deciduous. Petals 5, with or without a nectary at the base. Fruit coriaceous, 5-celled, without valves, cells 1—5, 2-seeded.—Name of obscure origin.

Polyandria. Monogynia.


Woods and hedge rows, probably not indigenous. Fl. July. 5.—A large handsome tree, its flowers yellowish-green, on a stalked cyme, springing from a large lanceolate foliaceous bractea, which falls off with the fructified cymes. Fruit generally one-celled and one-seeded. There are fine specimens of this ornamental tree to be seen at the old lime walk in Stillorgan Park. Sir James E. Smith states, that an ancient lime, of great magnitude, which grew where the ancestors of Linnaeus had long resided, is said to have given them their family name, Linn being Swedish for a lime tree. The bark of this, and, perhaps, some other species, makes the Russia garden-mats called bast. Bees collect much honey from the flowers.


Woods in the County of Down; Mr. Templeton. "Perhaps the only native lime tree of Britain," Mr. Edward Forster. Fl. Aug. 5.

Ord. 16. ACERINEÆ. Juss. Maple Family.

Calyx 5—rarely 4—9-partite. Petals the same in number, inserted around an hypogynous disk, alternate with the lobes of the calyx, often of the same colour, rarely none. Stamens on the hypogynous disk, often 8, rarely 5—12; anthers oblong. Ovary didymous. Style 1; stigma 2. Fruit a samara, of 2 indehiscent carpels at length separating, 1-celled, 1—or 2-seeded. Seeds fixed to the base of the cell, without albumen, but with a thickened inner coat to the testa. Embryo curved or convolute. Cotyledons foliaceous, wrinkled: radicle inferior.—
Trees of the temperate parts of the northern hemisphere, of great beauty. Leaves simple, often lobed. Flowers racemose or corymbose, axillary, often, by imperfection, diacicious or polygamous.


Calyx 5-cleft, inferior. Petals 5. Germen 2-lobed. Capsules 2, united at the base, each with a long winged membrane, (hence called a Samara), 1-celled, 1—2-seeded.—Name from acer, sharp or hard (ac, Celtic) on account of the hardness of the wood, which was employed in fabricating spears, pikes, &c.

Octundria. Monogynia.


In hedges, plantations, and about houses, not indigenous. Fl. May, June. b.—A large tree, with spreading branches and ample leaves. Flowers greenish. Fruit with two membranaceous wings, which greatly aid in its dispersion. The wood is used for bowls and trenchers, and other turnery. It is one of the best trees for planting near the sea-coast.


Hedges about Cork, scarcely indigenous; Mr. J. Drummond. Hedges at Ballycullen, County of Dublin; Dr. Brinkley, Bishop of Cloyne. County of Derry; Mr. D. Moore. Fl. May, June. b.—A small tree, with rough bark, full of deep fissures. Leaves small. The wood is compact, of a fine grain, sometimes beautifully veined; celebrated among the ancients for tables.

Ord. 17. GERANIACEÆ. Juss. Crane’s-bill Family.

Sepals 5, persistent, more or less unequal, with an imbricated aestivation, one of them lengthened into a spur, connate and continuous with the peduncle. Petals 5, (rarely 4 or none,) alternate with the sepals, unguiculate, equal or unequal, hypogynous or perigynous. Stamens monadelphous, rarely wholly distinct, twice or thrice as many as there are petals, some of them occasionally sterile, equal or unequal. Ovary of 5 cells or pieces, placed round a subpentagonal elongated axis: styles 5, combined upon the axis into one: stigmas 5. Carpels (often called (cocculi) 5, submembranaceous, 1-celled, 1-seeded, eventually separating from the central indurated axis and terminating by the persistent style, which springs from the base and curls upwards. Seed solitary, pendulous, without albumen: embryo
curved: radicle directed to the base of the cell: cotyledons foliaceous, convolute and variously plaited.—Very generally diffused herbs or shrubs, with the stems jointed, at least in the younger and herbaceous kinds, and separable at the joints. Leaves opposite at the joints; or alternate, and then opposite the peduncle. Cirrhi none.

1. **Geranium.** Linn. Crane’s-bill.

*Peduncles 1-flowered.*


Rocky and stony places. On the east side of Howth, also on Killiney Hill and other places along the coast. *Fl.* July. *—*One foot to a foot and a half high, swelling at the joints. *Peduncles* axillary, long. *Flowers* large, handsome, purple.

* * * *Peduncles 2-flowered.*

2. *G. sylvaticum,* Linn. Wood Crane’s-bill. Peduncles 2-flowered, leaves subpeltate with 5 or 7 deep and acute lobes, which are cut and serrated; stem erect, corymbose; petals slightly notched; capsules keeled, hairy, not wrinkled. *Br. Fl.* l. p. 312. *E. Fl.* v. iii. p. 234. *E. Bot.* t. 121.

Woods and rocky places, about the Giant’s Causeway, and other places in the County of Antrim; *Mrs. Mansfield* and *Mr. Templeton.* *Fl.* June, July. *—*One foot to three feet high. *Flowers* purple.


Fields and waste places; very common near Dublin. *Fl.* June, July. *—*Two to three feet high, much branched. Readily distinguished from *G. molle* by its axillary *peduncles,* and much larger flowers.

4. *G. lucidum,* Linn. Shining Crane’s-bill. Peduncles 2-flowered; leaves roundish 5-lobed; lobes trifid and notched, obtuse with a short mucro; calyx pyramidal, angular, dentato-

Rocks, walls, and roofs of houses; on old thatched roofs in the suburbs of Killarney and Ennis; on walls near both places, and on Feltrim Hill. On walls near Cork; *Mr. J. Drummond.* Plentiful at Oldcastle, Loughcrew, and other places in the County of Cavan; *Rev. Mr. Halfpin.* Cavehill, near Belfast; *Mr. F. Whitta.* *Fl.* June, July. 0.—Stems spreading, shining, (as are the leaves,) brittle, swelling at the joints. Leaves small, lower ones often of a fine red. Flowers small, rose-coloured.


Woods, thickets, and stony waste grounds, frequent. *Fl.* summer months. 0.


Waste grounds and barren pastures. In several small islands near Cove, and by the road between Cork and Glanmire. *Fl.* June, July. 0.—Distinguished from the preceding by the entire petals. Capsules tuberculate, thin, slightly keeled, clothed with prominent hairs, the surface quite even, never wrinkled.


Waste grounds and in gravelly soils. Road side near Ovens, County of Cork; *Mr. J. Drummond.* Near Kilnakannick, County of Wicklow; *Major Percy Pratter.* *Fl.* June—Sept. 0.—Stem weak, prostrate. Leaves deeply lobed. Flowers very small, bluish purple.

9. *G. dissectum,* Linn. *Jagged-leaved Crane's-bill.* Peduncles two-flowered; petals notched rather shorter than the

Hedges and pastures, gravelly and waste places. *Fl.* May, June. —Stems spreading. Distinguished by the much divided leaves and the short footstalks of the blossoms.


Dry pastures near Kilcrea, County of Cork; Mr. J. Drummond. *Fl.* June, July. —Stem very slender, procumbent, its hairs, as in *G. dissectum*, reflexed. Capsules quite glabrous.


**Style 1. Calyx** of 5 sepals. **Corolla** of 5 regular petals. **Glands** 5. **Fruit** beaked, separating into 5 one-seeded capsules, each with a long spiral awn, bearded on the inside.—Name, *epωēωs*, a Heron; the fruit resembling the beak of that bird. *Monadelphia*. *Pentandra*.


Waste and sandy grounds, frequent. *Fl.* summer months. —Whole plant hairy. **Flowers** in small umbels, purplish, or sometimes white.


Sandy grounds, old walls and rocks. Simmond's-court, near Donnybrook; and rocks at Carlingford Castle. Near Monkstown Church; Major Percy Pratt. Plentiful near Cork. *Fl.* June, July. —


Sandy and gravelly sea-coasts, not very common. Steep banks on the east side of the Hill of Howth, and sea cliffs on the south side of Killiney Hill. *Fl.* May—Sept. 2.—**Flowers** exceedingly small and inconspicuous. **Petals** often wanting.

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**GERANIACEÆ.**
Ord. 18. OXALIDÆ. D C. Wood-Sorrel Family.

Sepals 5, sometimes slightly combined, equal, persistent. Petals 5, equal, unguiculate, sometimes cohering at the base, aestivation contorted. Stamens 10, more or less monadelphous; the 5 opposite the petals longer; anthers 2-celled. Ovary with 5 angles, and 5 cells. Styles 5, filiform; stigmas somewhat capitate. Capsule membranaceous, 5-celled, 5—10-valved. Seeds few, fixed to a central axis, ovate, striated, included in a fleshy arillus, which opens with an elastic force, and ejects the seed. Albumen between cartilaginous and fleshy. Embryo with foliaceous cotyledons and a long radicle pointing to the hilum.—Herbs or shrubs, of various parts of the world. Leaves mostly alternate, rarely opposite or whorled, compound, or, by imperfection, simple.


Calyx 5-parted. Petals 5, often united by the base of their claws. Filaments often combined below, 5 outer ones shorter. Capsules angular, 5-celled; cells 2, or many-seeded. Seeds with an elastic arillus.—Name from οξίς, sharp or acid. Our species produce in their leaves oxalic acid, in the state of binoxylate of Potash. (Professor Thomson.)

Decandria. Pentagynia.


Woods and hedge banks, also on mountains among shady rocks. A beautiful variety, with red flowers, of which I have plants in the College Botanic Garden, was found by Mr. J. Drummond near Passage, County of Cork. May, and much later on elevated situations. 2.—Leafstalks long and slender, reddish. Leaflets drooping at night. Scape with two scaly bracteas. Flowers handsome, drooping, generally white, with purple veins. The leaves have a most agreeable acid flavour. Mr. Bicheno, in a paper published a few years ago in the First Volume of the Journal of the Royal Institution, states it to be his opinion that the wood sorrel (Oxalis Acetosella) was the ancient shamrock, as old authors say it was a sour indigenous plant, showing itself on St. Patrick’s day, and was eaten; and, therefore, concludes, that the Trifolium repens, or common white clover now used, could not have been the plant in former use. The wood sorrel having trifoliate leaves as well as the white clover, would answer as well for the purpose intended.

Subclass II. CALYCIFLORA. De Cand.

Sepals more or less combined into one piece. Petals dis-
tinct or combined, and as well as the stamens inserted upon the calyx, more or less remote from the base of the ovary. Ovary free or adnate with the calyx.


Sepals 2, sometimes 3—5, cohering below. Petals variable, generally 5, sometimes cohering into a short tube, or wanting. Stamens inserted along with the petals into the base of the calyx, variable in number, all fertile; filaments distinct, often opposite to, and adnate with the petals; anthers variable, opening lengthwise. Ovary 1, 1-celled: style 1, filiform: stigmas several, much divided. Capsule 1-celled, opening transversely, or by 3 valves, occasionally 1-seeded and indehiscent. Seeds generally numerous, fixed to a central placenta. Albumen farinaceous, central. Embryo curved round the albumen: radicle elongated.—Succulent herbs or shrubs. Leaves alternate, rarely opposite, entire, without stipules, or sometimes with membranaceous ones on each side. Flowers axillary or terminal, generally expanding only in the bright sunshine.


Calyx of 2 sepals. Corolla of 5 irregular petals united at the base into one. Capsule 3-valved, 3-seeded.—Name, in honour of Joseph de Monti, a Professor of Botany and Natural History at Bologna. Triandria. Trigynia.


Ord. 20. CRASSULACEÆ. D C. Houseleek Family.

Sepals 3—20, more or less combined. Petals equal to them in number, and alternate with them, and inserted into the bottom of the calyx. Stamens inserted along with the petals, either equalling them in number, and then alternate with them, or twice as many, those opposite the petals the shortest; filaments distinct, subulate; anthers oval, 2-celled, bursting longitudinally. There is a nectariferous scale at the base of each ovary. Ovaries as many as there are petals, and opposite to
them, placed in a circle, distinct, 1-celled, tapering into the stigmas. Carpels several, 1-celled, opening longitudinally and internally. Seeds attached to the margin of the suture, variable in number. Albumen thin, fleshy. Embryo straight: radicle turned towards the hilum.—**Succulent herbs or shrubs. Leaves fleshy. Flowers in cymes, often unilaterial.**

1. **Cotyledon. Linn.** Pennywort.

*Calyx* 5-parted. *Corolla* monopetalous, tubular, 5-cleft. *Capsules* 5, each with a *gland* or nectariferous scale at its base.—Name from κοτλη, a cup, to which the leaves of some of the species bear a distinct resemblance.

**Decandria. Pentagynia.**


2. **Sedum. Linn.** Orpine or Stone-crop.

*Calyx* in 5 (sometimes 4—8) deep segments, often resembling the leaves. *Petals* 5, patent. *Germens* 5, each with a nectariferous scale at its base.—Name from *sedo*, to sit, from the humble growth of these plants on their native rocks.

**Decandria. Pentagynia.**

* * Leaves plane.


Borders of fields and hedge banks near Carrigaline, County of Cork, in a naturalized state; Mr. J. Drummond. On an old ditch in the glebe of Oldcastle, County of Cavan; Rev. Mr. Halpin. *Fl.* July. 2.—One to two feet high. *Stem* spotted. *Leaves* broad. *Flowers* purple. Very unlike any of the following species, and having the habit of *Rhodiola rosea*.

* * * Leaves terete. *Flowers* white or reddish.

Walls at Sunday's Well, near Cork; Mr. J. Drummond. Fl. June.

2. — Stems slender, procumbent below, slightly viscid. Flowering-stems two to three inches high. Leaves short, singularly thick and fleshy, glaucous, with a reddish tinge and dotted. Flowers tinged with rose-colour. Petals and pistils five to eight.


Rocks, frequent; especially in dry exposed situations, as Howth, Killiney Hill, and also inland situations. Fl. June, July. — Two to three inches high, much branched, procumbent below. Leaves glaucous-green often tinged with red. Flowers few in each cyme, but very conspicuous from their white, star-like appearance, and their purple anthers. It is a great ornament to the barren rocks on which it grows.

*** Leaves terete. Flowers yellow.


Walls, rocks, and sandy grounds, frequent. Fl. June, July. — Distinguished among our yellow-flowering species, by its upright, short, and very succulent leaves, closely imbricated on the barren shoots. Very biting when chewed; and hence its name of wall-pepper.


Tops of old walls near Finglass and Chapelizod; many of the old thatched houses in the town of Antrim are covered with it. Plentiful about Carrickfergus; Mr. F. Whitta. On rocks by the side of the river Roe, above Newtownlinavady; Mr. D. Moore. On an old castle near Mallow; Rev. Dr. Hincks. Fl. July. — Sterile branches with thickly placed leaves, often reflexed. Flowering-stems six to eight inches high. Cyme large, yellow. Flowers numerous, often with six petals and twelve stamens. Very similar to this are the two following species.


By the side of a stream that supplies the basin at Sunday's Well, and on the top of a wall near Glaskeen, County of Cork; Mr. J. Drummond. Fl. July. — Distinguished from the last by its more glaucous hue, and more slender leaves, especially on the radical shoots.

Plentiful on an old wall by a footway between Dundrum and Rathfarnham; *Mr. D. Moore*. Fl. July. 2.—Rather smaller than the last. Leafy, branches very numerous, erect, crowded, obtuse, thickly clothed with upright, awl-shaped, acute, very glaucous leaves, imbricated in five rows, spurred and unconnected at the base: those on the flowering stems scattered, broader and more tumid, often red. All the parts of the flowers are liable to an increase in number, even in wild specimens.


*Dodecandria*. *Dodecagynia*.


House-tops and on walls. Fl. July. 2.—The flowers of this well known plant, as Doctor Hooker observes, are no less beautiful than they are curious in their structure. "The number of their stamens is in reality twenty-four, of which twelve, inserted one at the base of each petal, are perfect; the rest alternating with the petals, small and abortive; some bearing anthers, opening longitudinally and laterally, producing, instead of pollen, abortive ovules; others resemble a cuneate pointed scale, in the inside of which, upon a longitudinal receptacle, are likewise ranged abortive ovules, in the same manner as in the real germen;—thus exhibiting the most complete transition from stamens to gernems, in the same individual flower." See the plate in *Fl. Lond. ed.* 2. *Hook*.

**Ord. 21. SAXIFRAGEÆ. Juss. Saxifrage Family.**

Sepals 5, rarely 3—7, more or less cohering; the tube altogether, or in part, adnate with the ovary, or free; the limb toothed or lobed, generally persistent. Petals usually as many as there are sepals, inserted upon the tube of the calyx, alternate with its lobes, rarely none. Stamens inserted on the calyx, equal in number with the petals, and alternate with them, sometimes double, and then half opposite the petals, and half alternating with them: filaments subulate; anthers ovate 2-celled. Ovary generally of 2 carpels, rarely 3—5, united: styles equal in number with the ovaries, distinct or combined, persistent: stigma capitulate or clavate. Fruit capsular, generally of 2
vals, rarely 3—5: the margins of the valves sometimes introflexed so as to be more or less 2-celled; the valves opening internally, sometimes from the base to the apex; sometimes from the apex to the base between the styles. Placentas occupying the introflexed margins of the valves more or less completely. Seeds many, minute, nearly horizontal. Albumen fleshy. Embryo small: radicle short, directed towards the hilum. Cotyledons short, ovate.—**Herbs. Leaves without stipules, alternate, rarely opposite. Flowers racemose or panicled, rarely solitary.**

1. **Chrysosplenium. Linn. Golden-Saxifrage.**

Calyx 4—5 parted, coloured inside. Petals none. Stamens 8—10, short, perigynous. Disk annular. Styles 2, spreading. Capsule inferior of one cell, and two valves at the apex.—**Small succulent herbs, with reniform notched leaves, and green inconspicuous flowers.**—Name from χρυσός, gold, and σπλήν, the spleen, a disease, for which this plant was supposed to be a cure.

Decandria Digynia.

1. **C. alternifolium, Linn. Alternate-leaved Golden-Saxifrage.**

Leaves alternate, lower ones subreniform upon very long footstalks. **Br. Fl. 1. p. 190. E. Fl. v. ii. p. 260. E. Bot. t. 54.**

Boggy places, among rocks and springs. Near Belfast; Mr. Templeton. Fl. March, April. 2. —Four to five inches high, branched near the summit. Leaves petiolate, crenate. Flowers in small umbels, deep yellow, mostly with eight stamens.

2. **C. oppositifolium, Linn. Common Golden-Saxifrage.**


Sides of rivulets, in shady places, common. Fl. May—July. 2. —Generally more branched at the base than the last, of a paler colour in all its parts. Stamens usually eight.

2. **Adoxa. Linn. Moschatell.**

Calyx half inferior, 3-cleft. Corolla superior, 4—5 cleft. Anthers terminal, 1-celled. Berry 4—5-celled. The side flowers have the corolla 5-cleft, the terminal one 4-cleft.—Name α, without, and ὤγα, glory; from the humble growth and insignificant aspect of this little flower.

Octandria. Tetragynia.


Woods, hedge banks, and shady places, rare in Ireland; Cavehill and Glen of Jennymount, near Belfast; Dr. Drummond and Mr. F. Whitla. Fl. April, May. 2. —Stem about a span high. Leaves two to three, radical, on very long footstalks, triterinate, lobed and cut, two cauleine ones small and simply ternate. Peduncle single, terminal,
with a head of four verticillate flowers, and a fifth terminal one. "Stamens united in pairs, or they may be considered as four to five forked stamens, each ramification terminated by the single cell of an anther, and all springing from a fleshy ring that surrounds the upper part of the germen. The flowers have an evident musky smell in the evening, or early in the morning, while the dew is on them." Hooker.


*Calyx* deeply 5-cleft. *Petals* 5. Nectaries 5, heart-shaped, fringed with glandular-headed filaments. *Capsule* 1-celled, 4-valved, each valve bearing a longitudinal linear receptacle with numerous seeds.—Named from Mount Parnassus, to which place indeed, the plant is by no means peculiar.

Pentandria. Tetragynia.


Boggy grounds and moist gravelly places, frequent. *Fl. Aug.—Oct. 2.*—Leaves mostly radical, on long footstalks, cordate, entire, nerved; one on the stem below the middle, sessile. Stem angular, from four to six inches high. Flowers solitary, terminal, large, yellowish white, handsome. Petals broadly obovate. Nectaries each, an obcordate scale, opposite the petals, fringed with white hairs along the margin, which are terminated by a yellow pellucid globular gland.


*Calyx* superior or inferior or one-half inferior, in five segments. *Corolla* of five petals. *Caps.* with two beaks, 2-celled, many-seeded, opening between the beaks. Seeds upon a receptacle attached to the dissepiment.—Named from saxum, a stone, and frango, to break; in allusion to the supposed medicinal virtues of this plant; or, perhaps, to its roots penetrating the crevices of rocks and stones, among which the different species generally grow.

Decandria. Digynia.


a. leaves hairy on both sides, their under surface beautifully reticulated with purple.

b. leaves glabrous on both sides, more sharply toothed. *S.*
Saxifraga.] SAXIFRAGEÆ. 65


γ. leaves light green, glabrous and shining, sharply toothed. Robertsonia polita, Haworth.

δ. leaves hairy on both sides, smaller than in any of the preceding; flowers cream-coloured, spotless; scape slender.


2. S. elegans. Smoll round-leaved Saxifrage. Leaves orbicular, smooth, shining; footstalks linear (flat above), hairy on the edges, about the same length as the leaves; scape panicked; capsule superior; flowers spotted with red.—S. Geum. δ. Hooker, Br. Fl. 1. p. 191.

Found on a rock on the summit of Turk Mountain, Killarney, in 1805. Fl. May, June. 2.—Readily distinguished from every other species and variety of the group to which it belongs by its stellate form, and round, smooth, shining leaves, which have short and flattened footstalks. It is, from its low mode of growth, the best suited for edgings of any of the London Pride tribe. I have cultivated this plant since 1807, and it has always retained its original appearance. I have, therefore, for the present ventured to give it the rank of a species, until I have an opportunity of studying its characters more fully, by raising it from seed.


On fragments of rocks at the Gap of Dunloe, near Killarney, 1805. Fl. May—June. 2.—Larger than S. Geum, to which species it is nearly allied. Leaves roundish, oval, always longer than they are broad, with copious, rather acute serratures, the terminal tooth broad and short; upper surface perfectly smooth, deep green, the under one purplish, slightly hairy. Footstalks linear throughout, channelled, very hairy, tapering from the base upwards. Panicle hairy and viscid, much branched, indistinctly forked, the earliest flowers from the forks. The variety mentioned by Don and Smith, with roundish heart-shaped leaves, is not of Irish growth, and is probably only a variety of S. Geum. I had it sent me, many years ago, from the Oxford Gardener, and from the Rev. W. T. Bree. Our Irish plant exactly agrees, in every respect, with the specimens of S. hirsuta in the Linnean Herbarium.

β. leaves roundish with sharp tooth-like serratures; footstalls elongated. *S. punctata*. Haw. (not of Linu.) or Willd. (Smith.)


Plentiful in the woods at Glengariff, near Bantry, and on Connor cliffs, near Dingle. β. On the bare summit of Curan-Tuhol, the highest mountain in Kerry, Mountains of Cunnamara, on Milrea and Crouch Patrick, County of Mayo. On Muckish, one of the highest mountains in Donegal; Mr. Templeton and Doctor Hooker. γ. Gap of Dunloe, near Killarney, 1803.—The variety χ. assumes a very different appearance, when growing in low sheltered situations, from the var. β. which is always found at very considerable elevations. The var. γ. is a well marked variety, and does not alter by cultivation. It is readily distinguished by its light green leaves, which are acutely serrated, and have frequently small sharp intermediate teeth between the larger serratures. *Fl. June*. 2.


Wet rocks, and by the sides of rivulets in several of the Dublin and Wicklow mountains, as well as in the southern and northern counties. *Fl. June—Aug*. 2. —Leaves with coarse teeth. Whole plant slightly hairy. *Flowerstalk* two to five, or six inches high, with a minute *bractea* at each ramification of its small *panicle*. Flowers white, with two yellow spots at the base of each, somewhat clawed petal.

**Calyx partly or entirely inferior. Stem leafy. Leaves undivided.**


Moist alpine rocks. Mountains in Joyce-country, near Lough Corrib, 1807. —Mountains of Emmishowen; R. Brown, Esq. LL. D. On Benyevena, County of Derry; Mr. D. Moore. *Fl. April—June*. 2. —Grows in straggling tufts, with a habit quite different from that of any other British or Irish Saxifrage. *Flowers* large in proportion to the size of the plant, purple, very beautiful. The leaves are retuse, ciliate, and have a pore at the extremity. *Capsule* half inferior. One of the greatest ornaments of our rock-works in spring.


In an extensive marsh three miles from Cloghjordan, County of Tipperary; Mr. J. Hodgens, nurseryman, who sent me a plant; the only
place in Ireland where it has yet been found. *Fl. Aug. 2.*—This again, like the preceding, (as Doctor Hooker remarks,) is very different from any other British species, though approaching in some particulars to the following. *Flowers* yellow, large, solitary. *Petals* almost elliptical. It is singular that this plant, which Doctor Hooker found in Iceland, should not be found in the north of Ireland, nor in Britain further north than Berwickshire.


Cliffs on Ben Bulben, County of Sligo, and on Connor cliff's, near Dingle. *Fl. July—Sept. 2.*—Five to seven inches high, or more, branching below. *Flowers* panicked, subcorymbose, bright yellow; each *petal* beautifully spotted with orange.

***Calyx*** spreading. *Leaves* more or less lobed. *Flowering-stems* erect, more or less leafy.


In meadows and pastures, on a gravelly or sandy soil. On ditch banks between Baldoyle and Portmarnock, where it was first observed by Doctor Taylor. Spring-hill, near Moneymore, County of Derry; *Mr. D. Moore. Fl. May. 2.*—*Root* consisting of numerous, small, clustered *tubers*. Stem eight to twelve inches high, hollow, viscid, loosely hairy, simple and leafy below, panicked at the top. *Leaves* mostly radical, glabrous; *petioles* glandular. *Flowers* large, white. *Germen* and *capsule* half inferior. The double white Saxifrage of the gardens is a variety of this.


On old walls and thatched roofs, frequent. Walls near Stillorgan, and on Feltrum-hill. On Corrigaguynel Castle, near Limerick, and on basaltic rocks, at Down hill, County of Derry; *Mr. D. Moore. Fl. May. 2.*—Two to four inches high. Whole plant covered with viscid hairs. *Petals* small, pure white, scarcely longer than the segments of the *calyx*. *Capsule* almost wholly inferior.

11. *S. cespitosa*, Linn. Tufted Alpine Saxifrage. "Radical leaves crowded, 3—5-cleft, obtuse, veiny, fringed, lowermost undivided; flowers from one to five or more; *germen* half inferior, hairy; *calyx* smoother, obtuse; *petals* rounded, triple-
SAXIFRAGEE. [Saxifraga.]


Lofty mountains. On a rock near the summit of Brandon Mountain, at the Pilgrim's Well, along with S. incurvijolia, in 1805, and having cultivated them ever since. I can now see no difference between them, unless the more incurved leaves of the latter should constitute it a variety, the notching in the petals not being constant. The specimens which I found on the summit of Brandon had only one flower on each stem, but plants brought from thence and planted in a garden produced, in the following year, from five to nine flowers. The plant forms small dense tufts. *Radicle leaves* numerous, crowded above, fringed with soft glutinous hairs. A few of the lower ones are linear, those above divided into three or five rather broad obtuse segments, sometimes a little incurved. The *S. palmata* of E. Bot. now considered only a variety of this; I have not found in Ireland; the plant I found on Galtymore being *S. hirta* of E. Bot. which has sometimes been mistaken for it. *Fl. May, June.* 2d.


On moist rocks near the summit of Galtymore, County of Tipperary, and on Curan Tuhol, County of Kerry. *Fl. May, June.* 2d.—Forming large tufts, and, in both the wild and cultivated state, always of a more lax mode of growth than any of the *vars.* of *S. cespitosa.* The **shoots** and **flowerstalks** are weak and straggling, the latter generally producing only three flowers, the centre or first flower much lower than the others, which have the flowerstalks much lengthened. The **leaves**, which have broad footstalks, are deeply divided or fringed; the lobes three or five-cleft, the two outer ones, in the latter case, less separated, all elliptical, acule, entire, fringed like the shoots with long white hairs. The fig. in E. Bot. is an excellent representation of the plant.


Found on Brandon, very sparingly on the same rock with *S. cespitosa.* *Fl. May, June.* 2d.—*Herb* bright green, densely tufted before flowering, afterwards throwing out many procumbent, lax, reddish, distantly leafy shoots, several inches long; the whole besprinkled with soft, slender, glutinous hairs. **Leaves** much elongated and tapering at the base, fringed, and otherwise somewhat hairy, divided about one-third their length into three lobes, the lateral lobes of the radical leaves especially cloven; all of them linear, or slightly lanecolate, acule, partly bristle-pointed. In habit resembling *S. hirta,* and like it, producing only three or four flowers on each stalk.

14. *S. hypnoides*, Linn. *Mossy Saxifrage.* Radical leaves 3 or 5-cleft, those of the procumbent shoots undivided, or 3-cleft, all bristle pointed, and more or less fringed; segments of
the calyx ovate, pointed; petals roundish or obovate, 3-ribbed with or without lateral veins. *E. Fl. v. ii. p. 272.—S. elongella, E. Bot. t. 2277.—S. platypetala, E. Bot. t. 2276.*

Abundant on all the limestone mountains in the County of Sligo, and on the Antrim coast. Fl. May, June. 2.—Our Irish plant exactly agrees in character with that of *S. hypnoides*, so abundant on the limestone rocks near Buxton and at Dovedale, in Derbyshire, but does not correspond with the fig. and description of that species in *E. Bot.* which appears to be *S. angustifolia* of *Haw. in Miss. Nat.* In it the leaves of the trailing shoots are undivided, and is, I believe, the plant that grows on Arthur’s Seat, near Edinburgh.—*Leaves* on the lower part of the procumbent shoots entire or mostly three-cleft, crowded above, where they are also deeply three-cleft; the middle segment is entire, the two lateral ones are each again divided into two, sometimes three or four less deeply parted segments; (these characters apply to its appearance in autumn.) When I first observed this plant, on a hill near Sligo, nearly thirty years ago, in the autumn, I found late single-flowered specimens exactly corresponding with the fig. in *E. Bot.* of *S. elongella*; but plants brought from thence produced in the following year, and ever since, from three to five flowers on each stem. Plants got from Scotland about the same time for *S. elongella* are in no respect different from it.

**ORD. 22. SALICARIE. Juss. Loosetriefe Family.**

Calyx monopetalous; the lobes with a valve or separate aestivation; their sinuses sometimes lengthened into lobes. Petals inserted between the lobes of the calyx, very deciduous. Stamens inserted into the tube of the calyx below the petals, to which they are sometimes equal in number; sometimes they are twice, or even thrice, and four times as numerous; they are seldom four; anthers innate, 2-celled, opening longitudinally. Ovarium superior, 2-or 4-celled; style filiform; stigma usually capitate. Capsule membranous, covered by the calyx, 1-celled, dehiscing either longitudinally or in an irregular manner. Seeds numerous, small, without albumen, adhering to a central placenta; embryo straight; radicle turned towards the hilum; cotyledons flat and leafy.—*Herbs, rarely shrubs. Branches frequently 4-cornered. Leaves opposite, seldom alternate, entire, without either stipula or glands. Flowers axillary, or in spikes or racemes.*

1. **Peplis. Linn. Purslane.**

Calyx campanulate, with six large and six alternating small teeth. Petals six, inserted upon the calyx, often wanting. Capsules superior of two cells, and many seeds.—*Name from πεπλων, aneciently applied to the genus Portulaca, now to one somewhat similar in habit.*

Hexandria. Monogynia.

1. *P. Portula, Linn. Water Purslane.* Flowers axillary,

Watery places, not unfrequent. Plentiful on Howth, and about Roundwood, &c. *Fl.* July, Aug. p.—Plant prostrate, five to six inches long, creeping, little branched. Leaves opposite, glabrous, tapering at the base.


Calyx inferior, tubular, with 12 teeth, alternately smaller. Petals six, inserted upon the calyx. Capsule oblong, 2-celled.—Name ιοδος, blood, it is said from the red colour of the flowers. Dodecandria. Digynia.


Sides of watery and marshy places, frequent. *Fl.* July. 2.—Two to three feet high, erect. Stems four sided. Spikes very long, of beautiful purple flowers. Calyx striated. Petals oblong, cruciform. Stamens within the tube of the calyx, six long and six short ones.


Moist and occasionally inundated places. Ballymadder, near Ban- now, County of Wexford; James Tardy, Esq. *Fl.* Aug. p.—Stems mostly recumbent, leafy, the central one upright, four to six inches high.

Ord. 23. RHAMNEÆ. Br. Buckthorn Family.

Calyx 4—5-cleft, with a valvate revestivation. Petals 4—5, (rarely wanting,) alternate with the calycine lobes, often scalelike, with a coneave or cucullate limb. Stamens 4—5, opposite to the petals, consequently alternate with the calycine lobes; anthers 2-celled. Ovary sometimes wholly adnate with the calyx, sometimes adherent only with the base or as far as the middle, 2—4-celled; cells with one ovule: style 1; stigmas 2—4. Pericarp often indehiscent, a berry, drupe or samara, rarely a capsule. Seeds erect, destitute of arillus. Albumen none, or often fleshy. Embryo straight. Radicle inferior: cotyledons somewhat foliaceous.—Shrubs or small trees. Leaves simple, alternate, rarely opposite, frequently stipulate. Flowers small, often greenish.


Woods, hedges, and thickets. Islands in Lough Erne, near Enniskillen. On a limestone rock east side of the Lee, two miles above Cork; Mr. J. Drummond. Fl. May, June. 17.—A spreading shrub. Leaves with four or six lateral nerves parallel with the margin or rib; *serratures* glandular. Flowers in dense fascicles. Berries black, nauseous, powerfully cathartic. They afford a yellow dye in an unripe state; the bark a green dye. "Seeds ovate, acute at the lower extremity, rounded at the back, with two flat sides, forming the internal angle. *Embryo* with kidney-shaped *cotyledons*, laterally bent, surrounded by the albumen." (Wilson.)


In a small island called the Creagh Bog in Lough Beg, County of Derry, along with the last; Mr. D. Moore. Fl. May. 17.—A small shrub. Flowers pedunculate, axillary, somewhat fascicled, whitish-green. Petals very minute. Berries dark purple, with two seeds, purgative.


Sepals 4—6, imbricated in aestivation. Petals cohering at the base, hypogynous, imbricated in aestivation. *Stamens* alternate with the petals, inserted into the corolla; filaments erect; *anthers* adnate. Disk none. Ovarium fleshy, somewhat truncate, with from 2—6 cells; ovula solitary, pendulous, from a cup-shaped *funiculus*; stigma subsessile, lobed. Fruit fleshy, indehiscent, with from 2 to 6 stones. Seed suspended, nearly sessile; albumen large, fleshy; embryo small, 2-lobed, lying next the hilum, with minute cotyledons, and a superior radicle.—*Trees or shrubs.* Leaves alternate or opposite, coriaceous. Flowers small, axillary, solitary or fascicled.


*Calyx* 4—5 toothed. *Corolla* rotate, 4—5 cleft. *Stigmas* 4, sessile. *Berry* spherical, including four 1-seeded nuts. (Some
flowers destitute of pistil).—Name from *ac, sharp*, in Celtic, according to Theis, but this is a very forced derivation.

Tetrandria. Tetragnymia.


Frequent in hedges and woods, especially in a light and gravelly soil. *Fl.* May, June. *H.*—A small evergreen tree of great beauty, with smooth greyish bark. *Leaves* alternate, deep shining green, very rigid, the upper ones often quite entire, the lower ones generally edged with long sharp spines. The flowers are somewhat umbellate, and spring from the axils of the leaves. *Calyx* slightly hairy, small. *Corolla* white. *Berries* bright scarlet, (in one variety they are yellow.) Excellent for fences, as it bears clipping. The wood is hard and white, and presents a beautiful surface; whence it is much employed in turner's work, for making drawings upon. It is also used in inlaying and veneering, and for knife handles. Bird-lime is made from its mucilaginous bark. Houses and churches are decorated at Christmas with branches containing the leaves and berries, as is also the case with the Mistletoe in the southern parts of England—a relic probably of Druidism, during the prevalence of which, according to Dr. Chandler, houses were decked with them, that the sylvan spirits might repair to them, unnipt by frost and cold winds, until a milder season had renewed the foliage of their darling abodes.—Many elegant varieties of this ornamental tree are cultivated in the gardens and plantations of the curious, of which a few may be mentioned, viz.—the plain Dutch Holly, the small myrtle leaved, the Scotch Dahoon, and the narrow-leaved or Swinard's Holly; besides many beautiful varieties with variegated leaves, several of which were first found in a wild state by Mr. R. Hodgens, Nurseryman, Dunganstown, County of Wicklow.

Ord. 25. CELASTRINEÆ. *Br.* Celastrus Family.

Sepals 4—5, combined at the base, distinct from the ovary, with an imbricated aestivation. Petals 4—5, alternate with the sepals, rarely none. *Stamines* 4—5, alternate with the petals, with a doubtfully perigynous insertion; anthers 2-celled. Ovary free, surrounded by a somewhat fleshy disk, 2—3—4-celled; cells 1—or many-seeded: ovules erect, rarely pendulous: style 1 or wanting: stigma 2—4-cleft. Pericarp a capsule, berry, drupe or samara, various in form, often deformed by the suppression of some of the cells. Seeds generally, especially in the capsular fruits, arillate. Albumen none, or fleshy. Embryo straight.—*Shrubs* or *trees*. *Leaves* usually simple, often stipuled, alternate or opposite. *Flowers* white or greenish.


*Calyx* flat, 4—5-cleft, having a peltate disk within. *Petals* 4—5. *Stamens* alternating with the petals, inserted upon glands at
the margin of the disk. Capsules with 3—5 angles, and as many cells and valves. Seeds with a coloured fleshy arillus.—Named from Euonyme, Mother to the Furies, in allusion to the injurious effects of the fruit produced by this plant.

Pentandria. Monogynia.


Abundant on limestone rocks near Galway, and at the Dargle, &c. On inaccessible cliffs on Cave-lull, near Belfast; *Mr. F. Whitla, Fl.* May. h.—Shrub three to five feet high. *Leaves* glabrous. **Peduncle** bearing a few-flowered *umbel.* **Flowers** small, white. **Fruit** obtusely angular, very beautiful, rose-coloured. **Arillus** orange-coloured. The *berries* and even *leaves* are said to be dangerous, and the whole plant is fetid. Of the tough white wood skewers and spindles are made, and Linnaeus tells us it affords the best charcoal for drawing.


Calyx 5-parted, toothed or cleft, free, with the odd segment anterior, the segments often unequal and variously combined. Petals 5, or, by imperfection, 4, 3, 2, 1, or none, inserted into the base of the calyx, either papilionaceous or regularly spreading, the odd petal posterior. Stamens definite or indefinite, perigynous, either distinct or monadelphous or diadelphous, very seldom triadelpous; anthers versatile. **Ovary** simple, superior, 1-celled, 1—or many-seeded; style simple, proceeding from the upper margin of the ovary; stigma simple. Fruit either a legume or a drupe. Seeds attached to the upper suture, solitary or several, occasionally with an arillus; embryo generally destitute of albumen, straight or with the radicle bent upon the cotyledons; cotyledons either remaining under ground in germination, or elevated above the ground and becoming green, like leaves.—**Shrubs, trees, or herbaceous plants.** **Leaves** compound, with stipules at the base of the petiole and of each leaflet. Petiole usually tumid at the base. **Flowers** axillary, either solitary, or in racemes or panicles.

One of the most extensive, and at the same time the most important, on account of its useful products, of all the Natural Orders. Many of them yield food for man; others for cattle.

§ *Lotex.* De Cand.

Corolla papilionaceous. Stamens either monadelphous or diadelphous. Pod continuous, 1-celled, or occasionally 2-celled, in consequence of the bending inwards of one of the sutures.
Cotyledons in germination, rising above the ground, and acquiring a green colour.

1. **Ulex. Linn. Furze.**

*Calyx* of 2 sepals, with a small scale or bractea on each side at the base. *Legume* turgid, scarcely longer than the *Calyx.*—Name; according to Theis its root is *ec* or *ac,* a *sharp point,* in Celtic: whence too arises the French name *ajonc* or *acjonc,* a *sharp or spiny rush.* *Diadelphia. Decandria.*

1. **U. europaeus, Linn. Common Furze, Whin or Gorse.** Calyceine teeth obsolete, connivent; bracteas ovate, lax; branchlets erect. **Br. Fl.** **1. p.** **318.** **F. Fl.** **v.** **iii. p.** **265.** **E. Bot. t.** **742.**

Heathy places, especially in sandy or gravelly soils. *Fl.* **April,** May. **74.**—Shrub three to four or more feet high, with innumerable green striated branches, clothed with acute branching spines, having a few leaves at their base, which are lanceolate, a little hairy, very minute. *Calyx* pubescent. *Corolla* bright yellow.—The *Ulex strictus* of Mackay’s *Cat. of Irish plants,* now well known in collections as the Irish furze, appears to be a variety of *U. europaeus.* It is readily distinguished by its compact and upright mode of growth and soft texture, but it rarely produces flowers. It is readily propagated by cuttings, and makes a neat close hedge, where shelter only is required. It was first observed to grow sparingly in the Marquis of Londonderry’s park, County of Down, above thirty years ago, by Mr. John White.

2. **U. nanus, Forst. Dwarf Furze.** Teeth of the calyx lanceolate, spreading; bracteas minute, close pressed; branches reclining. **Br. Fl.** **1. p.** **318.** **E.Fl. v.** **iii. p.** **265.** **E. Bot. t.** **742.**

Dry heaths and hilly places, frequent. *Fl.* in autumn. **74.**—Smaller than the last in all its parts. The essential character, according to Sir James E. Smith, consists in the more distinct and spreading *calyx-leaves,* and the more minute, rounded, close pressed, and often hardly discernible bracteas.

2. **Genista. Linn. Green-weed.**

*Calyx* 2-lipped, upper lip with two deep segments, lower one with three teeth. *Standard* oblong. *Legume* flat or turgid, many-seeded.—Name; from *Gen,* a shrub, in Celtic. *Diadelphia. Decandria.*

1. **G. tinctoria, Linn. Dyer’s Green-weed.** Unarmed, erect; leaves lanceolate, nearly glabrous; branches rounded, striated; flowers spicato-racemose; legumes glabrous. **Br. Fl.** **1. p.** **319.** **E. Fl. v.** **iii. p.** **263.** **E. Bot. t.** **44.**

Thickets and borders of fields. Between Killiney Hill and Bray; *Doctor Allman*; where I have since observed it. *Fl.* **July,** **Aug.** **74.**—One to two feet high. *Leaves* rather distant. *Flowers* on short axillary stalks, crowded about the summits of the branches. The
whole plant affords the dyer a good yellow colour, and with woad a good green. (Smith.) Ray says the milk of cows feeding upon it is rendered bitter, which flavour is communicated to butter and cheese.

3. Cytisus. Linn. Cytisus or Broom.

Calyx 2-lipped; the upper lip nearly entire, or with two small teeth, lower one 3-toothed. Standard large, broadly ovate. Keel very blunt, including the stamens. Legume flattened, many-seeded.—Name; kútios, of the ancient Greeks; said to be so called because it came from the island Cythnos, one of the Cyclades. Diadelphia. Decandria.


Dry hills and gravelly places, frequent. Fl. June. ã.—Three to six feet or more high. Branches long, straight, green. Flowers large, bright yellow; keel broad. Standard and wings much spreading. Legumes large, compressed, dark brown. The young green tops are said to be powerfully purgative and diuretic; and are very bitter; is a rustic remedy for dropsies, which regular practitioners have not altogether despised.


Calyx inflated, 5-toothed. Petals nearly equal in length. Legume oval, 1—3-seeded, enclosed in the permanent calyx.—Name; avóos, a flower, and iovós, a beard or down, from the downy calyces. Diadelphia. Decandria.


Dry gravelly banks and pastures, frequent. With red and sometimes white flowers by the sea side at Ballylickey, near Bantry, where I gathered it in 1805. Fl. June—Aug. ã.—Stem ascending. Leaflets five to nine, lanceolate, entire, hairy, terminal one the largest. Flowers in crowded heads, mostly yellow, with hairy calyces, and digitate or palmate large bracteas.


Calyx 5-cleft, its segments linear. Standard large, striated. Legume turgid, sessile, few-seeded.—Name; ovós, an ass, because the plant is eaten by that animal. Diadelphia. Decandria.

Barren pastures, borders of fields, and by the sea-side. Fl. June—Aug. 2. — A very variable plant, erect, or procumbent and rooting, more or less spinous. Leaves ovate or cuneate. Flowers rather large, rose-coloured, sometimes white. Smith enumerates three vars. and De Candolle makes of them two species, *O. procurrens* and *O. spinosa*.

6. **Astragalus.** Linn. Milk-vetch.

Keel of the corolla obtuse. Legume 2-celled (more or less perfectly); cells formed by the inflexed margins of the lower suture. — Named from *ασπραγάλος*, the vertebra, in allusion to the knotted root of that individual plant to which it was formerly applied. Diadelphia. Decandria.


On the largest of the south islands of Arran; Messrs. R. Ball and Wm. Thompson, in 1804, the only place in Ireland where it has been found. Fl. July. 2.—Stem weak, a few inches in length. Leaflets elliptic-ovate, retuse, hairy. Peduncles longer than the leaves, curved upwards. Heads of flowers large in proportion to the plant, bluish-purple. Legumes ovate, acuminate, hairy.

7. **Melilotus.** Tourn. Melilot.

Legume one or few-seeded, indehiscent, longer than the calyx. Petals distinct; deciduous. Flowers racemose. Leaves ternate. — Name; mel, honey, and *Lotus*, the Genus so called. Duodelphia. Decandria.


Bushy places and salt marshes near Baldoyle, abundant. Fl. June, July. 2.


Salt marshes near Cork; Mr. J. Drummond. Fl. July—Aug. 2.
8. Trifolium. Linn. Trefoil and Clover.

Legume one or more seeded, indehiscent, shorter than the calyx by which it is enclosed, (except in T. ornithopodioides). Petals mostly combined by their claws, and persistent.—Flowers capitate. Leaves ternate.—Name, so called on account of its three leaves or leaflets. Diadelphia. Decandria.

* Legumes with several seeds.

1. T. ornithopodioides, Linn. Bird's-foot Trefoil. Stem prostrate; leaflets obcordate, denticulate; stipules lanceolate, entire, rather membranous, very acute; flowers from two to four in number; legumes rather falcate, compressed, twice as long as the calyx. Br. Fl. l. p. 327. E. Fl. v. iii. p. 298. E. Bot. t. 1047.—Trigonella ornithopodioides, De Cand. Lindl.

Sandy pastures near the sea. On the south side of Killiney Hill, and on the gravelly beach by the Murrow of Wicklow. Fl. June. ©.

—Stems spreading, from three to five inches in length. Flowers small. As Doctor Hooker observes, the long legumes, petals, and the habit of this plant does not accord with this genus, nor yet with Trigonella.


Meadows and pastures, frequent. Fl. summer months. ©.—Heads of flowers white. Each flower is on a footstalk, which becomes recurved after flowering, and then all the legumes are drooping and covered with the brown corolla. This is the Dutch clover of agriculturists, and is deservedly in great repute for pastures. It is the plant which I have observed, for the last thirty years, to be worn as the shamrock on Patrick's day. The leaflets have often a dark spot at their base, with a white line bordering it near the middle. A variety is frequently cultivated in gardens having four or five leaflets, of a dark brown colour, on each common footstalk, instead of three, the usual number.

* * * Legumes one or two-seeded. Standard deciduous or unaltered. Calyx not inflated, mostly hairy.

3. T. pratense, Linn. Common purple Trefoil, or Red Clover. Heads dense, ovate; teeth of the calyx setaceous, lower one longer than the rest, half as long as the tube of the corolla; stipules ovate, bristle-pointed; leaflets oval or obcordate; stems ascending. Br. Fl. l. p. 328. E. Fl. v. iii. p. 302. E. Bot. t. 1770.

Meadows and pastures, frequent. Fl. summer months. ©.—Flowers reddish-purple. This is the common Red Clover so much cultivated. The leaflets are oval, obovate, or obcordate, often marked with a white lunulate spot.

In dry elevated pastures and ditch banks, in a gravelly soil with a clay bottom. Frequent in Antrim; *Mr. Templeton.* On elevated ground between Larne and Glenarm. Between Dunmanway and Bandon; *Mr. J. Drummond.* The plant that has been mistaken for this growing near Dundrum, appears to be only a variety of *T. pratense.* *Fl.* July. 2.—Stem remarkably zigzag. Heads of flowers larger than the last, deeper purple. *Leaves* spotless. Inferior in point of quality to *T. pratense*, but better fitted to pasture on light soils.


Dry sandy fields and ditch banks on the coast near Kilbarrick Church, between Dublin and Howth, rather sparingly, it is also said to have been found in salt marshes on the island of Lambay. *Fl.* June, July. O.—Three to six inches high. *Stems* spreading or decumbent, branched. *Leaflets* dark green, rather narrow. *Flowers* pale purple.


Sandy fields, generally near the sea; abundant near Baldoyle and Portmarnock, near Cork, and also on the northern coast. *Fl.* July, Aug. O.—Plant pale green. *Stem* erect, branched, very hairy. *Petioles* shorter than the *leaflets*. *Flowers* pale pink or white, almost concealed by the very hairy calyx.


Gravelly or dry sandy fields. Field near Sandymount and at Kilbarrick Church. *Fl.* May, June. O.—A small spreading plant, with many terminal and axillary, sessile, ovate *heads*, very rigid in fruit. *Flowers* white, very small.


Dry fields. Gravelly bank at the Ram bog on the shore about a quarter of a mile above Carrickfergus; *Mr. Templeton*, in June, 1811. *Fl.* June. O.—From four to ten inches long, more or less pro-
cumbent or reclined, pubescent. *Flowers* small, purplish red. *Calyx* deeply furrowed, oval, a little swollen, with five, almost setaceous, straight, not recurved teeth.

*** Calyx of the fruit inflated, bladdery.***


Moist meadows, not unfrequent, in a black boggy soil. Plentiful near the lake at Sandymount, and in a salt marsh at Portmarnock. *Fl.* July, Aug. 2.—*Flowers* very small, purplish red. The heads of *flowers*, an inch in diameter, are often more or less coloured, so as not unaptly to represent a strawberry. Mouth of the *calyx*, singularly contracted when enclosing the fruit.

*** Standards deflexed, dry and membranous.***


Gravelly fields, frequent. *Fl.* June, July. Ø.—*Stem* usually from three to nine inches long; but in one variety often extending to two feet. *Leaflets* inversely heart-shaped. *Flowers* yellow, from twelve to fifteen, in each hemispherical little head.


In sandy or gravelly pastures, whether dry, or moist. *Fl.* June, July. Ø.—From three to eight inches high. *Leaflets* inversely heart-shaped, or obovate, toothed. *Flowers* yellow.


to six-flowered, supported by a floral leaf. Flowers yellow, rarely white or pink.—Name; supposed to be one of the three kinds (the herbaceous) of the Αὐτών of the Greeks.

Diadelphia. Decandria.

1. *L. corniculatus*, Linn. Common Bird’s-foot Trefoil. Heads depressed, umbellate, 8—10 flowered; stems decumbent; leaflets obovate; peduncles very long; claw of the standard inflated above.


   b. *villosus*; stem, leaves, and calyx clothed with very long spreading hairs.

Sandy fields, common. *β. moist bushy places at Dunran, County of Wicklow. Fl. July, Aug. 2.*


Sides of ditches and moist bushy places, not uncommon; plentiful at Dunran, County of Wicklow; County of Derry; Mr. D. Moore. Fl. July, Aug. 2.


In meadows towards the sea, rare. Strand near Passage, County of Cork; Mr. J. Drummond. Fl. May, June. 2.—Flowers much smaller, and general aspect very different from any of the preceding.

10. MEDICAGO. Linn. Medick.

Calyx somewhat cylindrical, 5-cleft. Keel rather distant from the vexillum. Stamens diadelphous. Pod many-seeded, variable in form, always falcate or spirally twisted.—Herbaceous plants or shrubs. Stipule usually cut. Leaves stalked, trifoliate; leaflets toothed. Peduncles axillary, with 1, 2, or many flowers. Flowers yellow or purple.—Name; the μέδεικη of the Greeks, so called, because it was introduced into Greece by the Medes.

Diadelphia. Decandria.


Dry gravelly banks and pastures, naturalized. Fl. June, July. 4.—Plentiful at Portmarnock in sandy fields. This has purple flowers and a spirally twisted pod.

Pastures and borders of fields, but scarcely indigenous. Along with the last at Portmarnock. *Fl.* June, July. Q.—Flowers yellow.


Abundant in waste grounds and cultivated fields. *Fl.* May—Aug. Q.—Much esteemed by the farmer, by whom it is known as the yellow trefoil. Very similar in habit to *Trifolium filiforme*. *Flowers* crowded, small, yellow. *Legumes* small, rugged, of a black colour when ripe.

§ **Viciae. De Cand.**

Corolla papilionaceous. Stamens always diadelphous. Pod continuous, 1-celled. Cotyledons thick, farinaceous, in germination remaining under ground, and never acquiring a green colour.

11. **Ervum. Linn. Tare.**

*Calyx* 5-cleft, with linear acute segments as long as the corolla. *Style* smooth. *Pod* oblong, 2 or 4-seeded. *De Cand.*—Name derived according to Theis from the Celtic *erw*, a ploughed field, of which it is the pest. *Diadelphia. Decandria.*


Fields and hedges, (rare in Ireland). Weir over Blackwater, near Lasaton bridge; *Doctor Osborne. Fl.* June, July. Q.—*Herb* besprinkled with fine soft hairs, especially the *flowerstalks* and *calyx*. *Stem* weak, branched from the bottom, leafy; two or three feet high, climbing. *Flowers* usually two on each stalk, rarely three or four, often solitary, drooping, small, grey, streaked with blue.


12. **Pisum. Linn. Pea.**

*Calyx* with foliaceous segments, the two upper shortest. *Vexillum* large, reflexed. *Style* compressed, keeled, villous on the
upper side. **Pod** oblong, compressed, not winged, many-seeded. **Seeds** roundish, with a roundish hilum.—*Annuals or Perennials*. Leaves abruptly pinnate, with a tendril in place of a terminal leaflet. **Stipules** large. **De Cand.**—Name; in Celtic *pis*; *pisen* plural: in Greek πισον, meaning a pea.

**Diadelphia.** Decandria.


Rare in Ireland. Sand hills, bay of Castlemain, County of Kerry. *Fl. July*. 2. —Stems a span or more in length, simple, procumbent, glaucous. **Flowers** purple, veined with crimson, in axillary, stalked clusters. This has more the habit of a *Lathyrus* than of a *Pisum*, though the style most resembles the latter.


**Calyx** tubular, 5-cleft or 5-toothed, the two upper teeth shorter than the others. **Stamens** diadelphous. **Style** filiform at nearly right angles with the ovary, villous on the upper side, and below the apex on the under. **Pod** oblong, 1-celled, many-seeded. **Seeds** with an oval or linear lateral hilum.—Climbing herbaceous plants. Leaves abruptly pinnate, with a tendril in place of an odd leaflet. **Stipules** generally sagittate. Peduncles axillarum, either long and many-flowered, or short and 1-flowered. **De Cand.**—Name; originally derived, according to Theis, from *Girig. Celtic*; *Wicken* in German; βικον in Greek; *Vexe*, in French; in English, *Vetch*.

**Diadelphia.** Decandria.

* Stalks elongated, many-flowered.


Bushy places, chiefly in mountainous countries. Gap of Gallinascorney, Devil's Glen, Glengariff, and about Bantry Bay; Mucross, Killarney, and Rostrevor woods. Magilligan, County of Derry; *Mr. D. Moore. Fl. July*, Aug. 2. —Stems three to six feet high, climbing by means of its branching tendrils. **Leaflets** six to eight or ten pairs. **Flowers** very beautiful, numerous, white, streaked with bluish veins. One of our most elegant wild climbing plants, well worthy of cultivation.


Bushy places, frequent. *Fl. July*, Aug. 2. —Two or three feet high, climbing. **Flowers** numerous, crowded, drooping, and imbricated, of a fine bluish purple.
* * Flowers axillary, nearly sessile.


Cultivated grounds and corn fields, frequent. Fl. June. O.—One foot or more high. Leaflets variable in height and in number, from two to six pairs or more on a petiole. Flowers large, purple, and blue or red. Legumes more or less downy, erect. A valuable plant as early fodder for horses and other cattle, and will bear cutting three or four times throughout the season, if judiciously managed.


Sandy coast of Magilligan; Mr. D. Moore. Fl. June. O.—Nearly allied to the last species.


Sandy fields between Clontarf and Baldoyle, and in old gravel pits in the Phoenix Park, and many other places, not uncommon. Fl. April, May. O.—Root fibrous, beset with minute fleshy tubercles. Stems several, procumbent in opposite directions, branched at the bottom only, three or four inches long, angular, leafy, finely downy like the rest of the herbage. Footstalks channelled, each ending in a very short simple tendril or none at all.


Woods and shady places, frequent. Fl. May, June. O.—Stems about two feet high, angular, smooth, but little branched, supported upon other plants by the branching tendrils of the leaves. Leaflets numerous, ovate, obtuse, thin, hairy, gradually smaller towards the end of each stalk. Stipulae more or less ternate and toothed. Corolla variegated with blue, purple, and greenish white, rarely pure white.


Calyx campanulate, 5-cleft, the upper lobes the shortest. Stamens diadelphous. Style flat, dilated at the end, villous or pubescent in front. Pod oblong, many-seeded, 2-valved,
1-celled. Seeds round or angular.—Climbing herbaceous plants. Stipules half sagittate. Leaves abruptly pinnate, of from one to three pairs, with a tendril in the place of the terminal leaflet. Peduncles axillary. De Cand.—Name λαθυρος, a Leguminose plant of Theophrastus. Diadelphia. Decandria.


Moist meadows, pastures, and bushy places, frequent. Fl. July, Aug. 4.—Stems two to three feet long, climbing. Flowers yellow. Cattle are said to be very fond of this common plant.


In boggy meadows. A plant which the late Mr. Templeton supposed to be this, was found by him in a moist meadow a little north of where the Lagan Canal enters Lough Neagh, but I have not seen any Irish specimens. Fl. July, Aug. 4.—Stems two to three feet high, climbing. Leaflets about two inches long. Flowers bluish purple.


Calyx campanulate, 5-cleft, the 2 upper lobes the shortest. Stamens diadelphous. Style slender, linear, villous at the end. Pod cylindrical, oblong, 1-celled, 2-valved, many-seeded. Seeds with a linear hilum.—Erect herbaceous plants. Stipules half sagittate. Leaves abruptly pinnate, with a short simple seta in place of the terminal leaflet. Racemes axillary, stalked. De Cand.—Name; opω, to strengthen or invigorate, and βος, an ox, yielding food for cattle. Diadelphia. Decandria.

1. O. sylvaticus, Linn. Wood Bitter-vetch. Stem branching, decumbent, hairy; leaves hairy, of many pairs; leaflets ovato-lanceolate, acuminate; stipules half sagittate; peduncles many-flowered, scarcely so long as the leaves; teeth of the calyx unequal, short; pod ovate, stalked. Br. Fl. 1. p. 321. E. Fl. v. iii. p. 272. E. Bot. t. 518.

Woods and bushy places, rare in Ireland. I received specimens of this plant from a wood within four miles of Cloghjordan, King’s County, where it was first observed by Mr. Robert Hodgens, nurseryman. Fl. July. 4.


In mountainous pastures, thickets, and woods, frequent. Roots tuberous, having somewhat the flavour of liquorice, and is said to be
often eaten by the Highlanders, by whom it is known by the name Corneille. Stem one foot high, winged. Flowers in long-stalked axillary racemes, purple-veined. Legume long, pendulous, cylindrical, black.

§ Hedysarea. De Cand.

Corolla papilionaceous. Stamens usually monadelphous; sometimes diadelphous, 1 and 9, or 5 and 5. Legume divided transversely into 1-seeded joints. Cotyledons thin, in germination rising above the ground, and acquiring a green colour.


Legumes somewhat cylindrical, curved, of many close, single-seeded joints. Keel very small.—Name; opris, opuis, a bird, and πους, a foot, from the similarity of the seed-vessels to a bird's-foot.

Diadelphia. Decandra.


Sandy and gravelly soils. On the bare grassy pastures on the Sutton side of the Hill of Howth, above Mrs. Hannyngton's house, and near the coast immediately under it, in great quantity. Fl. June. —Stems from two to six inches high, much branched at the base and spreading. Leaflets oval. Flowers white, with red lines.

Ord. 27. ROSACEÆ. Juss. Rose Family.

Sepals 5, below more or less combined into a tube, and thence 5-lobed, generally persisting, free or adherent with the ovary. Petals of the same number, rarely wanting, inserted upon the calyx; æstivation imbricated, mostly regular. Stamens inserted with the petals, usually indefinite; filaments with an incurved æstivation; anthers 2-celled, opening longitudinally. Carpels numerous, sometimes reduced and solitary, sometimes united among themselves, or with the tube of the calyx into one. Ovaries 1-celled. Styles simple, dilated upwards into variously formed stigmas, frequently lateral, distinct or rarely combined. Seeds 1—2, rarely more in each carpel, erect or inverted, without albumen (except in HirteHa and Neillia). Embryo straight: cotyledons leafy or fleshy.—Herbs or trees. Leaves alternate, simple or compound, with two stipules at the base. Inflorescence various.


Follicles several, invested by the calyx. Seeds from one to six, suspended from the inner edges of the follicle.

Calyx 5-cleft, persistent. Stamens from 10 to 50, inserted along with the petals upon a disk adhering to the calyx. Follicles one or several, distinct, or occasionally cohering by the base. Seeds from 2 to 6.—Name, supposed to be the σπηρεία of Theophrastus. Icosandria. Monogynia.


Woods and hedges, but scarcely indigenous. Hedges near Dundrum. Fl. July. 5.—A small branching shrub. Flowers in crowded racemes, rose-coloured. A well known plant in gardens, of which there are several varieties, one of which has white flowers, and another has the flowers in large panicles.


Meadows, banks of ponds and ditches, frequent. Fl. July. 2. Stems two to three feet high, branched upwards. Leaflets acuminate, very large, especially the terminal (generally) three-lobed one, alternate ones minute. Flowers yellowish-white, numerous, sweet scented.


Fruit a solitary drupe, containing one or two seeds, hanging from the top of their cell. Calyx deciduous.—Trees or shrubs, with simple stalked leaves, glandular petioles, and distinct stipules. All the parts abound in prussie acid.

2. Prunus. Linn. Plum and Cherry.

Calyx inferior, 5-cleft. Petals 5. Nut of the Drupe with slightly prominent seams.—Name προωνη in Greek, according to Theophrastus. Icosandria. Monogynia.

* Fruit covered with bloom. Young leaves convolute.


Woods and hedges, occasionally, scarcely wild. Hedges in the
County of Derry; Mr. D. Moore. Fl. May. 17.—The original stock of the plums of our gardens.


Woods and hedges. Hedges near Merrion. Fl. May. 17.—Small tree, having black globular fruit, with a fine bloom, sometimes of a waxy yellow.


Hedges and coppices, frequent. Fl. April, May. 17.—Resembling the last, but much smaller in all its parts, and the branches are more crooked and spinous. Fruit small, very austere.

**Fruit without bloom. Young leaves conduplicate.**


Woods in the northern counties. Side of the Faughan river; County of Derry; Mr. D. Moore. In the Deer Park at Glenarm. Fl. May. 17.—A small tree with acute leaves, doubly serrated; Flowers white. Drupes small, black; nut rugose.


Woods. Fl. May. 17.—The late Mr. Templeton observed the small red-fruited wild Cherry, which he supposed to be the Prunus Cerasus of Linnaeus, growing abundantly on the banks of Lough Neagh, and many other places in the north of Ireland. He also observed the small black fruited wild Cherry, growing on the banks of Lough Neagh more sparingly. The black fruited variety he supposed to be the true Prunus Avium of Linnaeus. Both kinds are well known in Scotland as the red and black Geen. The fruit of the latter is sweet and much prized, the former is very acid, and Mr. Templeton states it is not eaten by birds. To the black fruited variety he supposed all our cultivated Cherries belong, except, perhaps, the Morella, which he thought might belong to the other.

§ 3. Fregariaceae. Richard. (Dryadeæ Vent.)

Fruit consisting either of small dry nuts or succulent drupes, inserted on a common receptacle, and invested with a dry permanent calyx. Calyx either 4— or 5-cleft, sometimes bearing bracteoles on its tube, equal in number to the segments, and alternate with them. Petals 5. Seed solitary, erect, or in-
verted.—Mostly herbaceous plants, very seldom shrubs; leaves usually compound; stipules adhering to the petiole.


Calyx 5-cleft. Petals 5. Fruit superior, of several-seeded juicy drupes, placed upon a protuberant spongy receptacle.*—Name of uncertain origin; perhaps from the Latin ruber, or the Celtic, rub, red. Icosandria Polygynia.

* Leaves pinnate.

1. R. idaeus, Linn. Raspberry. Leaves pinnate, with five or three leaflets white and very downy beneath; footstalks channelled; stems nearly erect, downy and prickly; flowers drooping; petals as short as the calyx. Br. Fl. 1. p. 245. E. Fl. v. ii. p. 407. E. Bot. t. 2443.

Woods, ditch banks, and elevated subalpine cliffs, especially in the northern counties. Devil’s Glen, County of Wicklow. On the side of the road called the Path, between Larne and Glenarm, and on elevated rocky hills near Florencecourt, County of Fermanagh. Fl. May, June. h. —Stem woody. Leaflets somewhat cut and serrated. Fruit scarlet, in a wild state.

* * Leaves digitate or pedate.

1. Stem (mostly) biennial, woody.

a. nearly erect, not rooting.


At the upper end of Sir Francis M’Naghten’s Deer Park, Newtownlimavady, and other places in the County of Derry; Mr. D. Moore. County of Cork; Mr. J. Drummond. Near Headford, County of Galway; Mr. Shuttleworth. β. Near Clady and Kilrea,

* The descriptions of the species in this difficult genus, as well as those of the roses, are mostly taken from Hooker’s British Flora, and were chiefly drawn up by Mr. Borrer, to whom Mr. Moore sent specimens of the more doubtful species and had his opinion of them.
County of Derry; Mr. D. Moore. Fl. June—Aug. 7.—Stem a little angular, mostly green, tinged with red above, the angle on the under side the largest, seldom hairy, but covered with minute black glands, particularly on the under surface and near the tops of the young shoots, which are nearly upright, and only bent a little at the extremities. Leaves pale green, rather rugose and slender, generally quinate, unless those near the flowers, which are mostly in threes, the upper one single. Petals small, pale white, rather long and narrow. Fruit seldom more than six in a cluster, small, bright red when ripening, black when ripe. β. Whole plant stouter, more prickly, with shoots more angular and decurved.

b. Stem archec or prostrate, rooting.

a. Prickles nearly uniform, confined to the angles of the stem.


Hedges in the County of Derry, frequent; Mr. D. Moore. Hedges on the road-side between Belfast and Comber. Fl. July, Aug. 7.—Stem strong, decurved, somewhat zigzag, green below and purple towards the points. Prickles strong, decurved with yellow points, those at the bottom of the shoot small, green, and almost straight. Leaflets quinate, of a greyish colour, on long footstalks, especially the terminal one, cordate, with pretty long sharp points, irregularly cut and undulated, smooth above; hairy beneath and along the edges. Panicle compound, spreading and leafy, often very large, with many hooked prickles. Sepals long, with green points, woolly, and sometimes a few setae. Petals obovate and notched at the point, sometimes white, but tinged with purple. Fruit large, black when ripe.


Hedges and thickets in the more open districts. β. On a hedge bank about two miles south of Bray-head, where it was first pointed out to me by Mr. Robert Hodgens. Fl. Aug. Sep. 7.—Stem shrubby, of a dark red or purple, strongly angular, with intermediate furrows, tough and woody, biennial or often perennial, the barren ones smooth, archec, and, when coming in contact with loose earth, taking root at the extremity; the others erect and slightly downy at
the upper part. Prickles numerous on the angles of the stem, sharply and strongly hooked, reddish. Leaves firm and durable, almost evergreen, of five oblong acute (or abruptly acute) or pointed, sharply and unequally serrated leaflets; which are dark green, smooth, or slightly hairy above; snow white, finely downy, and strongly veined, with a prickly rib beneath; the terminal one largest, with a long partial stalk; two next with much shorter partial stalks, each of which bears a considerably smaller, nearly sessile leaflet, so that the whole leaf is strictly pedate, the uppermost on the flowering stems only being ternate, or even simple. On the same branch are sometimes seen a few leaves, that are pale green at the back and merely hairy, not at all cottony or white. Footstalks in some degree hairy, all beset with strongly hooked prickles. Stipules bristle-shaped, hairy, in pairs upon each footstalk near the base. Clusters erect, oblong, rather densely panicled, twice compound, many flowered; their branches and stalks rather angular, white, and finely downy, without glandular hairs. Bracteas solitary, linear-lanceolate, white or hoary. Flowers erect, handsome. Calyx downy all over, reflexed in the flower as well as in the fruit, destitute of prickles and of glandular hairs. Petals of a delicate pink, white in the var. with white fruit. Berry nearly globular, of a sweet mawkish flavour, ripening late in autumn, a month later than R. corylifolius.

β. Prickles various, not confined to the angles of the stem.

5. R. Koehler, W. and N. Koehler's Bramble. Stem decurved, somewhat angular and furrowed, hairy, glandular, se- tose; prickles numerous, unequal, curved and straight; leaves digitate, of five-stalked, ovate or elliptical leaflets; panicle much divided, somewhat corymbose. Br. Fl. 1. p. 247. E. Bot. Suppl. t. 2605.—R. glandulosus, E. Fl. v. ii. p. 403 (excl. syn. of Bellardi, and perhaps the others.)

Hedges near Newtownlimavady; Mr. D. Moore. Fl. July, Aug. 17.—Stems green in the shade, red when exposed, decurved, or even prostrate, (scarcely arched unless supported,) very variable in size and length, and in the prominence of its angles. Prickles copiously scattered on every part of the stem, as well as on the stalks and midribs of the leaves, and on the panicle; extremely variable in curvature and size; intermixed with, and passing into setae, which are also very numerous. Leaves thin and flexible until old, varying in size, and shape, and in the length of the point, which is often long and taper; serratures coarse, unequal; upper surface pale opaque green, with scattered hairs, rugose, often somewhat plicate at the nerves, under side paler; old leaves darker above, occasionally hairy beneath. Panicle often very large. Calyx segments hairy, very prickly, setose and glandulose, often elongated, more or less reflexed when in flower, often more spreading upwards. Petals white or pale pink, rather small, varying from strap-shaped to almost round, often jagged. Fruit black, shining, acid; drupes rather small and numerous, not depressed.

6. R. corylifolius, Sm. Hazel-leaved Bramble. Stem de- curved, roundish; prickles straight, scattered, somewhat unequal, but not passing insensibly into setae; leaves digitate of five ovate leaflets, the outermost sessile and lapping over the others;

Hedges and thickets, frequent. Fl. July, Aug. 7.—Stem biennial; the barren ones very long and trailing, unless accidentally supported, sometimes arched, glaucous and purplish, green in the shade. Prickles usually straight, a little deflexed. Setae few or none, except about the inflorescence, and these distinct from the prickles. Leaflets broadly ovate, with a cordate base, soft, hairy, paler or sometimes hoary at the back; intermediate pair on short stalks, on which the external pair is usually quite sessile. Panicle very various, sometimes broad and corymbose like that of R. cæsius, but less so than in most other species. Flowers white. A beautiful variety of this is found in the County of Derry by Mr. Moore, with large soft leaflets, of a rounder form than usual, and purple shining stems.

7. R. cæsius, Linn. Dewberry. Stem prostrate, round or nearly so, glaucous; prickles straight, unequal, passing insensibly into setae, the length of the largest rarely equalling the diameter of the stem; leaves digitate of three or more, rarely five ovate leaflets, the outermost sessile; calyx embracing the fruit. Br. Fl. 1. p. 249. E. Fl. v. ii. p. 409. E. Bot. t. 826.

β. Stem stronger, obsolescently angular, leaflets generally five. R. dumetorum. W. and N.

Bushy places and borders of fields, frequent. Fl. June, July. 7.—Stem weak, with many slender branches rooting at the extremities. Prickles usually straight, scarcely deflexed, varying in size and diminishing gradually, so as not to admit of a distinct line of separation between them and the setae, with which the plant is also furnished. Leaflets broadly ovate, often lobed, pubescent above, more so and softer beneath, and of a paler colour, sometimes covered with long shining hairs; the outermost sessile, or with only hardly distinguishable stalks. Panicle corymbose; the divisions frequently cymose. Flowers few in a somewhat numerous in β. Drupes of the fruit large, juicy, black, with a fine glaucous bloom and agreeable acid flavour.

2. Stem herbaceous or nearly so.


Stony mountainous places, more plentiful in the north; it is also to be met with about Killarney and in the County of Galway. Fl. June. 2.—Erect, slender, eight or ten inches high, with a few weak straight prickles on the stem. Leaves two to three; leaflets ovate. Petals minute, narrow, greenish yellow. Fruit of very few, red, (comparatively) large clustered drupes.

* * * Leaves simple.

On a mountain in the Stranagalvally range, County of Tyrone; Mr. E. Murphy. Fl. June. 2. — Erect, eight to ten inches high. Flowers large, white. Fruit large, orange-red, of an agreeable flavour, and often eaten by the Norwegians and Laplanders.

4. FRAGARIA. LINN. Strawberry.

Calyx 10-cleft, segments alternately smaller. Petals 5. Fruit consisting of many minute nuts, placed upon a large fleshy deciduous receptacle.—Name from fragrans, odorous, on account of its fragrant smell. Icosandria. Polygynia.


Woods and thickets, frequent. Fl. May—July. 4.


Dunscombe's Wood, near Cork, scarcely indigenous; Mr. J. Drummond. Fl. June—Sept. 4.

5. COMARUM. LINN. Marsh Cinque-foil.

Calyx 10 (or more) cleft, segments alternately smaller. Petals 5 (or more), shorter than the calyx. Pericarps inserted on a large, spongy, hairy, permanent receptacle.—Name, from συμερας, a name of Theophrastus, applied to some plants of the Arbutus tribe. Icosandria. Polygynia.


Marshes and peat bogs, frequent. Fl. July. 4.—Stems ascending. Leaves petioloed, with seven lanceolate, deeply serrated leaflets, upper ones quinate or ternate, sessile, with a pair of ovate stipules. Flower-stalk branched. Flowers of a deep dingy purple. Very nearly allied to Potentilla.

6. POTENTILLA. LINN. Cinque-foil.

Calyx 10-cleft, segments alternately smaller. Petals 5. Fruit consisting of numerous minute nuts, placed upon a small dry receptacle.—Name from potens, powerful, from the medicinal properties attributed to some of the species. Icosandria. Polygynia.
* Leaves pinnate.


Rock Forest, County of Clare. Near Headfort, County of Galway; Mr. Shuttleworth. Fl. June. L.


Moist meadows and road-sides, frequent. Fl. June, July. L.-Varying much in the degree of silkiness; sometimes silky and white on both sides. Flowers large, yellow. Leaflets lanceolate.

* * * Leaves digitate.


* * * Leaves ternate.

5. P. Fragariastrum, Ehrh. Strawberry-leaved Cinque-foil. Leaves ternate; leaflets obovate, deeply serrated, silky on both sides (especially beneath); petals obcordate, as long as the calyx; stems procumbent. Br. Fl. 1. p. 253. E. Fl. v. ii. p. 425.—P. Fragaria, Poir.—Fragaria sterilis, Linn.—E. Bot. t. 1785.

Woods, banks, and dry pastures, frequent. Fl. March, April. L.

7. TORMENTILLA. Linn. Tormentil.

Calyx 8-cleft, segments alternately smaller. Petals 4. Fruit consisting of numerous minute nuts, placed upon a small dry receptacle.—Named from tormina, the dysentery, in the cure of which it was employed on account of its astringent qualities. Icosandria. Polygynia.

Moors and heathy places, frequent. *Fl.* June, July. 2.—Root large and woody, used medicinally, and by the Laplanders for staining leather of a red colour. **Peduncles axillary and terminal.**


Ditch banks near the Botanic Garden, Cork; Mr. *J. Drummond.* *Fl.* June, July. 2.


- Woods and hedges, frequent. *Fl.* June. 2.—One to two feet high. **Root-leaves** on long footstalks. **Flowers** small, yellow. **Petals** patent.


Woods and sides of mountains. Woodlands, County of Dublin, Brandon Mountain, &c. often proliferous. *Fl.* June, July. 2.

9. **Dryas. Linn. Dryas.** Calyx 8—10-cleft, its segments equal. Petals 5—8. Pericarps with long feathery awns.—Name ἄφυς, the oak, from a distant similarity between their leaves. **Icosandria. Polygynia.**


Barren mountains, County of Clare, abundant. County of Antrim; Mr. *Templeton.* Benyvena, County of Derry; Mr. *D. Moore.* *Fl.* June. 2.—**Stem** short, procumbent. **Leaves** ovato-elliptical, white and downy beneath, petioled. **Flowers** large, white.

Calyx turbinate, covered with hooked bristles, 5-cleft, inferior. Petals 5, inserted upon the calyx. Stamens 7—20. Fruit of 2, small, indehiscent capsules, invested by the hardened calyx.—Name; corrupted from *Argemone*, given by the Greeks to a plant supposed to cure the cataract in the eye, called ἀργημα. 

*Dodecandria.* Diggynia.


Borders of fields, waste places, and road-sides. *Fl.* June, July. —Two feet high. Leaflets deeply serrated; intermediate smaller ones three to five-cleft. Flowers yellow, on a long simple or branched spike, with a trifid bractea at their base.—Doctor Hooker remarks that as the number of stamens are so variable in this plant, it would be better, perhaps, to place the Genus with its affinities in *Icosandria.*


Calyx urn-shaped, fleshy, contracted at the orifice, terminating in 5 segments. Petals 5. Pericarps (or Carpels) numerous, bristly, fixed to the inside of the calyx.—Name, from the Celtic *Rhos,* (from *rhodd,* red); whence also the Greek name for a rose, Poëov, was probably derived.

*Icosandria.* Polygynia.

* Shoots setigerous, prickles scarcely curved.

1. *Bracteas large.*


Said to have been found in Ireland by Mr. J. Drummond. *Fl.* June. b.—As this rose was not in the collection of roses found by Mr. Drummond in the south of Ireland, of which he sent me plants a year or two before he left the country for Swan River, I strongly suspect it was never found by him in a wild state. All that I know of the history of it is, that it was sent by the late Mr. James Lee, of the Hammersmith Nursery, among a collection purchased by the Dublin Society, for their garden at Glasnevin, in 1797, and marked as the single variety of *R. villosa,* under which name I also had it from them for the College Botanic Garden in 1808, and have cultivated it ever since. Mr. Drummond also got it a few years afterwards, in a collec-
tion given him for the garden of the Cork Institution, from whence it is probable he sent it to Mr. Sabine as an undescribed species. The semi-double var. of *R. pomifera* or *Apple Rose* of the gardens was sent by Lee as a variety of *R. vitifera*, but no single variety of it was sent but the one mentioned above. *R. rubella* of *E. Bot. t. 2601*, was sent by Lee, along with the two others, as a variety of *R. spinosissima*, but it has not yet been found in Ireland.


Hedges on the east side of Mr. White’s desmesne at Woodlands, County of Dublin. Near Clady, County of Derry, naturalized. *Fl. May. ½.* and irregularly throughout the summer. The double flowering *var.* is most common in gardens.

2. *Bracteas small or wanting.*


Heaths, &c. chiefly on sand; most common near the coast, where it is more dwarf than when growing in inland situations. *Fl. May. ½.*—Stem from three inches to three feet high, much branched. *Flowers* solitary, generally white, sometimes pink, rarely red. *Fruit* purplish-black. The numerous varieties of Scotch Roses, now so common in gardens, belong to this species.


β. leaflets smooth on both sides.

In hedges on the shore near Hollywood, Belfast Harbour, where it was first noticed by Mr. Templeton.—β. In cliffs of rocks on Benaveena, County of Derry; *Mr. D. Moore. Fl. June—Oct. ½.*—Root creeping, stoloniferous. *Shrub* three to six feet high, dense, with ascending, much divided, reddish-brown branches. Larger prickles slightly curved, smaller subulate and straight; numerous on the root-shoots, few on the ramuli; a few sete occur on both. *Leaflets* closely set, five or seven, rarely nine, ovate or of a rounder outline, acute, naked and somewhat glaucous above, hairy beneath, chiefly on the ribs and veins; serratures sharp, simple, occasionally rather unequal; *petioles* hairy, with falcate prickles, sometimes wanting, rarely any sete or glands; *stipules* broad, smooth, slightly serrated, with tapering, slightly spread points; those next the flowers enlarged. *Flowers* rather small, often solitary or two together, sometimes in considerable
fascicles, and then accompanied by ovato-lanceolate bractcas. Peduncle cylindrical, naked as well as the calyx, the segments of which are downy within, and at the edges only; shorter than the pale pink petals, with slightly leafy points, and a few pairs of shortish linear-lanceolate, entire, gland-tipped pinnae. Styles included, hairy; stigmas somewhat prominent. Fruit nearly globular or urceolate, but short, blood-red, crowned with the erect or spreading segments of the calyx. The variety β. differs from the common appearance of the plant, by the leaflets being naked, which Mr. Moore thinks may have been partly occasioned by the nature of the exposed rocky situation where he found it. It perfectly agrees in every other respect.


Glengariff, County of Cork; Mr. J. Drummond, as stated by Dr. Hincks, but I have not seen Irish specimens. *Fl.* June. ½.


β. prickles more numerous; leaves very hairy; calyx almost simple. R. Doniana, Woods. *E. Bot. Suppl.* t. 2601.


a. Near Umbra rocks, Magilligan. β. Found along with var. a. γ. Bennedy Glen, near Dungiven; Mr. D. Moore. *Fl.* June. ½.—Five to eight feet high, upright; branches reddish-brown, spreading, somewhat drooping, much divided. Prickles numerous on the stem, rather thinly scattered on the ramuli, very unequal in size; nearly straight in a. and β.; the larger ones considerably curved in γ. Leaflets seven or nine, elliptical or ovate, acute, but rarely acuminate, sharply and doubly serrated, edged with glands; hairy in various degrees, and thence more or less green or hoary above; beneath paler and more hairy, and sprinkled on the ribs and veins with glands; petioles also hairy and glandulose, with small straight prickles, and often setose; stipules rather broad, somewhat dilated upwards, pointed and divaricate. Flowers solitary or in threes, in a. frequently in larger bunches than in β. which in Mr. Moore's specimens are mostly solitary. Peduncle cylindrical, setose, as is mostly the calyx-tube; segments hairy, setose, and glandulose, variously but not copiously pinnate, with a long unusually leafy point, nearly as long as the petals. Petals pink, often beautifully mottled, or white. Styles included, hairy; stigmas varying in prominence. Fruit dark-red, globular or somewhat urceolate, persistent; calyx-segments erect, more or less spreading or recurved.

* * * Shoots mostly without setæ.

I. Leaves glandulose.

a. Prickles uniform or nearly so; setæ none or very f. w.

7. R. villosa, Sm. Villous Rose. Fruit globose, partly
bristly; calyx slightly compound; prickles nearly straight; leaflets rounded, bluntish, all over downy.—R. mollis, E. Bot. t. 2450.

Hedges near Fermoy, County of Cork; Mr. J. Drummond. Near the base of Umbra rocks, Magilligan, County of Derry; Mr. D. Moore. Fl. June, July. 1.—This species seems still to be involved in much uncertainty. Mr. Borrer, in Br. Fl., describes the leaflets as being plentifully covered with glands, especially beneath, having the petals also fringed with them, and the plant as giving out a strong turpentine-scent; which characters, are not noticed in E. Fl. nor in the description of R. mollis in E. Bot. quoted for R. villosa in Br. Fl. nor do they apply to our specimens, which have the leaflets downy on both sides, but not glandulose, unless amongst the serratures. One of our varieties has the fruit naked, and the root shoots as well as the flowering ramuli have a few setæ; which would almost induce one to think it a hybrid between R. tomentosa and R. sabini. Our plant, however, agrees so well with the figure of R. mollis in E. Bot. and general description, unless in the naked fruit, that we have no doubt of its being the species there described, more particularly so, as Mr. Borrer and Mr. Forster, to whom specimens were sent, referred it to that species. A distinct rose from either this or R. tomentosa frequently occurs in the northern counties, to which many of Mr. Borrer’s remarks on R. villosa in Br. Fl. would well apply; indeed the more glandular leaflets, cupped flowers, petals fringed with glands, and the strong turpentine scent, are characters which at once distinguish it from any state of R. tomentosa. It also differs from our R. villosa in having the leaflets narrower, and more pointed; the fruit longer, with the segments of the calyx much more pinnated. The whole plant, especially when dry, is rigid, and rough to the touch from the numerous glands. We think it is not unfrequently taken for R. scabriuscula of Winch, as well as R. tomentosa of Smith, and perhaps R. mollis of E. Bot.


Hedges and bushy places, not unfrequent. Fl. June, July. 1.—This, though one of the most variable of our native roses, may be readily traced through its different forms. The figure in E. Bot. is an excellent representation of the general appearance of the plant; it, however, varies much according to circumstances; in favourable situations it frequently assumes a very luxuriant habit, when both the leaves and fruit become larger and differently shaped. That luxuriant states of this species, were what formerly led to the supposition that the Apple Rose of the gardens, R. pomifera, was a native of Britain, we have no doubt; which opinion Mr. Moore’s specimens and plants go far to prove; some of which are so different from the common appearance of the plant, and so like the Apple Rose of the gardens in every respect, that were it not for intermediate states, we would, without hesitation, refer them to that species. Mr. Moore finds a singular var. near Garvagh, which is of a more luxuriant growth than usual, having the flowers nearly white, with strong and much hooked prickles. As stated in Br. Fl. this species is best distinguished from R. villosa by
the more copiously pinnate *sepals*, with the fruit of a more slender figure, and the leaflets are more narrowly elliptical. They are often without glands.


Near the Seven Churches, County of Wicklow. North of Ireland, near Ballinscreen; *Mr. D. Moore.* Fl. June, July. h.—I have for the present followed Mr. Winch in considering this distinct from *R. tomentosa*; not, however, doubting its affinity to that species, though, at the same time, we think it has characters sufficiently marked to distinguish it from it. As Mr. Winch remarks, "the buds are peculiarly handsome when expanded so as to show the bright red tints with which the outer edges of the snow white petals are marked." The bush is also of a more slender and straggling habit; whether the colour of the flowers may be useful as a distinguishing mark in this species, we think is doubtful, as the var. noticed under our *R. villosa*, which has the petals always of a vivid pink, seems more nearly allied to this than to that species.


Hedges near the old church of Portmarnock and other places in the County of Dublin. Fl. June, July. h.—Sparingly stoloniferous, six to eight feet high, stout, arched with ascending drooping branches. *Prickles* not very numerous, all strongly hooked, their base dilated; flowering *ramuli* frequently unarmed. *Leaflets* flat, rarely carinate, broadly ovate, or sometimes narrower, scarcely acuminate; upper surface darkish green, mostly shining and inconspicuously hairy; under side paler and more hairy, sprinkled, though often sparingly and inconspicuously, with minute *glands*, which give out a slight turpentine fragrance, such as also fringe the stipules and the truly double serratures; *petiolas* downy and glandulose, with small hooked *prickles*. *Flowers*, as in all the neighbouring species, solitary, three together, or in larger bunches, according to the vigour of the bush and the part on which they grow. *Peduncle* mostly shorter than the ovate pointed *bractcas*, beset with feebly setae or with soft pale *hairs*, more rarely naked. *Calyx-tube* mostly naked, sometimes sparingly setose; *segments* about as long as the petals, usually naked at the back, with a leafy point, and closely set, shortish, lanceolate, often compound *pinna*, fringed with gland-tipped teeth. *Petals* pale pink, moderate in size and in expansion. *Styles* included, hairy; *stigmas* depressed. *Fruit* varying in length, scarlet, soft and pulpy, and with the same taste as that of *R. canina* when ripe.

11. *R. micrantha*, Sm. Small-flowered Sweet-Briar. Prickles uniform, uncinate; leaflets doubly serrated, hairy, glandulose
b. Prickles various, intermixed with setae.


Hedges near Passage; *Mr. J. Drummond*. Near Belfast; *Mr. Templeton*. By the side of the river Roe, near Newtownlimavady; *Mr. D. Moore*. *Fl.* June, July. ß.—Stoloniferous, four to six feet high, compact and densely branched in general, and the shoots seldom arched. Prickles numerous; the large uncinate ones on the stem and branches, mixed irregularly with abundance of smaller, some slightly curved, and some straight, subulate, and setaceous; and some real setae, which last, however, are not always present; the flowering
twigs are occasionally unarmed, but have more usually binate uncinate prickles near the base of the leaves, and others scattered, varying in size and curvature. Leaflets flat, or often concave, pale bright green, more or less hairy, ovate, or broadly elliptical, or often almost round, occasionally narrower and more pointed, but scarcely tapering to the base; sprinkled copiously beneath, on the edges and on the petioles, with fragrant viscid glands, which are found also on the backs and edges of the stipules. Peduncles, and often the calyx-tube, beset with setae, of which those at the base of the latter are usually larger; segments setose and glandulose, with a lengthened leafy point and narrow lanceolate pinnae, spreading almost at right angles, with gland-pointed teeth. Petals deep pink, equal to the calyx, or rather shorter. Styles included, slightly hairy; stigma scarcely protuberant. Fruit changing first to yellow then to orange-red, its substance thin, scarcely pulpy, and almost insipid when ripe; when in bunches the primordial is pear-shaped, the secondary obovate, but less tapering at the base; the others elliptical. The fragrance of the leaves is compared to that of ripe apples. Borrer. Mr. Templeton was of opinion that our wild sweetbriar is different from the plant sold under that name in the nurseries.

2. Leaves eglandulose.

a. Styles distinct, included or nearly so.


α. green. α. Woods. R. canina, E. Bot. t. 992.

β. grey. β. Woods.


α. green. β. Woods. R. sarmentacea, Swartz.


α. green. β. Woods.

β. grey. α. Woods.

δ. dumetorum. Leaflets more or less hairy, flat.


Very common in hedges and thickets. All the varieties were
rosaceae.

Rosa

found near Ballinascreen, Co. Derry, by Mr. Moore. β. and δ. I found near Glenarm, Co. Antrim. F[?] June, July. h. The forms above mentioned are not so defined, but that connecting varieties may be found. In all of them the ramification varies in denseness, and the shoots are more or less arched or erect according to the vigour of the plant; the prickles are not very numerous, hooked in various degrees and compressed, and their base considerably dilated; the leaflets vary in width, their serratures, although scarcely compound, except in β., are mostly irregular in size; the bracteas vary in size; the peduncle and calyx-tube are most commonly naked, their setae, when present, feebile and not numerous; the calyx-segments are free from glands, or more or less copiously fringed with them; the styles are hairy; the fruit is coral red, or more scarlet, soft and pulpy when ripe, with a pleasant somewhat acid taste. The principal vars., as they are now assumed to be, are excellently described by Woods, who, the better to bring them into notice,* distinguished them as species. I shall add a few remarks on each. α. grows six to ten feet high. It has usually lanceolate leaflets, not rounded at the base, with a small, often twisted point, and rather small acuminate serratures; petioles with almost straight prickles, and mostly, not always, bare of hairs, except a few on the channelled upper side; peduncle and calyx-tube generally naked, the latter more rarely setose than the former; calyx-segments loosely pinnate, the pinnae entire or toothed; the disk of the receptacle sometimes very prominent; styles included; stigmas depressed; fruit oblong, generally tapering to each end, especially in the modification α.; which is distinguished by its shining bright green leaves. Woods describes his var. i. with a subglobose calyx-tube.—β. sarmentacea resembles α. in growth and habit, in styles and stigmas, in the disk of the receptacle, and in the variation of the calyx-segments. In its extreme state it appears well distinguished by its double serratures, the points of which are often divaricate, but although often really double, they are sometimes only apparently so from a fringe of glands; and every gradation in this respect is to be met with between it and α. The leaves vary much in width in different specimens, and the fruit in size. It is mostly oblong, but Mr. Woods found it nearly globular in his var. δ., a North of England plant of large growth. (My Glenarm specimens have the fruit similar.) In β. γ. and δ. the peduncle is sometimes naked, has sometimes soft hairs and sometimes feeble setae.—γ. surculosa approaches δ. in aspect, from the flatness of its leaves, and, usually, their rounded figure. It has the serratures rather coarse; prickles on the petioles considerably hooked; pinnae of the calyx rather closely set and usually entire; styles somewhat protruded, with a round head of stigmas; fruit short, elliptical or ovate, and somewhat urecolate. The green leaved modification, α., is of humbler growth

* See his remarks in Tr. of Linn. Soc. v. xii. p. 170. Lindley well observes, "Surely it is not surprising that this most common species of the genus, whose fruit is scarcely ripe before it is devoured by small birds, and deposited by them in every possible variety of soil and situation, should frequently assume features considerably different from its more general appearance." He has, however, separated as species, in his Syn. Br. F[?], several forms which he had made vars. in his Monograph.
than the other, which rivals the larger forms of "a. in size. This var. and "a. seem less inclined to spread by suckers than the other vars. of the species. The British (and Irish) forms of "R. dumetorum," is often of humble and feeble growth, but vigorous plants also occur, six to eight feet high. It has much general resemblance to R. inodora. It bears somewhat small, but rather uncinate prickles, numerous for this species; leaflets, for the most part, broadly ovate, the terminal one sometimes almost cordate, their serratures coarse, their hue dull green but shining, the hairs on the upper surface being appressed and very inconspicuous; calyx-pinnae varying in closeness; styles nearly or quite included; stigmas in a round head; fruit elliptical, varying in length. Plants agreeing with this var. in pubescence, but in other respects more like "a., sometimes occur. The first form, "a., of "R. Forsteri, is connected by intermediate variations with the other form, b., on the one side, and with "d. on the other. In its proper state it has leaflets pale green and concave, as those of "R. rubiginosa often are; serratures shallow, sometimes indistinctly compound; petioles hairy or downy, more or less glandulous; peduncle mostly naked, sometimes hairy, very rarely feebly setose. Its prickles are as in "d.—The next form, b. 1., but for the existence of intermediate plants, might well be held a species. Its growth is mostly stout and dense; prickles less dilated at the base, and less hooked than in the other vars.; foliage with a strong glaucous tinge, serratures coarse, often equal; petioles downy, usually, not always, without glands; peduncle and calyx-tube naked; cal-segments rather closely pinnate; styles included; stigmas varying in prominence, considerably hairy; fruit elliptical, often so short as to be almost globular. The remaining form, b. 2., has highly cæsius twigs and more pubescent grey leaves. Its flowers are more deeply coloured than is usual in the species, in other respects it approaches nearest to "d. and to "R. a., although its leaflets are carinate. From the tints of the foliage and flowers it has a general resemblance to "R. casia. This form appears rare. It has not been observed in Ireland. Mr. Borrer finds it at Henfield in England.


Plentiful near Belfast; Mr. Templeton. Dungiven, County of Derry; Mr. D. Moore. Fl. June, July. 6.—Stoloniferous, about five feet high, upright, densely branched. Leaves elliptical, pointed, downy beneath, very slightly so or quite smooth above; serratures sometimes regularly double, sometimes imperfectly so; petioles glandulose, and usually downy or hairy; stipules fringed with glands, downy or almost naked; those next to the flowers changed into broad, elliptical, pointed bracteas. Flowers usually solitary. Peduncle naked, or sparingly setose. Calyx-tube elliptical, naked, and, like the leaves and young twigs, very glaucous; segments about as long as the petals, broad at the base, sometimes glandulose at the back, sometimes bare of glands in every part, and only downy at the edges, somewhat leafy at the point, and bearing a few narrowly lanceolate pinnae, which are either entire or toothed with glands. Petals uniform, pink or white. Styles nearly, or quite included, hairy; stigmas a round pro-
minent mass. *Fruit* ovato-urceolate, scarlet, soft and pulpy when ripe, before which it loses the segments of the calyx.

**b. Styles united in a column, mostly exserted.**


Hedges near Cork; *Mr. J. Drummond.* Fl. June, July. 15.—Scarcely stoloniferous. "Often ten or twelve feet high, vaguely branched, and with strong arched shoots. *Prickles* on the stem, not much dilated in general at the base, compressed, and often much enlarged in the lower part, so as to be almost triangular, with a straight point, or a short, hooked beak; those on the ramuli usually in substipular pairs. *Leaflets* more generally five than seven, carinate, lanceolate or elliptical, bright green and shining, or rarely opaque above, paler and slightly hairy beneath; *serrata* tolerably regular; *petioles* downy, with curved *prickles*, with or without glands. *Peduncle* rather long, with numerous glands or short *setae*, a few of which are rarely found on the tube of the calyx. *Calyx-segments* broad and short, with a tapering point and linear-lanceolate *pinna*, entire or with a few gland-tipped teeth. *Petals* longer than the calyx, pink, sometimes white. Column of *styles* usually protruded, but variable in length; occasionally quite included; *stigmas* forming a conical head. *Fruit* oblong, or sometimes globular, pulpy and orange-red when ripe, flavoured like that of *R. arvensis*. The habit of the plant, when vigorous, of all our wild Roses, most resembles that of *R. canina*. The prickles on young strong shoots are generally crimson or rich dark purple, and the young foliage tinged with reddish brown. The flowers often form large bunches, and are generally of a peculiarly pleasant pink, with the stamens and the base of the petals of a glowing orange tint." Borrer.


Plentiful in hedges and bushy places near Dublin. Near Ballynahinch, County of Down; *Mr. Templeton.* Fl. June, July. 16.—Bush scarcely a yard high when unsupported, with trailing shoots, running to a great length, especially when growing in hedges, with much divided, entangled, feeble *ramuli*, which occasionally produce rugged excrescences and take root. *Prickles* numerous, not much dilated at the base, uncinate, those on strong shoots compressedly conical, with a straight or curved point; those on the ramuli few and scattered, small, more or less curved. *Leaflets* thin, nearly flat, coarsely serrated, dull
green, paler, and somewhat glaucous beneath, naked on both sides, or slightly hairy beneath, chiefly on the mid-rib; on some plants they are elliptical, ovate, or almost round; on others, much elongated; petioles hairy, or glandulose, or both, with falcate prickles. Flowers copiously produced, often in large bunches, with lanceolate bracteas, white, large and handsome, opening flat, with a slight fragrance at first, but soon becoming unpleasant. Peduncle long, sprinkled with almost sessile glands. Segments of the calyx reflexed by the time the petals fall, broad and short, with an acute point shorter than the petals, and a few small, entire, lanceolate pinnae. Column of styles often overtopping the stamens, persistent; stigmas in a round head. Fruit small, spherical, ovate, or elliptical, sometimes long and slender, its length varying almost in accordance with that of the leaflets; blood-red when ripe, with an orange-red pulp of a pleasant peculiar flavour. R. arvensis is distinguished from all the other British species by its trailing habit.


Nuts one or two, enclosed within the dry tube of the calyx, which is contracted at the orifice. Calyx 3—5-cleft, the divisions with a valvular aestivation. Petals usually wanting, sometimes four, cohering at the base into a monopetalous corolla. Seeds suspended, very rarely erect.—Herbs or shrubs. Leaves often compound. Flowers minute.


Perianth inferior, 8-cleft, the 4 alternate and outer segments the smallest. Fruit one or two-seeded, surrounded by the persistent perianth.—Name from the Arabic alchemelych, alchemy, from its pretended alchemical virtues.

Tetrandria. Monogynia.


Woods and dry elevated pastures, abundant. β. on Mam-Turk, and other mountains in Cunnamara. Fl. June, July. 2.—One foot high, or more. Radical leaves large, on long footstalks, those on the stem with connate toothed stipules, upper ones sessile and very small. Lobes six to nine. Flowers in many, rather lax, corymbose, terminal clusters, yellow green. Germens one to two. Seeds one to two. Style lateral.


Mountain cliffs. On Brandon, County of Kerry, and Ben Bulben,
County of Sligo. *Fl.* July, Aug. 2. — One of the most elegant of our native plants. Inflorescence similar to that of *A. vulgaris*; but the leaves are very different, and the leaflets are beautifully silky on the under side.


Fields and gravelly soils, frequent. *Fl.* May—July. 2. — Stems branched, leafy, four to five inches long, frequently prostrate. Leaves alternate. Stigmas large. Stamens varying in number. Germens one or two.


*Flowers* collected into a head, with three or four bracteas at the base of each; upper ones fertile. *Barren fl.* Calyx of four deep segments. *Corolla 0.* Stam. 30—40, with very long flaccid filaments. *Fertile fl.* Calyx tubular, contracted at the mouth, with four deciduous teeth. Pistils 2. Stigmas tufted. Pericarps 2, one-seeded, invested with the hardened 4-angled tube of the calyx.—Name from *poterium*, a drinking cup; the plant having been used in the preparation of a drink, called in England a cool-tankard.

*Monacia*. Polyandria.


Dry pastures and gravelly banks, more generally in the limestone districts, frequent. *Fl.* July. 2. — One to two feet high. Leaves pinnate, with ovate, serrated leaflets. *Flowers* dull purplish. The leaves smell and taste like cucumber, and are sometimes used in England in salads.

Ord. 28. POMACEÆ. *Lindl.* Apple Family.

Calyx inferior, 5-toothed; the odd segment posterior. Petals 5, unguiculate, inserted in the throat of the calyx; the odd one anterior. Stamens indefinite, inserted in a ring in the throat of the calyx. Disk thin, clothing the sides of the limb of the calyx. Ovarium from 1 to 5-celled, seldom spuriously 10-celled; ovules usually 2, collateral, ascending, very rarely solitary; styles from 1 to 5; stigmata simple. Fruit a pome, one to five-celled, seldom spuriously 10-celled; the endocarpium either cartilaginous, spongy, or bony. Seeds ascending, solitary. Albumen none; embryo erect, with flat cotyledons, and a short conical radicle.—Trees or shrubs. Leaves alternate, stipulate, simple, or compound. *Flowers* in terminal cymes, white or pink.
1. 

**Crataegus.** Linn. Hawthorn.

*Calyx* segments superior, acute. *Petals* roundish. *Styles* 1—5. *Fruit* oval or round, concealing the upper end of the cells which are bony. *Lindl.*—Name from ἐκπάσος, strength, in allusion to the extreme hardness of the wood.

Icosandria. Monogynia.


Woods and hedges. *Fl.* May, June. 12.—The hawthorn tree, when in bloom, is deservedly a general favourite. The pink-flowered variety is a very ornamental plant, which is also much esteemed, and the new scarlet thorn, with larger flowers of a deep red, still more so. This plant also varies in the colour of its fruit, which is generally red, being sometimes yellow. It is well known as a useful plant for hedges, and vast numbers of plants are sold annually by the nurserymen, who raise them from the *haws*. It may also be propagated from pieces of the roots.


Icosandria. Monogynia.

* Leaves simple.


On rocks below Fermoy; *Mr. J. Drummond*. *Fl.* April, May. 12.—The origin of our *garden pear*.


Woods and hedges. *Fl.* May. 12.—A small tree with spreading branches, the origin of our *apple*, of which we have now so many fine varieties.


Mountainous woods and cliffs, chiefly in limestone countries. Plentiful in several places in Cunnamara, and about the Lakes of Killarney, in crevices of limestone rocks. *Fl. June. H.—Leaves often more or less cut at the margin. Fruit red.

**Leaves pinnate.**


**ORD. 29. GROSSULACEÆ. D C. Currant Family.**

Tube of the calyx adnate with the ovary, its limb 4—5-parted, regular, often coloured. Petals 4 or 5, inserted into the mouth of the calyx, and alternating with its lobes, equal. Stamens 4—5, inserted alternately with the petals. Ovary 1-celled, with 2 opposite, parietal placentas: ovules numerous: style single, 2—3—4-cleft. Fruit baccate, subglobose, crowned with the withered flower. Seeds many, suspended among the pulp by filiform stalks. Testa gelatinous, adhering firmly to the albumen, which is horny. Embryo minute, excentrical, with the radicle next the hilum.—Shrubs of temperate climates, often spinous. Leaves alternate, lobed, with a plaited vernation. Flowers greenish-white, yellow or red, solitary or in racemes.

1. RIBES. Linn. Currant and Gooseberry.

Calyx 5-cleft, bearing the petals and the stamens. Style divided. Berry 1-celled, many-seeded.—Name, Ribes, a word applied by the Arabic Physicians to a species of Rhubarb, Rheum Ribes. Our older Botanists believed that it was our Gooseberry; and hence Bauhin called that plant Ribes acidum.

Pentandria. Monogynia.

* Without prickles.

In several places in the County of Cork, in a naturalized state; Mr. J. Drummond. Fl. May. 3.—Leaves five-lobed, doubly serrated, on longish stalks. There is a small leaf or bractea at the end of each pedicel. Flowers greenish. Fruit crowned, as in all the genus, with the withered flower.


Moory ground near Castleconnel, County of Limerick, where the seed had probably been carried by birds. In the County of Cork, in a naturalized state; Mr. J. Drummond. Fl. May. 3.

**Branches prickly.**


Rocks near the Lee, about Inchegella, County of Cork, in a naturalized state; Mr. J. Drummond. Fl. April, May. 3.—All the numerous varieties of the gooseberry, with hairy and smooth fruit, appear to belong to the same species.

**ORD. 30. ONAGRARÍÆ. Juss. Evening-Primrose Family.**

Tube of the calyx wholly, or in part only, adnate with the ovary; limb 2—5—generally 4-lobed, with a valvate aestivation. Petals of the same number as the lobes of the calyx, and alternate with them, generally regular; inserted on the mouth of the tube, with a twisted aestivation; rarely none. Stamens definite: filaments distinct, filiform; anthers oblong or ovate. Ovary with many cells, often crowned with a disk: style filiform; stigma capitate or lobed. Fruit a capsule, berry or drupe, 2—or 4-celled. Seeds many (rarely solitary) in each cell, fixed to the central angle, without albumen. Embryo straight: radicle long, roundish: cotyledons short.—Herbs or shrubs, with simple, alternate or opposite, entire or toothed leaves. Flowers axillary or in terminal racemes.

1. EPILOBIUM. Linn. Willow-herb.

Calyx superior, 4-parted, segments free, deciduous. Petals 4. Capsule elongated, 4-sided, 4-celled, 4-valved, many-seeded. Seeds with a tuft of hairs at one extremity.—Name from cér, upon, and λόφος, a pod: the flower being placed upon the top of the elongated seed-vessel. Octandria. Monogynia.
* Flowers irregular. Stamens bent down.


Moist banks and rocky places, rather of rare occurrence in Ireland. At the Scalp, near Enniskerry, among loose rocks. Cavehill, near Belfast; Mr. Templeton. County of Derry; Mr. D. Moore. Fl. July. 2.—Stems three to six feet high, smooth, reddish. Flowers large, purple, (rarely white,) in long upright clusters.

** Flowers regular. Stamens erect. Stigmas 4-cleft.


In watery places, ditches and margins of rivers, common. Fl. July. 2.—Almost equal in size to the last. Root perennial, creeping. Flowers corymbose, large, of a delicate pink. A variety with white flowers has been noticed by Mr. Hodgens growing about Dun- ganstown, County of Wicklow.


Marshes, banks of lakes and rivers, frequent. Fl. July. 2.—Stem from one to two feet high, simple or slightly branched at top. Leaves downy. Flowers light purple.


Dry shady banks, walls, roofs of cottages, &c. frequent. Fl. July. 2.—Stem one foot and a half to two feet high. Flowers light purple, few, in a terminal leafy corymbose cluster, rather smaller than the last.


Sides of ditches and watery places, common. Fl. July. 2.—Stem about a foot high, almost quite smooth. Flowers few, pale purple, with cloven petals.


**ORD. 31. CIRCÆACEÆ. **Juss. Enchanter’s Nightshade Family.

Calyx superior, deciduous, tubular, with a 2-parted limb. Petals 2, alternate with the lobes of the calyx. Stamens 2, alternate with the petals, inserted into the calyx. Disk large, cup-shaped, filling up the whole of the tube of the calyx, and projecting beyond it. Ovarium 2-celled, with an erect ovulum in each cell; style simple, arising out of the disk; stigma emarginate. Fruit 2-celled, 2-valved, 2-seeded. Seeds solitary, erect; albumen none; embryo erect; radicle short, inferior.—*Herbaceous plants. Leaves opposite, toothed, stalked. Flowers in terminal and lateral racemes, covered with uncinate hairs.*

*Obs.* This order differs from Onagraceæ in its large fleshy disk which fills up the tube of the calyx, in its solitary erect ovula, and in the binary division of the flower; it is connected with that order through Lopezia, with which it cannot however be absolutely associated, and bears about the same relation to Onagraceæ as is borne by Haloragaceæ. *Lindley.*

1. **CIRCÆA. Linn.** Enchanter’s Nightshade.

*Calyx* of 2 sepals, but united into a short tube at the base. *Corolla* of 2 petals. *Capsules* 2-celled. *Cells* 1-seeded.—Name from the Enchantress Circe, either from the prettiness of its flowers, or as some say, from growing in damp shady places, where plants used for incantations are found. *Diandria. Monogynia.*


Woods and coppices in shady situations, frequent. Plentiful in the Dargle-woods, and at Powerscourt, County of Wicklow. *Fl.* June, July. 2.—*Racemes* as well as the *stem,* more or less branched. Flowers white or rose-colour.


β. *major,* larger and more pubescent. *E. Fl.* v. i. p. 16.—*C. intermedia,* Ehrh.
Muff Glen, Faughan Vale, County of Derry; Mr. D. Moore. In Muskerry, and near Skibbereen, County of Cork; Mr. J. Drummond. Collin Glen near Belfast.—Fl. July, Aug. 2. —Resembling the last, but much smaller; the leaves are decidedly cordate, and the petioles longer. The var. B. is larger and more pubescent; but in the cordate leaves, and other characters, it better accords with this species than with C. lutetiana.

ORD. 32. HALORAGÆ. Br. Water-Milfoil Family.

Tube of the calyx adherent with the ovary for its whole length; the limb divided or none. Petals inserted upon the top of the calyx, alternate with its lobes and equal to them in number, or wanting. Stamens inserted in the same place, double the number of the petals, equal to them or fewer. Ovary adherent with the calyx, often many-celled; styles none; stigmas equal in number to the cells, papulose or pencil-formed. Fruit 1, or many-celled, indehiscent, membranaceous or bony, the cells one-seeded. Seeds pendulous in the cells, with a fleshy albumen. Embryo central, straight: radicle superior, rounded, elongated: cotyledons short.—Herbaceous or somewhat shrubby often aquatic plants, with alternate, opposite or whorled leaves. Flowers axillary or arranged in terminal spikes, sometimes monocious or dioecious.

1. MYRIOPHYLLUM. Linn. Water-Milfoil.


In ponds and ditches, much less common than the former. Plentiful about Limerick; Mr. W. H. Harvey, who sent me specimens. Ballyphehane-bog, near Cork; Mr. J. Drummond. Fl. July; 2. —Stems covered to the top with leaves; flowering part rising above the water. Leaves five in a whorl, pinnatifid; whorls of flowers in the axils of the leaves.

Perianth single, superior, forming a very indistinct rim to the germin. Fruit, a small one-seeded Nut.—Name from ursus, a horse, and ovra, a tail. Monandria. Monogynia.


Ditches, sides of lakes and borders of slow streams, frequent. Fl. May, June. 2.—Root creeping. Stem a foot or more above the water, round, juicy, polished, reddish, with many whorls of spreading, linear, entire, smooth, single-ribbed leaves. Flowers small. Anther red before it bursts. The lower leaves, deep under water, are long, thick-set, pellucid, and pale; the herb in winter bearing no other. In this state it is noticed by Dillenius as a remarkable variety. Smith.

Ord. 33. UMBELLIFERÆ. Juss. Umbelliferous Family.

Calyx superior, either entire, or 5-toothed. Petals 5, inserted on the outside of a fleshy disk; usually inflexed at the point; aestivation generally valvate, very rarely imbricate. Stamens 5, alternate with the petals, incurved in aestivation. Ovarium inferior, 2-celled, with solitary pendulous ovula; crowned by a double fleshy disk; styles 2, distinct; stigmata simple. Fruit consisting of 2 carpella, separable from a common axis, to which they adhere by their face (the commissure); each carpellum traversed by elevated ridges, of which five are primary, and four alternating with them, secondary; the ridges are separated by channels, below which are often placed, in the substance of the testa, certain linear receptacles of coloured oily matter, called vittae. Seed pendulous, usually adhering inseparably to the pericarpium, rarely loose; embryo minute, at the base of abundant horny albumen; radicle pointing to the hilum.—Herbs. Stem often fistulose and furrowed. Leaves alternate, generally compound and embracing the stem with their sheathing bases. Flowers umbellate, usually involucrate.

A most extensive and extremely important Natural Order, including many poisonous plants, these being chiefly such as grow in watery places, and many esculent and aromatic ones often yielding gum-resins. The fruit of this Family is never injurious: those of Coriander, Anise and Dill, being agreeable aromatics.

A. Umbels perfect. Carpels with many ridges, namely, 5 primary, and 4 secondary ones.

(I. Daucus Tribe.)


Calyx of 5 teeth. Petals obcordate, point inflexed; the outer
often radiant, and deeply bifid. Fruit dorsally compressed. Carpels with five primary ridges, filiform and bristly, of which the three intermediate ones are dorsal, the two lateral ones on the inner face; the four secondary ridges equal, more prominent, with one row of prickles, which are slightly connected at the base. Interstices under the secondary ridges, with single vittae. Seed plane in front.—Universal and partial involucre many-leaved, the former often primary.—Name, the τακος, of Dioscorides.


Pastures and borders of fields, very common. Fl. July. §.—This is the origin of our garden Carrot, of which there are several varieties cultivated.


Sea coast near Baldoyle and Portmarnock. Fl. July, Aug. 2.—Smaller than the last, with broader and more fleshy leaves, but perhaps, not permanently distinct.

(II. Caucalis Tribe.)


Calyx of 5 teeth. Petals obcordate, point inflexed: outer ones larger and bifid. Fruit contracted at the side. Carpels with five primary bristly ridges, of which the three intermediate ones are dorsal, the two latter ones on the inner face, the secondary ridges obliterated by the numerous prickles which fill the interstices. Interstices with single vittae beneath the prickles. Seed with the margin involute. Involucre various; partial of many leaves.—Name of doubtful derivation; perhaps, as Smith suggests, from τὸπεψῳ, to carve or emboss, in allusion to the fruit.

Pentandria. Digynia.


Hedges and waste places, common. Fl. July. §.—Stems two to three feet high. Fruit densely clothed with incurved bristles.

2. T. infesta, Spr. Spreading Hedge-Parsley. Leaves bipin-

Fields, way-sides, &c. less frequent than the last. Near Cork; Rev. Doctor Hincks. *Fl.* July. 🟢


B. *Umbels perfect.* Carpels with few ridges: namely, 5 primary ones, secondary ones 0, or with primary ones even obliterated, and only apparent at the extremity.

(III. Selinum Tribe.)


*Calyx* of 5 teeth. *Petals* obcordate, point inflexed, outer ones often radiant. *Fruit* remarkably and dorsally compressed, with a broad and plane border. *Carpels* with very slender *ridges,* three of them dorsal, equidistant, two lateral ones remote, contiguous with the border. *Interstices* with single (evident) club-shaped *vittae.* *Seed* flat.—Universal involucres *deciduous,* partial of many *leaves.*—Named after Hercules. who is said to have brought this, or some allied plant, into use.

*Pentandria. Digynia.*


Hedges, pastures, and bushy places, frequent. *Fl.* July. ♂.—A coarse rank weed, four to five feet high. *Leaves* largely serrated, sheaths inflated.


*Calyx* nearly obsolete. *Petals* roundish, entire, involute with a sharp point. *Fruit* much compressed dorsally, with a broad flat border. *Carpels* with very slender *ridges,* the three intermediate ones equidistant, the two lateral ones remote, contiguous to the border. *Interstices* with single evident *vittae.* *Seed* flat.—Universal and partial involucres of few *leaves.*—Different from *Heracleum,* in the entire, involute *petals,* and
filiform, not clubbed, vitæ; in the remote lateral ridges from all the rest of this Tribe; and from Peucedanum also by the involute petals.—Name derived from pastus, food.

Pentandria. Digynia.

1. P. sativa, Linn. Wild Parsnep. Leaves pinnate, downy beneath; leaflets ovate, cut and serrated, ultimate one 3-lobed.


Calyx of 5 teeth, or obsolete. Petals obovate or obcordate, point inflexed. Fruit much flattened dorsally, with a broad thin margin. Carpels with the ridges nearly equidistant, the three intermediate ones filiform, the two lateral ones more obsolete, contiguous to or combined with the margin. Seed flat on its inner face. Interstices with single vitæ.—Universal involucre various; partial of many leaves.—Name from πυκνή, a Pine tree; and εᾶνως, dwarf, on account of a resinous substance, said to be extracted from some of the species.

Pentandria. Digynia.


Old hedges on the town-land of Rallydolaghan, County of Down, to all appearance perfectly wild; Mr. Campbell. Fl. June. 4.—Flowers white. Partial involucre several, subulate.

(IV. Angelica Tribe.)


Calyx obsolete. Petals elliptical-lanceolate, entire, and inflexed at the point. Fruit subcompressed, 2-winged. Carpels with three elevated dorsal ridges, the lateral ones spreading into the broad wings of the fruit. Vitæ various.—Universal involucre scarcely any. (Archangelica and Angelica, Hoffm.)—Name, Angelic, from its cordial and medicinal properties.

Pentandria. Digynia.

1. A. sylvestris, Linn. Wild Angelica. Leaflets equal, ovate, serrated at the base, somewhat lobed; fruit with the interstices

Moist woods and marshy places, especially near rivers, frequent. Fl. July. 2. — Plant two to three feet high. Stem purplish, pubescent above, as well as the umbels.— Inferior in quality to the common garden Angelica, which has not been observed in a wild state in Ireland.

(V. Seseli Tribe.)

7 Crithmum. Linn. Samphire.

Calyx obsolete. Petals elliptical, entire, involute. Fruit subterete. Carpels (spongy) with five elevated sharp, somewhat winged ridges, of which the lateral ones are a little broader and marginal. Seed subterete, free, abundantly marked with vittae.— Universal and partial involucres of many leaves.— Name from κρίθμος, barley; from a fancied resemblance between the fruit of this plant and a grain of Barley.

Pentandria. Digynia.


Rocks by the sea side. Plentiful on Killiney Hill, Howth, Lambay and Ireland's Eye. On the southern coast; Mr. J. Drummond. Fl. Aug. 2. — Whole plant very succulent, pale green. Leaves bi-triter-nate. Samphire makes a warm aromatic pickle, and is sold for this purpose in Dublin and elsewhere.


Calyx of five teeth, or obsolete. Petals obcordate with an inflexed point. Fruit subterete, or slightly and laterally compressed. Carpels with five sharp, somewhat winged equal ridges, of which the lateral ones are marginal. Interstices with many vittae. Seed subsemiterete.— Universal involucre various: partial of many leaves.— Name from Liguira where the old Ligusticum Levisticum abounds. Hence, too our word Lovage.

Pentandria. Digynia.


Rocky sea coasts. On the rocks about Donaghadee, and the Copland Isles; Mr. Templeton. County of Derry; Mr. D. Moore. Fl. July. 4. — Root fusiform, acrid but aromatic. Stem nearly simple. Leaves mostly radical; leaflets large, deeply serrated, rather fleshy.— The true Lovage, common in gardens, Ligusticum Levisticum (now, the genus Levisticum) has truly winged ridges to the fruit, and fewer vittae; but in other respects is nearly allied to this. It may, however,
at once be known by its larger size, branched stems, and more compound shining leaves. I observed this last on a ditch bank between Ballybeg and Kells, County of Meath, in a naturalized state, but it has evidently been the outcast of a garden.


Calyx obsolete. Petals obovate, submarginate with an inflexed point, appended, or sessile and truncated at the base. Fruit subterete. Carpels with five sharp, somewhat winged equal ridges, of which the lateral ones are at the margin. Interstices with many vitæ. Seed subsemiterete.—Universal involucre of few leaves, or none; partial of many leaves.—Sarcely different from Ligusticum, except in its yellowish, nearly entire, (not acutely emarginate) petals, truncated and sessile at the base.—Name of dubious origin. It was applied by Pliny to some herb.

Pentandria. Digynia.


Pastures and meadows, rare in Ireland. Gravelly bank by the side of the Foyle river, County of Derry; Mr. D. Moore. Fl. July—Sept. 2.—One to two feet high. Partial umbels small, distant. Flowers pale yellow.—Whole plant fetid when bruised, apparently refused by cattle. Hook.

10. Æthusa. Linn. Fool’s Parsley.

Calyx obsolete. Petals obcordate, with an inflexed point. Fruit ovato-globose. Carpels with five elevated, thick, acutely carinated ridges, the lateral ones marginal and a little broader, bordered by a somewhat winged keel. Interstices with single vitæ. Seed semiglobose.—Universal involucre 0, partial of 3 unilateral drooping leaves.—Name from æthusa, to burn, on account of its acrid quality.

Pentandria. Digynia.


Fields and gardens. Fl. July, Aug. 0.—One foot high. Stem striated, branched, very leafy. Leaves glabrous, doubly, or the lower ones trebly, pinnate. Segments ovato-lanceolate, variously cut. Umbels terminal, on long stalks. Umbellates small, distant. Universal involucre none, partial involucres of three, long, pendent leaves, all on one side, by which it is readily known from other umbelliferous plants. The smell is nauseous, and it is esteemed very unwholesome.
11. FÆNICULUM. Hoffm. Fennel.

Calyx obsolete. Petals roundish, involute, narrower apex obtuse. Fruit subterete. Carpels with five prominent obtuse keeled ridges, of which the lateral ones are marginal and a little broader. Interstices with single vitta. Seeds subsemiterete.—Universal and partial involucre 0.—Name from fænum, hay, its smell being compared to that of hay.

Pentandria. Digynia.


Gravely banks near towns and villages. Plentiful by the side of the new road between Bray and the Dargle, also near Clonskeagh and Chapelizod. At Carrickadrohid Castle, County of Cork; Mr. J. Drummond. Fl. July. Aug. 2,—Stems three to four feet high, fistulose. Leaves much divided with very slender segments. Flowers dark yellow, at the base of the styles very glutinous. This is the true Fennel of the gardens, which is frequently used for garnishing salmon.

12. ÆNANTHE. Linn. Water-Dropwort.

Calyx of five teeth. Petals obovate with an inflexed point. Fruit subterete, crowned with the straight styles. Carpels with five, blunt convex ridges, of which the lateral ones are marginal and a little broader. Interstices with single vitta. Seed tereti-convex; axis none.—Universal involucre various, partial of many leaves. Flowers of the ray on long pedicels, sterile; those of the disk sessile or shortly pedicellate, fertile. —Name from ovus, a vine, and ambos, a flower, alluding to the vinous smell of the blossoms. Pentandria. Digynia.


Ditches and rivuletts, common. Fl. July, Aug. 2,—Plant two to three feet high, remarkably tubular and fistulose. Stem-leaves distant, and the leaflets, which are few and small, are confined to the upper extremity of the leaves. Umbels small. Gen. involucre often wanting.


Salt marshes, not unfrequent. West side of Lambay; Mr. Underwood. Near Baldoyle, Portmarnock Strand, and by the lake near
Sandy mount. Banks of the Lagan, near Belfast; Mr. Templeton. Salt marsh near Castletown, County of Cork; Mr. J. Drummond. Fl. July. 2. —Two feet or more high. *Umbellulae* thickly crowned, forming almost spherical heads when in fruit. —This was inserted, by mistake, in my catalogue, as *E. pene danifolia*, to which it is strongly allied. The latter has not yet been found in Ireland.

3. *E. crocata*, Linn. *Hemlock Water-Dropwort*. Leaves tri-

Watery places, by ditches and rivers, frequent. Fl. July. 2. —
Root consisting of many fleshy knobs or tubers, abounding with an orange coloured, fetid, very poisonous juice, such as exudes less plentifully from all parts of the herb when wounded. *Plant* three to five feet high; different from all the preceding in the great breadth of its leaflets, and large, much ramified stems.

landrium aquaticum*, Linn. —*E. Bot. t. 648*.

Ditches and pools, by the verge of the large pond at Woodlands, very plentiful in ditches and drains near the lake at Farnham, and elsewhere in the County of Cavan. Fl. July. 2. —Stem two to three feet high, very thick below, much branched, branches spreading, *Umbels* rather small; mostly perfect in every flower.

(VI. *Ammi* Tribe.)


*Calyx* of five teeth, or obsolete. *Petals* obcordate, with an in-
flexed point, or entire and ovate. *Fruit* laterally compressed, or contracted and subdidiomous, crowned with the reflexed styles with their depressed bases. *Carpels* with five equal, filiform, rather obtuse *ridges*, of which the lateral ones are marginal. *Interstices* with one or many *vittae*. *Seed* subterete.

—Universal involucre various, partial of many leaves. (Sium and Helosciadium, Koch.) —Name derived, according to Theis, from the Celtic word *siew*, water. *Pentandria. Digynia*.


River-sides, ditches, and watery places. Bog of Curragha, near Ashbourne; Mr. Underwood. Plentiful about Lough Erne, and by the banks of the river Fergus above the bridge of Ennis. Port-
more, County of Down; Mr. Templeton. Fl. July, Aug. 2. —
Stem three to four feet high, furrowed. *Fruit* small. *Leaflets* dis-
tant, five to nine on a leaf.

Ditches and open drains, not uncommon in many parts of Ireland. Fl. July, Aug. 2.—Smaller than the last. Stem striated. Leaflets of the upper leaves most unequal and laciniate; radical ones ovate, their lowermost leaflets distant.


Sides of lakes, rivulets and ditches, very common. Fl. July, Aug. 2.—One foot and a half to two feet high. Leaflets of the radical leaves sometimes with a lobe at the base on the upper margin. Petals slightly incurved at the apex.


Boggy meadows and watery places. In a marsh by the river Fergus, a little above the bridge of Ennis. The plant that has been mistaken for this, growing on the Hill of Howth, I believe to be only a dwarf variety of the last. Stem six to ten inches long. Leaflets five to nine. Fl. July, Aug. 2.


Lakes and pools that are dried up in summer, not unfrequent. Abundant in a marsh near the summit of Howth. Fl. May—July. ? ? ?—Stems four to six inches long, most of them capillaceo-multifid, with the segments small and lanceolate. Partial umbels minute, scarcely longer than their involucres. General involucres none. Fruit large in proportion to the size of the plant, striated.


Calyx obsolete. Petals obcordate, with an inflexed point. Fruit laterally contracted, linear-oblong, crowned with the conical immarginate bases of the straight styles. Carpels with five, equal, filiform obtuse ridges, with many vitre. Seed tereticonvex, plane in front.—Universal involucres none, partial of few leaves.—Named from κωνος, a cone, and παυς, a foot; from the cone-shaped bases of the styles. Pentandria. Digynia.

Woods and pastures, frequent. Fl. May, June. 2. — Root a solitary tuber, much sought after by children and pigs. Stem solitary, erect, flexuose, with few leaves much divided into very slender, linear, or almost setaceous segments. Fruit oblong, moderately ribbed, a little narrower upwards, crowned with the straight styles, which have conical, very tumult bases.


Calyx obsolete. Petals obcordate with an inflexed point. Fruit laterally contracted, ovate, crowned with the swollen base of the reflexed styles. Carpels with five filiform equal ridges of which the lateral ones are marginal. Interstices with many vittae. Seed gibbous, plane in front. — Universal and partial involucres 0. — Name altered, as Linnaeus informs us, from bipinnula, twice pinnated. Pentandria. Digynia.


Dry pastures, frequent. Fl. July, Aug. 2. — Stem-leaves few; lower and radical ones upon long stalks. Leaflets of the latter often deeply and pinnatifidly cut, and sometimes bipinnatifidly so.


Shady places, on a limestone soil. Friar’s Walk, near Cork; Muscress Woods, near the abbey; and churchyard at Youghal. Fl. July, Aug. 2. — Larger in all its parts than the foregoing, and the leaflets of the upper leaves much broader and less divided.


Calyx obsolete. Petals obcordate. Fruit laterally compressed, oblong. Carpels with five, filiform, equal ridges, their inner faces plane. Interstices with single vittae. Seed tereti-convex, plane in front. — Universal and partial involucres various. — Name derived, according to Pliny, from that of the country Caria. Pentandria. Digynia.


Meadows and pastures, occasionally. Fields near Kilmainham, &c. Fl. June. 3. — Stem one to two feet high. Leaves doubly pinnated, cut into linear segments, of which the lowermost are decussate. Umbels dense. Carpels agreeably aromatic, and well known in the Kitchen and Pharmacopeia under the name of Caraway Seeds.

Moist meadows. Marsh near Lane Bridge, Killarney and other places in Kerry. Marshes in the district called Cranmore, near Belfast; Mr. Templeton. Salt marshes below Coderaine, County of Derry; Mr. D. Moore. Fl. May, June. 2.—Leaves mostly radical; a long common petiole bears a number of opposite multifid capillary leaves, whose spreading makes them appear whorled. Stems a foot high, slender. Umbels few, terminal. Involute very small.


Calyx obsolete. Petals obcordate, with an inflexed point. Fruit laterally compressed, oblong. Carpels with 5 filiform ridges, of which the lateral ones are marginal. Interstices without vittæ. Seed tercu-convex, plane in front.—Universal and partial involucres 0.—Differs from Carum only in the absence of vittæ. —Name from aegis, a goat, and πος, foot: the leaves being cleft something like a goat's foot.

Pentandra. Digynia.


Gardens and wet places; not very common near Dublin, but very plentiful near Belfast and other parts in the north. Often a troublesome weed in gardens. Fl. May, June. 2.—A foot and a half high. Radical leaves twice ternate, upper ones ternate; leaflets ovate, acuminate, unequally serrated. The creeping root is pungent and aromatic.


Calyx obsolete. Petals of the barren plant lanceolate, submarginate, with a contracted involute point, of the fertile ovate, with a short inflexed point. Fruit laterally compressed, ovate. Carpels with five prominent, filiform, equal ridges, of which the lateral ones are marginal. Interstices without vittæ or nearly so; but with a distinct canal under each ridge. Seed gibbous, convex. Involute various. The two kinds of petals, the dioecious plants, and the vittæ or evident canals beneath the ridges, together with a peculiar habit, constitute this a very distinct genus. Hook.—Named in honour of Dr. C. B. Trinius, a learned Botanist of St. Petersburgh, Author of a Species Graminum, &c. Pentandra. Digynia.

Limestone rocks, rare. Said to have been found by the late Doctor Wade near Athboy, but I have never seen Irish specimens. Fl. May, June. 4.


Calyx obsolete. Petals roundish, entire, with a small, closely involute point. Fruit roundish, laterally contracted, didymous. Carpels with three, filiform, equal ridges, of which the lateral ones are marginal. Interstices with single vitta, outer ones frequently with two or three vittae. Seed gibbous, convex, plane in front.—Universal and partial involucres 0.—Name, apon, water, in Celtic; from the places where the plant grows.

Pentandria. Digynia.


Marshy places, generally near the sea. Plentiful near Irishtown and Baldoyle, and various places on the Dublin coast. Fl. Aug. 3.—Stem furrowed, two feet high. Leaves ternate, leaflets large, wedge-shaped, lobed and cut at the extremity; the lower leaves are upon long stalks, with their leaflets rounder and truncate at the base. Umbels often sessile; petiolated ones of few flowers.—This is the origin of our garden Celery, and both the seeds and roots are well known as culinary articles. The Apium petroselinum, Linn. or garden parsley, although having been observed in a naturalized state on some old castles in the County of Cork, cannot be considered as indigenous.


Calyx of five teeth, leafy. Petals obcordate with an inflexed point. Fruit roundish, contracted at the side, didymous. Carpels with five nearly plane, equal ridges, of which the lateral ones are marginal. Interstices with single vitta, which in the dry fruit are more raised than the ridges. Seed terete.—Universal involucre of few leaves, or 0; partial of many leaves.—Name, Cicuta was a term given by the Latins to those spaces between the joints of a reed of which their pipes were made: and the stem of this plant is similarly marked by hollow articulations.

Pentandria. Digynia.


In ditches, and about the margins of rivers and lakes. Plentiful in ditches near the lake at Farnham, and many other places on the banks of Lough Erne. Fl. July, Aug. 4.—Stem three to four feet high, branched. Root and lower part of the stem, which is very large, hollow, and divided by transverse partitions into large cells. Leaves biternate, the radical ones pinnated; leaflets lanceolate, serrated. Umbels pedunculate.—A deadly poison.
(VII. Scandix Tribe.)

21. CHÆROPHYLLUM. Linn. Chervil.

Calyx obsolete. Petals obcordate, with an inflexed point. Fruit laterally compressed, or contracted. Carpels with five obtuse, equal ridges, of which the lateral ones are marginal, with a deep furrow on the inner face of the carpels. Interstices with single vitre. Seed tereti-convex, furrowed in front. —Universal involucre 0, or of few leaves, partial of many leaves.—Differs from all the Ammi Tribe in the deep furrow in front of each carpel.—Name from χαμίω, to rejoice, and φολλων, a leaf: hence our word Chervil, applied to the cultivated Anthriscus Cerefolium, whose leaves have an agreeable smell.

Pentandria. Digynia.


Hedges and bushy places, common. Fl. June, July. — Three feet or more high, rough with hairs. Leaves doubly pinnate; leaflets pinnatifid or inciso-lobate. Fruit linear oblong, striated. Umbels at first drooping.


Calyx obsolete. Petals obcordate with an inflexed, generally short, point. Fruit contracted on the side, rostrate. Carpels subterete, without ridges, the beak alone with five ridges. Seed tereti-convex, deeply furrowed in front. —Universal involucre none, partial of many leaves.—Name given by Pliny to a plant allied probably to this genus, but whose derivation we are ignorant of.

Pentandria. Digynia.

* Carpels smooth.


Under hedges and borders of fields, frequent. Fl. April—June. — Three feet or more high, branched. Leaves triply pinnate; leaflets ovato-lanceolate, deeply cut. Umbels at first slightly drooping. Partial involucres of several ovato-lanceolate leaves. Fruit linear oblong, with a much less evident beak than in A. Cerefolium. This beak, alone, is marked with a few ribs.

Linn.—E. Bot. t. 1268.—Charophyllum sativum, E. Fl. v. ii. p. 48.

Hedges and waste places, probably the outcast of gardens. Fl. July.

O.—Stem slender, one foot and a half to two feet high. Leaves pale yellow green, delicate. Umbels sessile, lateral, of few rays, pubescent. Partial involucres of few leaves, about three, unilateral, linear. Umbels small. Fruit large, perfectly glabrous, linear, tapering upwards. Known as a salad and pot-herb under the name of Garden Chervil.

** Carpels muricated.


Waste places, by road-sides, especially near towns and villages, frequent. Fl. May, June. O.—Two feet or more high, swelling under each joint. Leaves slightly hairy. Partial umbels small, with small involucres. Fruit rather large, with a distinct furrow on each side which extends to the beak, covered with hooked bristles.


Calyx obsolete. Petals obovate, with an inflexed point. Fruit laterally compressed, with a very long beak. Carpels with five obtuse equal ridges, the lateral ones marginal. Interstices without ridges, or obsolete vittae. Seed tereti-convex, with a deep furrow in front.—Universal involucre 0, or of few leaves, partial of 5—7 leaves.—Name from &sigma;ew, to prick, because of the sharp and long points to the seeds.

Pentandria. Digynia.


Corn fields, abundant. Fl. June, July. O.—Stem 4—6 inches to a foot high, roughish. Leaves triply pinnate. Umbels of very few rays, two to three. Partial involucres pinnatifid or bipinnatifid. Fruit of singular appearance, and very large in proportion to the size of the plant and of the flowers that produce it.


Calyx obsolete. Petals obcordate with an inflexed point. Fruit laterally compressed. Seed with its sides involute, covered by a pericarp, formed of two membranes, the exterior having five equal, acutely carinated ridges, hollow within, closely adnate to the interior. Vittae none.—Universal involucre 0, partial of many leaves.—Name derived perhaps from Myrrh,
myrrh, the foliage of one species at least possessing an agreeable scent.

Pentandria. Dyn va.


Orchards and waste places, probably the outcast of gardens. Near Oldcastle, and other places in the County of Meath; 'Rev. Mr. Halpin. Umbra rocks, Magilligan; Mr. D. Moore, who thinks it truly wild. *Fl.* May, June. 2.—Whole plant highly aromatic, two feet high or more. *Leaves* large, triply pinnate; *leaflets* pinnatifid.

(VIII. Smyrnium Tribe.)


Calyx obsolete. *Petals* lanceolate or elliptical, entire with an inflexed point. *Fruit* laterally contracted. *Carpels* reniformi-globose, didymous, each with three dorsal, prominent, sharp *ridges*, the two lateral and marginal ones nearly obsolete. *Interstices* with many *vittae*. *Seed* involute.—*Involucres* various.—Name from *μυρρα*, synonymous with *μύρρη*, *Myrrh*, from the scent of the juice. Pentandria. Digynia.


Waste grounds and ditch banks, very common; especially near Dublin. *Fl.* May, June. 9.—Stem three to four feet high, very stout, furrowed. *Leaves* bright yellow green, twice or (the lower ones) thrice ternate, with a very broad membranous base; *leaflets* very large, broadly ovate, lobed and serrated. *Flowers* yellow green, in very dense, numerous, rounded *umbels*. *Involucres* none. *Fruit* almost black when ripe.—Aromatic, but too strong and pungent to be agreeable. It was formerly used as a *pot herb*.


Calyx obsolete. *Petals* obcordate, with an inflexed point. *Fruit* laterally compressed, ovate. *Carpels* with five prominent, waved or crenated, equal *ridges*, of which the lateral ones are marginal. *Interstices* with many *striae*, without *vittae*. *Seed* involute.—Universal involucere of *few leaves*, partial of *three leaves on one side*.—Name *κωνίον* of *Theophrastus*, from *κώνος*, a cone, or a *top*, whose whirling motion resembles the giddiness produced on the human constitution by the poisonous juice of this plant. Pentandria. Digynia.

1. *C. maculatum*, *Linn.* Common Hemlock. Stem glabrous, spotted; leaves tripinnate; *leaflets* lanceolate, pinnatifid with

Waste dry places, banks, and under walls, not unfrequent. *Fl.* June, July. 3.—Root fusiform. Stem two to four feet high, striated and spotted with purple, much branched upwards. Leaves large, much divided, when bruised extremely fetid, yielding an extract which has been much employed both in the cure of scrofulous and cancerous maladies, and for the purpose of lowering the pulse. So powerful a plant should be carefully distinguished from its allies, which is best done by its spotted stem, fetid smell, and by the unilateral partial involucres, together with the waved ridges of the fruit.

C. Umbels Imperfect.

(IX. Sanicula Tribe.)

27. Sanicula. Linn. Sanicle.

*Calyx* a leafy margin. *Petals* erect, converging, obovate, emarginate, with an abruptly incurved segment the length of the petals. *Fruit* terete, nearly round. *Carpels* densely covered with hooked prickles, no ridges, but many *vittae*. *Seed* half round.—Universal and partial involucres of several leaves.—Name derived from *sano*, to *heal*, because this plant was supposed "to make whole and sound all inward wounds and outward hurts."

Pentandria. Digynia.


Woods and thickets, frequent. *Fl.* May, June. 2.—Leaves mostly radical, finely serrated, almost ciliated. Heads of flowers small, white.


Pentandria. Digynia.


Sandy sea-shores, frequent. *Fl.* July, Aug. 2.—Whole plant very stiff and rigid, glaucous. *Leaves and involucres* beautifully veiny. *Flowers* blue, in dense heads, having at first more the appearance of a
compound flower, than of an umbelliferous plant. The roots are well tasted, when candied. Linnaeus recommends the bleached shoots as a substitute for Asparagus.


Rare. Sandy fields near Lismore, Waterford; Mr. J. Drummond. Fl. July, Aug. 2.

(X. HYDROCOTYLE TRIBE.)

29. HYDROCOTYLE. Linn. White-rot.

Calyx an obsolete margin. Petals ovate, entire, acute, with a straight point. Fruit compressed at the side, so as to form two little shields. Carpels with five filiform ridges, those of the keel and sides nearly obsolete, the intermediate arched, without vittae. Seed carinate, compressed.—Creeping herbs, with simple leaves, and green obscure flowers.—Name from νεώπ, water, and κοτύλη, a cup or vase. The leaves are a little depressed, and stalked in the centre, and may thence somewhat resemble a cup or platter. The plant grows in watery places.

Pentandra. Digynia.


Bogs, marshes, and banks of lakes, frequent. Fl. May, June. 2.—Stems creeping, producing from their joints clusters of petiolated leaves, and simple flowerstalks, which are much shorter than the petals. Flowers often with a reddish tinge.

ORD. 34. STELLATAE. Lindl. Madder Family.

Calyx superior, 4—5 or 6-lobed. Corolla monopetalous, rotate or tubular, regular, inserted into the calyx. Stamens equal in number to the lobes of the corolla, and alternate with them. Ovarium simple, 2-celled; ovules solitary, erect; style simple; stigmas two. Fruit a dry indehiscent pericarpium, with two cells, and two seeds. Seeds erect, solitary; embryo straight in the axis of horny albumen; radicle inferior; cotyledons leafy.—Herbaceous plants; with whorled leaves, destitute of stipules; square stems; roots staining red; flowers minute.

1. GALIUM. Linn. Bed-straw.

Corolla rotate, or campanulate, 5-cleft. Fruit dry, not crowned.
by the calyx.—Name from γαλα, milk: the plant having been formerly employed to curdle milk.

*Fruit smooth. Flowers yellow.*


Dry banks, sandy places, and sea-shores, common. _Fl._ July, Aug. 2.—Readily distinguished by its yellow flowers, and linear deflexed leaves. The Highlanders are said to employ this plant as a Rennet for curdling milk, combined with the leaves of the common Nettle and a little salt.

* * * _Fruit glabrous. Flowers white._

2. _G. palustre_, Linn. _White Water Bed-straw_. Leaves 4—6 in a whorl, oblongo-lanceolate, obtuse, tapering at the base, and as well as the lax, spreading, branched stem more or less rough.


Sides of ditches, lakes and rivulets. _Fl._ July. 2.—“The transition from the smooth to the rough state of this plant, may be observed on the borders of pools, and it is only in wet situations that it corresponds with the description in _E. Fl._ of _G. palustre_. In dry situations, especially by road-sides where the earth has been recently disturbed (in the neighbourhood of marshes) it assumes the state of _G. Witheringii_, but is very luxuriant and branched. In marshes, not liable to be overflowed, and in boggy ground, it is in every respect like that described in _E. Fl._ under _G. Witheringii._” _Wilson MSS._ quoted by Hooker. The plant turns blackish in drying, and the upper leaves are generally unequal in size. The variations of this plant, as stated above, may be seen in the common beyond Kingstown, where it is abundant in the summer months.


Wet meadows and sides of ditches, frequent. _Fl._ Aug. 2.—Distinguished by the lanceolate leaves, tapering at the base and shortly acuminate at the points into a macro. _Bristles on the plant all reflexed._

Heathy places, hilly and mountainous pastures, abundant; often covering rocks (as on Killiney Hill) in large patches, and adorning them in the summer months with its profusion of milk-white flowers. *Fl. June—Aug. 4.*—Leaves often rough at the margins, of a thickish and rather soft texture. *Panicles* forked, terminal or lateral. *Seed* reddish after the flowers fall.


On the north side of Killiney Hill; *Miss Green,* July, 1834. *Fl. June, July.* 2.—Differs from *G. uliginosum* by the edges and the adjoining portion of the disk of the leaves above, bearing a double row of hooked prickles all pointing forward, in its larger size, stouter habit, glaucous hue, and larger, less obovate *leaves.*


Sandy fields, and dry bushy places. More common about Dublin than in other parts of Ireland. *Lawn at Mr. Vernon’s,* near Belfast; *Mr. Templeton.* *Fl. July,* Aug. 2.—*Stem* often five feet long, as I have observed in plants growing near Sandymount. *Prickles* on the margins of the leaves pointing forward.


Limestone rocks at Mucruss, Killarney, near Corrofin, and at Rock Forest, County of Clare. *Fl. July,* Aug. 2.—*Stems* numerous, rough on the lower part. *Flowers* white, very numerous.

**Fruit hispid.** *Flowers* white.


Moist rocks on the banks of Lough Erne, near Ely Lodge, and by Lough Neagh, near Shane’s Castle; on Mangerton Mountain, in a marshy spot about half-way up. *Fl. June,* July. 4.—*Flowers* numerous, crowded, white. *Bristles* of the fruit rough.


*Plant* straggling among bushes. *Flowers* few, or two or three short,
simple *footstalks*, arising from the axils of the leaves. *Bristles* of the fruit hooked, which by this means catch hold of the coats of animals, and are widely dispersed. The seeds have been recommended as a substitute for *coffee*. *Hook*. *Fl*. May—Aug. ©.

2. **Asperula. Linn.** Woodruff.

*Corolla* funnel-shaped. *Fruit* without any distinct margin to the calyx.—Name from *asper*, rough, owing to the roughness of some species of the Genus. *Tetrandria. Monogynia.*


Woods and shady places, plentiful. *Fl*. May, June. 2.—About six inches high, erect. *Flowers* white. Whole *plant* very fragrant, especially in the act of drying and when dry.


Abundant on limestone rocks about Corrofin and other places in the County of Clare, and in the large Island of Arran, where I collected specimens in 1805, but neglected to insert it in my last catalogue. *Fl*. June, July. 2.—Stem branching. *Flowers* white or bluish coloured, with three red lines on each segment.

3. **Sherardia. Linn. Field Madder.**

*Corolla* funnel-shaped, 4-cleft. *Fruit* dry, crowned with the persistent teeth of the calyx.—Named in honour of James Sherard, an English Botanist and Patron of Botany, whose fine garden at Eltham in Kent, gave rise to the famous "Hortus Elthamensis" of Dillenius. *Tetrandria. Monogynia.*


4. **Rubia. Linn. Madder.**

*Corolla* rotate or campanulate, 4 or 5-lobed. *Stamens* 4 or 5. *Fruit* a 2-lobed berry.—Name from *ruber*, red, from the red dye afforded by the species, especially the *Rubia tinctorum*, which produces the true *Madder* or *Turkey red* of commerce. *Tetrandria. Monogynia.*

1. **R. peregrina, Linn. Wild Madder.** Leaves 4—6 in a whorl, lanceolate, persistent, glossy, the margin and keel rough

Dry gravelly banks and rocks on the south side of Howth, and Killiney Hill; also abundant on limestone rocks at Mucruss and Killarney. Hedges near Passage, County of Cork; Rev. Dr. Hincks. Fl. June—Aug. 2.—Mr. Wilson justly remarks, as stated by Dr. Hooker, that the corolla is rather rotate than campanulate, which is the case in some foreign species; (or funnel shaped as in R. tinctorum); the segments, after the escape of the pollen, spreading with convex surfaces, concave in the newly opened flowers.

Ord. 35. CAPRIFOLIACE.E. Juss. Honeysuckle Family.

Tube of the calyx adnate with the ovary, the limb 5-lobed. Corolla of one petal, inserted upon the calyx, the limb more or less lobed, sometimes irregular. Stamens inserted upon the calyx, adnate with the base of the corolla, alternate with its lobes, equal in number with them (one sometimes abortive), exserted or included; filaments subulate; anthers ovate, 2-celled; style exserted or wanting. Stigmas 1 or 3, distinct or collected into a head. Berry crowned with the limb of the calyx, generally dry, or fleshy, 1—or more-celled. Seeds solitary, 2 or many in each cell, sometimes several abortive, pendulous; testa crustaceous. Albumen fleshy. Embryo in the centre of the albumen; radicle superior; cotyledons ovato-oblong.—Shrubs, rarely trees. Leaves opposite, without stipules, or usually so, simple or pinnate. Flowers terminal and corymbose or axillary.

§ Lonicereae.

Corolla monopetalous.


Corolla irregular. Berry 1—3-celled, many-seeded.—Name given in honour of Adam Lonicer, a German Botanist. 

Pentandria. Monogynia.


In hedges, groves, among rocks, and in bushy places, frequent. b. Among rocks on Killiney Hill, near the Obelisk. Fl. June—Oct. 12.—Berries solitary and distinct. Stem invariably twining in one direction. In the var. b. the leaves are sinuated like those of an oak, and sometimes variegated.
2. **Viburnum.** *Linn.* Guelder-rose.


*Pentandria. Trigynia.*


Woods, hedges, and crevices of rocks, not unfrequent. Hedges near Dundrum; Powerscourt woods; rocky banks at the upper end of Collin Glen, and other places near Belfast; banks of Lough Neagh, near Antrim Castle. *Fl.* June, July. ½.—Small tree, or large shrub, very glabrous. *Leaves* large, subcordate, broad. *Cymes* large, white, with linear bracteas. The perfect *flowers* small; abortive one in the circumference, consisting of a very large plane, five-lobed *petal*, without either stamen or *pistil*. *Flowers* erect. *Berries* reddish-purple, drooping. The snow-ball tree, well known in gardens and shrubberies, belongs to this species. In it, nearly all the flowers are enlarged and form globular heads.

3. **Sambucus.** *Linn.* Elder.

*Calyx* 5-cleft. *Corolla* rotate, 5-lobed. *Berry* inferior, 3 or 4-seeded.—Name, from οὐσίαν, a musical instrument, in the construction of which this wood is said to have been employed.

*Pentandria. Trigynia.*


Waste places and way-sides. Near the gate in Powerscourt desmesne, at the entrance to the deer park; near Kenmare, County of Kerry. Plentiful near Hollywood and Lisburn, and other places in the counties of Down and Antrim; Mr. Templeton and Mr. Campbell. *Fl.* July. 2.—Stem two to three feet high, angular and furrowed. *Leaves* pinnate; *leaflets* serrated. *Cymes* large, terminal, purplish. *Anthers* large, purple. *Berries* sphaerical, black. The plant has a fetid smell, and is violently purgative.


Woods and hedges, frequent. *Fl.* June. ½.—A small tree having the stems and branches abounding with pith. *Cymes* terminal, large, cream-coloured, smelling unpleasantly. *Anthers* small, yellow. *Berries* purple-black, sometimes white. The bark is used by country practitioners medicinally, and the berries are frequently used in England for making wine.

Corolla polypetalous.


Calyx of four teeth. Petals four, superior. Nut of the drupe with two cells and two seeds.—Name from Cornu, a Horn, owing to the hard nature of the wood.

Tetrandria. Monogynia.

1. C. sanguinea, Linn. Wild Cornel or Dogwood. Branches straight; leaves green on both sides; cymes naked, flat. Br. Fl. 1. p. 69. E. Fl. v. i. p. 221. E. Bot. t. 249.


Calyx of five teeth. Petals five, broadest at the base. Style simple. Berry with 3 to 5 seeds, crowned by the calyx.—Name of uncertain origin. Pentandria. Monogynia.


Hedges, woods, old buildings, and on trunks of trees, frequent. Fl. Oct. Nov. 5.—Stems very long, creeping, throwing out numerous tufts of fibres, by which they adhere to hard substances. Leaves shining, dark green, often veined with white lines. Flowers small, pale green. Calyx-teeth very minute. Petals reflexed. Berries smooth and black. A variety called the Irish Ivy (of which I have specimens collected by Mr. W. Andrews on the rocks at Ballybunion, County of Kerry) is much cultivated on account of its very large leaves and quick growth. Another fine variety, first found near Dunganstown by Mr. Hodgens, and which I have since observed on walls near Merrion, has the leaves deeply five-lobed, resembling those of Passiflora carerulea or common Passion flower.

Ord. 36. VACCINIÆ. D.C. Bilberry Family.

Tube of the calyx adnate with the ovary, the limb entire or 4—5—6-lobed. Corolla monopetalous, 4—6-lobed, inserted along with the stamens, (which are twice as many as there are lobes of the corolla,) upon an epigynous disk or torus: anthers 2-celled, with 2 horns. Ovary 1: style 1: stigma 1. Fruit a berry, crowned with the persistent limb of the calyx, 4—5-celled; cells few-seeded. Embryo straight, in the axis of a
fleshy albumen: cotyledons very short: radicle long, inferior.—
Small shrubs, with deciduous or evergreen leaves.


Calyx superior, 4—5-toothed. Corolla of 1 petal, bell-shaped
or campanulate, with 4—5 teeth or segments. Anthers with
two pores. Berry globose, 4-celled, many-seeded.—Name;
some say the βακύβος, of the Greeks, and hence synonymous
with Hyacinthus; but the etymology of the word is unknown.
Octandria. Monogynia.

* Leaves deciduous.

1. V. Myrtillus, Linn. Bilberry or Whortle-Berry. Stalks
solitary, single-flowered; leaves ovate, serrated, membranous,
smooth, deciduous; stem acutely angular; calyx wavy, nearly

Woods and heathy places, chiefly in mountainous districts, abundant.
Fl. May. *—Flowers drooping, urceolate, almost waxy, greenish
with a red tinge. Anthers tubular, each cell opening by a pore at the
extremity, and having a horn at the back. Berry black, glaucous,
very agreeable to the taste, and known in Ireland as Frochín-berries.

* * Leaves evergreen.

2. V. Vitis Ideæ, Linn. Red Whortle-Berry, Cow-Berry.
Clusters terminal, drooping, with ovate, concave bracteas, longer
than the flower stalks; leaves obovate, revolute, minutely

Dry heathy places on mountains. Plentiful on the Dublin Moun-
tains, near Lough Bray; in Cunnamara, and mountains in the northern
counties. Heaths near Dungannon; Mr. Campbell. A variety, with
serrated and undulated leaves, was pointed out to me on the Mourne
Mountains, above twenty years ago, by the late Mr. Templeton, (who
also found it in a bog near Ballynahinch, in the County of Down,)
agreeing with a specimen of Haller's he saw in Sir Joseph Bank's
herbarium. Perhaps the same as the dwarf variety found by Mr.
Murray on the Campsie and Arran hills in Scotland, mentioned by
Doctor Hooker. Fl. May, June. *—Δ low somewhat straggling
shrub, with leaves resembling those of box.

3. V. Oxycoccus, Linn. Marsh Whortle-Berry, Cran-Berry.
Peduncles terminal, single-flowered; leaves ovate, evergreen,
glaucous beneath, their margins revolute and entire; corolla 4-
p. 134.

In peat bogs, especially among Sphagnum, or white Bog Moss,
in various parts of the country. Fl. June. *—Stems straggling,
Campanula.]

Campanula. | CAMPANULACEÆ. | 137

Wiry, eight to ten inches long, or more. Leaves small. Flowers of a deep rose-colour. The berries are used in Dublin and elsewhere in Ireland for making tarts.


Tube of the calyx adnate with the ovary; its limb 4—8-generally 5-cleft, equal, persistent. Corolla monopetalous, deciduous or marcescent, regular or irregular, 5, sometimes 4—6—8-cleft, rarely of 5 petals with broad connivent claws. Stamens inserted upon a disk which is adnate with the ovary (base of the corolla?), sometimes upon the corolla, equal in number with the segments of the corolla, and alternate with them; anthers fixed to the base, 2-celled, cells opposite, opening longitudinally, distinct or cohering. Ovary 2—or many-celled, many-seeded. Style 1; stigma 1, or generally as many as there are cells of the ovary, naked or covered by an indusium. Capsule wholly adnate with the tube of the calyx, and opening below the limb with lateral pores, or half-adnate and valvate at the extremity, the valves bearing the placentas. Seeds numerous, small, with a fleshy albumen. Embryo straight, as long as the albumen.—Herbaceous plants or under shrubs. Leaves alternate. Flowers single, or in heads; usually purple.


Calyx 5-cleft. Corolla campanulate, 5-cleft. Stamens 5, with the filaments broadest at the base. Stigma 4—or 5-parted. Capsule 3—5-celled, opening by perforations towards the base.—Named from the usual form of the corolla, Campana, a bell. Pentandria. Monogynia.


Dry and hilly pastures, borders of fields and wall-tops, abundant, sometimes varying with white flowers, instead of blue, the usual colour. Fl. July—Sept. 2.—Panicle of few flowers, lax. Flowers drooping. Whole plant slender and graceful.


Moist shady woods. Woods by the river Barrow, above New Ross. Fl. July, Aug. 2.—From two to three feet high. Corolla very large, blue, (sometimes white in gardens and in woods in Scotland.) This is the most stately of our species.

Found in a lane between Glasnevin and Finglass, above thirty years ago, by the late Doctor Brinkley, Bishop of Cloyne, according to Mr. Templeton, who also found it about the same time, by the river-side below Innistiogue, County of Kilkenny. Fl. July, Aug. 2.—Leaves much like those of the common Nettle, whence the name.


Moist shady banks and open situations, on a light sandy or gravelly soil. On the Sugar-loaf Mountain, County of Wicklow; Doctor Stokes and Mr. John Nuttall. Near Bandon, County of Cork, and in Glencree, between Enniskerry and Longh Bray near the Copsewood, abundant. Fl. July, Aug. 2.—A most graceful little plant, growing in lax tufts. Peduncles long, slender, mostly terminal. Flowers half an inch or more in length, at first drooping, then erect; pale purplish-blue.

Ord. 38. LOBELIACEÆ. Lindl. Lobelia Family.

Calyx superior, 5-lobed, or entire. Corolla monopetalous, irregular, inserted in the calyx, 5-lobed, or deeply 5-cleft. Stamens 5, inserted into the calyx alternately with the lobes of the corolla; anthers cohering; pollen oval. Ovarium inferior, with from one to three cells; ovula very numerous, attached either to the axis or the lining; style simple; stigma surrounded by a cup-like fringe. Fruit capsular, 1—or more-celled, many-seeded, dehiscing at the apex. Seeds attached either to the lining or the axis of the pericarpium; embryo straight, in the axis of fleshy albumen; radicle pointing to the hilum.—Herbaceous plants or shrubs. Leaves alternate, without stipule. Flowers axillary or terminal.


Calyx 5-cleft. Corolla rotate, with a very short tube, and five long linear segments. Stigma bifid. Capsule 2-celled. Flowers collected within a many-leaved involucre.—Name, supposed from iov, a violet, from the blue colour of the flowers, applied by Pliny to some esculent plant. Pentandria. Monogyinia.


2. Lobelia. Linn. Lobelia.

Calyx 5-cleft. Corolla irregular, 2-lipped, cleft longitudinally on the upper side. Anthers united. Stigma hairy. Capsule 2—3 celled, the upper free part 2-valved.—Named in honour of Matthias Lobel, or L’Obel, a Fleming, but naturalized in England, where he published several learned botanical works.


Margins of lakes with clear gravelly bottoms. Plentiful at Glendalough and Lough Dan, County of Wicklow; lake at the base of the Mourne Mountains; lakes of Killarney, &c. Fl. July, Aug. Leaves two to three inches long, a little recurved, formed of two parallel tubes or cells. Scape, or almost leafless stem, flowering above water, a foot or more high, according to the depth of the water. Flowers pale blue, drooping. Fruit erect.


Tube of the calyx adnate with the ovary; limb toothed or parted, or at first involute, and afterwards expanding into a feathery pappus. Corolla tubular, funnel-shaped, often 5-lobed, rarely 3—4-lobed, the lobes obtuse, the tube equal or gibbous, or spurred at the base. Stamens 1—5, inserted into the tube of the corolla, alternate with its lobes when of the same number; anthers ovate, 2-celled. Style filiform; stigmas 2—3, distinct or combined. Fruit membranaceous or bony, indehiscent, crowned with the more or less persistent limb of the calyx, 3-celled, with two cells empty; or only one. Seed solitary, pendulous, without albumen. Embryo straight; radicle superior; cotyledons flat. Annual or perennial herbs. Leaves opposite, without stipules, entire or pinnated.


Calyx small, unequally toothed, crowning the fruit. Corolla monopetalous, 5-cleft, gibbous at the base. Capsule indehiscent, 3-celled, 3-seeded; two cells generally abortive.—Name of Adanson, but whose meaning is not accurately known: according to Smith, Fedus is synonymous with Hædis, a kid.

Triandria. Monogynia.

Banks and corn fields, in a light soil, frequent. Corn fields at Howth; Portmarnock, Feltrum Hill, and many other parts of the country. *Fl.* April—June. ☄.—Three inches to a foot high, dichotomous, more or less rough. *Root-leaves* spatulate, those of the stem oblong, obtuse, entire, or with the upper ones a little toothed. *Flowers* pale blue, in terminal compact heads, at the base of which are linear-oblong, often divided bracteas, forming a kind of involucre.


Corn fields and dry banks, less frequent than the last. Near Monks-town, County of Cork; Mr. J. Drummond. On the Curren of Larne; Mr. Templeton. Abundant about Oldcastle and at Lisnabrin, County of Cavan; Rev. Mr. Halpin. In Farnham demesne; Mrs. E. Tenaut. *Fl.* June, July. ☄.—*Leaves* narrower than in the foregoing. *Flowers* smaller, purplish, almost all from the forks of the smooth stem. *Capsules* not inflated or lobed. *Crown* of three, scarcely more, erect, unequal teeth, one much the largest.

2. **Valeriana.** Linn. Valerian.

*Calyx* a thickened margin to the top of the germen, at length unfolding into a feathery *pappus*. *Corolla* monopetalous, 5-cleft, gibbous or spurred at the base. *Fruit* 1-seeded, crowned with the feathery *pappus*.—Name from Valeo, to be powerful, on account of the medicinal effects.

**Triandria.** Monogynia.


Ditches, sides of rivers, and woods, abundant. *Fl.* June, July. ☄.

—*Roots* tuberous, warm, aromatic, and employed in medicine.

Ord. 40. **DIPSACEÆ.** Juss. Teasel Family.

 Tube of the calyx adnate with the ovary: the limb various,
short or elongated, entire, toothed, or often ending in hairy or feathery and pappus-like bristles. Corolla of one petal, inserted at the mouth of the tube of the calyx, rarely ringent, often somewhat unequal, 4—5-cleft. Stamens 4, inserted into the tube of the corolla, alternate with its lobes, almost always distinct; anthers 2-celled. Style filiform: stigma simple, longitudinal or capitate. Fruit indehiscent, membranaceous, or somewhat bony, crowned with the limb of the calyx, often covered by an involucrellum or outer calyx, 1-celled, 1-seeded. Seed pendulous. Albumen fleshy. Embryo straight: radicle superior.—Herbaceous plants or under shrubs. Leaves opposite or whorled. Flowers collected upon a common receptacle, and surrounded by a many-leaved involucrellum.


Involucrellum with four sides, and eight little excavations. Calyx with a somewhat cyathiform limb. Stigma longitudinal. Leaflets of the involucre longer than the bracteae. Receptacle with spiny pallec.—Name from ēvĕaw, to be thirsty; the upper connate leaves containing water in their hollows. Tetrandria. Monogynia.


Borders of fields, hedge banks, and way-sides, frequent. Plentiful at the black quarries near Clontarf Crescent, and other places on the north side of Dublin. Fl. July. §.—Heads large, encompassed and overtopped by the long leafy involucre. This is supposed to be the origin of the cultivated Teasel, (D. fullonum,) which differs from it in having the leaves more regularly connate and the scales of the calyx hooked at the points.


Involucrellum nearly cylindrical, with eight little excavations. Calyx with a limb consisting of five setæ, occasionally partially abortive. Coulter.—Name from Scabies, leprosy; an infusion or decoction of some of the species having formerly been employed in curing cutaneous diseases. Tetrandria. Monogynia.


Leaves hairy, rather stiff; radical ones ovate, mostly petiolate, those of the stem oblong. Flowers purplish blue, often white.


Involucellum compressed, with four little excavations, closely surrounding the fruit, placed on a short stalk. Calyx with a somewhat cup-shaped limb.—Name, in honour of Christopher Knaut, a botanist of Saxony, who flourished in the latter half of the seventeenth century.

Tetrandria. Monogynia.


Pastures and corn fields, frequent. Fl. July. 2.—Two to three feet high. Radical leaves lanceolate, slightly serrate, hairy. Heads of flowers large, convex, lilac-purple; outer florets large, with their segments unequal, the lower ones very large, and forming a sort of ray around the head; inner florets with equal segments. Sir J. E. Smith states that the fine pale purple flowers of this plant change to a most beautiful green if held for a few minutes over the smoke of tobacco.

Ord. 41. COMPOSITÆ. Juss. Composite Family.

Tube of the calyx adnate with the ovary; the limb entire or toothed, or resembling scales, or mostly expanded into a simple or feathery pappus, sometimes wanting. Corolla regular and funnel-shaped, or irregular and ligulate, sometimes 2-lipped, generally 4—5-toothed. Stamens 4 or 5, alternate with the teeth of the corolla: anthers cohering in a cylinder. Ovary 1, 1-celled, with a single erect ovule; style 1; stigmas simple or bifid. Fruit an achenium, crowned with the limb of the calyx or pappus. Seed erect, without albumen. Embryo straight; radicle directed to the hilum.


Flowers flosculous, or radiant. Receptacle membranous, or not fleshy. Stigmata not articulated with the style.


Involucrre cylindrical; scales imbricated, oval-oblong. Florets few, all tubular. Receptacle naked. Pappus pilose.—Name; from Eupator, the surname of Mithridates, King of Pontus, who brought this plant into use.

Syngenesia. Æqualis.


2. **INULA. Linn. Elecampane.**

*Involucre* imbricated, its *scales* spreading; outer ones, especially, foliaceous. *Anthers* with bristles at their base. *Receptacle* naked. *Pappus* simple. *Flowers* yellow.—*Name*; said to be the same as *Helenium*, having sprung from the tears of Helen. *Syngenesia. Superflua.*


Moist meadows, rare. At Calnafersy, near Killarney. On high ground between Miltown and Tralee; Dr. George Clarke. Seashore near Bantry, and by the Sullane river, County of Cork; Mr. J. Drummond. Devinish Island, near Enniskillen; Mr. J. Johnston. Sea-shore near the south side of the Hill of Howth, in muddy places; on steep banks, and in crevices of rocks, below the Rev. Doctor Mac Donnell's cottage, on the south side of Killiney Hill, and on Lambay Island, abundant. *Fl.* Aug. Sept. 2. —Three to five feet high. *Flowers* large, terminal, solitary, with many narrow, tricuspidate, yellow rays.

3. **LIMBARDA. Adans. Golden-Samphire.**


Sea-shore on the south side of the Hill of Howth, in muddy places; on steep banks, and in crevices of rocks, below the Rev. Doctor Mac Donnell's cottage, on the south side of Killiney Hill, and on Lambay Island, abundant. *Fl.* Aug. Sept. 2. —One foot high, a little branched at the summit, each branch bearing a solitary *flower*. In habit very different from the preceding genus, as it is from the following.

4. **PULICARIA. Gertn. Flea-bane.**

*Involucre* hemispherical, closely imbricated with narrow scales. *Anthers* with bristles at the base. *Pappus* double; *outer
one short, cup-shaped, membranous, toothed; inner long, rough. *Flowers* yellow. — Name; *pulex*, a flea, an insect which this plant is supposed to drive away by its powerful smell.

*Syngenesia. Superflua.*


Moist and watery soils, common near Dublin and many other places. *Fl. Aug.* 2. — About a foot high, terminating in a corymb of yellow flowers. Linnaeus, in *Fl. Suec. ed.* 2. p. 294, records, on the authority of General Keith, that it cured the Russian army of dysentry — hence the specific name.


*Involucre* imbricated, the lowermost scales spreading (except in *A. Tripolium*). *Receptacle* naked. *Pappus* sessile, simple. *Florets* of the disk yellow, of the ray purple or white. — Name; *Aster* a star, which the flowers resemble.

*Syngenesia. Superflua.*


*Involucre* imbricated with numerous linear scales. *Receptacle* naked. *Florets* of the ray numerous, very narrow, (mostly of a different colour from the disk.) *Pappus* simple. — Name; *εύρη, early, and τρέφων, an old man:* from the bald heads of the receptacles, after the flowers and fruit have fallen.

*Syngenesia. Superflua.*


Dry gravelly pastures and old walls. Gravelly banks near the Grand Canal, a mile from Lucan; banks of the Dodder above Templeogue, and various other places. *Fl. Aug.* 3. — One foot high or more; whole plant scabrous, hispid, erect, panicled above and leafy. *Flowers* pedunculated, from the axils of their leaves, and terminal.
Leaves below tapering into a footstalk. Florets of the disk yellow, of the ray ligulate, purplish. Pappus very long and tawny.

7. **Solidago.** Linn. Golden-rod.

*Involucre* closely imbricated. *Receptacle* naked, pitted, down simple. *Florets* of the ray few.—Name; *solidari*, to unite, from the vulnerary qualities of the plant.

**Syngenesia.** Superflua.


β. small, with broader radical leaves. **S. cambrica,** Huds.

Woods and heaths, frequent. β. on Mangerton and other mountains in Kerry, &c. *Fl.* July—Sept. 2. —Lower leaves broad, stalked; very variable in regard to size, and the more or less compact inflorescence.

8. **Gnaphalium.** Linn. Cudweed.

*Involucre* imbricated, with (often) coloured, membranous scales. *Receptacle* naked. *Florets* of the circumference subulate; some of the centre occasionally abortive. *Pappus* rough or feathery.—Name; *γράφαλον*, soft down, or wool, with which the leaves are clothed.

**Syngenesia.** Superflua.

*© Flowers dioecious. (Antennaria. Gaertn.)*


Mountain heaths, and sandy commons, frequent. Plentiful at Portmanock, and on mountainous heaths all over the country. *Fl.* June, July. 2. —Flowering stems three or four inches high. Leaves greenish above, white beneath. Inner scales of the involucre often rose-coloured, especially in the fertile flower.


*© Flowers perfect.*

nearly erect, downy; flowers axillary, forming an interrupted leafy spike; leaves linear-lanceolate, downy. Br. Fl. 1. p. 357.

α. leaves woolly on both sides. G. sylvaticum, E. Bot. t. 913. E. Fl. v. iii. p. 414.

β. leaves nearly glabrous above, spike longer, more interrupted. G. rectum, Huds.—E. Bot. t. 124. E. Fl. v. iii. p. 415.

α. On Lettery mountain, Cunnama. β. on dry upland pastures, and sometimes on low grounds, not unfrequent all over the country. Fl. Aug. 2.—Scales of the involucre oblong, shining, with a broad brown border.


Sandy and wet places; especially where water stands in winter. Fl. Aug. Sept. 0.—A span high, much branched. Flowers two or three together within the closely placed upper leaves, small, sessile, forming oblong clusters at the extremity of the branches. Scales of the involucre yellowish-brown, shining, glabrous.

5. G. minimum, Sm. Least Cudweed. Stem erect, branched; branches spreading; leaves lanceolate, acute, cottony; flowers conical, clustered, lateral and terminal; clusters longer than the leaves. Br. Fl. 1. p. 357. E. Fl. v. iii. p. 417. E. Bot. t. 1157.—Filago minima, Linn.

Dry gravelly places. In a field between the Dargle and Powerscourt. Fl. July, Aug. 0.—Stems four to six inches high, slender, branched above in a dichotomous manner. Involucres downy, broad at the base. Florets yellowish.


Sandy and gravelly places, not unfrequent. Fl. June, July. 0.—Stem six to eight inches high, erect, very leafy, terminated by a globular head of small, ovate flowers, from beneath which spring two, three, or more horizontal branches, in a proliferous manner, each terminated by a head of flowers. Scales of the involucre yellowish, shining, very acute, submucronate.


Involucre cylindrical, its scales linear, equal, with several smaller ones at the base, their tips often brown. Receptacle
naked. Flowers discoid or radiant. Pappus simple, sessile.
—Name; senex, an old man. See *Erigon.*

*Syngenesia.* Superflua.

* Flowers without rays.


Waste ground, fields, and hedges. *Fl.* all summer. O.—A span to a foot high. Flowers small, yellow.

* * Flowers rayed, with the ray rolled back.


Waste and sandy grounds near Dublin, as well as about Cork, Belfast, and other places. *Fl.* July, Aug. O.—Stems one to two feet high, much branched and spreading; remarkable for its viscid hairs and fetid smell.


Waste grounds and dry upland mossy soils. Tittour, near Roundwood. Waste ground near Cork; *Mr. J. Drummond.* Near Larne; *Mr. Templeton.* *Fl.* July. O.—One foot high. Leaves finely divided. Plant with a disagreeable smell, but not so powerful as *S. viscosus.*

* * * Flowers with patent rays. Leaves pinnatifid.


Hedges and road-sides, both on the north and south side of Dublin, frequent. *Fl.* July, Aug. O.—Allied to the following. Leaves deeply pinnatifid, dark green above, whitish beneath. Flowers bright yellow.

WAY-SIDES AND NEGLECTED PASTURES, TOO FREQUENT. FL. JULY, AUG.


Wet places, and by the sides of rivers and ditches. FL. JULY, AUG.

**Flowers rayed. Leaves undivided.**


Woods near Bantry; Mr. J. Drummond. On the ruins of Glenluce Castle, County of Antrim; Mr. Templeton. FL. JULY, AUG. 
Three to five feet high, scarcely branched, corymbose at top. A doubtful native.


**Involucre formed of a simple row of equal, linear scales. Receptacle naked. Flowers radiant. Callos of the circumference long, linear, numerous; of the disk few. Pappus simple. Scape single flowered.** Name altered from *Tussis*, a cough, in the cure of which the plant has been employed. *Syngenesia. Superflua.*


Moist and clayey soils, too abundant. FL. MARCH, APRIL, before the leaves appear. FL. —Flowers yellow; florets of the disk few. The leaves have been used medicinally, as an infusion, or smoked like tobacco, for the relief of asthma.


Nearly dioecious. **Involucre imbricated with two rows of lanceolate scales. Flowers not radiant. Pappus simple. Scape many-flowered.** Name, πτασαος, a covering to the head, or an umbrella; from the great size of its foliage. *Syngenesia. Superflua.*

T. Petasites, Linn.—E. Bot. t. 431.—β. Flowers fertile, bearing seed, rarely stamens. T. hybrida, Linn.—E. Bot. t. 430.

Wet meadows to which it is very injurious, and river-sides. Fl. April, May, before the leaves appear. T. hybrida, Linn.—E. Bot. t. 430.

Root extensively creeping, and thus multiplying the plant. Leaves very large. Flowers of a pale flesh colour; smaller, more lax, and in a longer thyrsus in the fertile plant. Dr. Hooker remarks, that Mr. Wilson who studies nature deeply, suggested to him the propriety of distinguishing this as a genus from T. Farfara, without being aware that it had been already done by Desfontaines, and confirmed by Cassini, and further states, that the early flowering of this plant induces the Swedish farmers to plant it near their bee-hives, and that we see in our gardens the bees collected on its affinities, P. albus, and fragrans; at a season when scarcely any other flowers are expanded.


Involucre hemispherical, simple, its scales all equal in length. Receptacle naked, conical. Pappus none.—Named from bellus, pretty.


Pastures, frequent. Fl. from the early spring to the end of autumn.


Involucre hemispherical, imbricated with scales whose margins are membranaceous. Receptacle naked. Pappus none.—Name; χρυσός, gold, and ἄνθος, a flower, from the colour of the blossoms in some of the species.


Dry pastures, abundant. Fl. June, July. —Stems 1—2 feet high. Flowers large, their disk yellow, the ray white.


Corn fields, frequent. Fl. June—Aug. —One foot or more high. Flowers large, deep yellow.


Involucre hemispherical, imbricated with scales whose margins are membranaceous. Receptacle naked. Fruit crowned with
a membranaceous border.—Flowers with a yellow disk and white ray.—This genus is nearly the same as the last.—Named from its resemblance to the πεπελοψ φοιν of Dioscorides, so called from πυψ, fire, on account of its acrid roots.

_Synogenesis._ Superflua.

1. _P. Parthenium_, Sm. _Common Feverfew_. Leaves stalked, compound, flat; leaflets ovate, cut, the uppermost confluent; flowerstalks corvmbose; stem erect; ray shorter than the diameter of the disk. _Br. Fl._ 1. p. 365. _E. Fl._ v. iii. p. 451. _E. Bot._ t. 1231.— _Matricaria Parthenium_, Linn.

Waste places, frequent about Dublin. On limestone rocks near Belfast; _Mr. Templeton._ _Fl._ July. 2.—One foot to two feet high, branched. _Disk of the flowers yellow, the ray very short, white._—Plant bitter and tonic.


Fields and waysides, common. _Fl._ Aug.—Oct. 3.— _Stem_ about one foot high. _Flowers_ large, upon long naked peduncles. _Disk_ very convex; _ray_ large. _Plant_ slightly aromatic.


Rock-savage near Cork; _Mr. J. Drummond._ Near the quay of Killeleagh; _Mr. Templeton._ Derry coast; _Mr. D. Moore._ See side near the base of Brandon, County of Kerry. _Fl._ July. 2.—It is perennial, and the flowers are smaller than those of _P. inodorum_; yet as Dr. Hooker remarks, in the opinion of many acute Botanists it can only be considered a maritime variety of it.

15. _Matricaria._ _Linn._ _Wild Chamomile._

_Involucre_ hemispherical, or nearly plane, imbricated with scales whose margins are membranaceous. _Receptacle_ naked, almost cylindrical. _Pappus_ none.—Named from its reputed medical virtues.

_Synogenesis._ _Superflua._


Corn fields and waste ground, said to have been found near Raheny. Near Cork; _Mr. J. Drummond._ In a field at Malone, near Belfast; _Mr. Templeton._ _Fl._ Aug. 3.— _Stem_ about a foot high, erect and branched. _Flowers_ with a conical disk: the rays very obtuse, truncate and toothed.—This has a bitter taste, and a faint but aromatic smell, not unlike that of the true _chamomile, Anthemis nobilis._
16. **Artemisia.** Linn. Wormwood, Mugwort.


**Syngenesia.** *Superflua.*


   β. racemes erect.—*A. gallica*, Willd.—*E. Bot.* p. 1706. t. 1001. (*A. marit.*)

Sea shores and in salt marshes, where the two varieties may be seen growing together, and sometimes from the same root. *Hooker.* On the suttten side of Howth, and sea shore opposite Portran the seat of George Evans, Esq. abundant. *Fl.* Sept. 2.


Waste places and about villages, in dry soil in many parts of the country. Plentiful near the town of Howth. At Cape-Clear island; *Mr. J. Drummond. Fl.* Aug. 2.—One to 1½ foot high, erect. *Panicle* of *flowers* erect, leafy. *Floral-leaves* undivided. *Flowers* dingy yellow, rather large, hemispherical; *florets* of the *ray* very short.—Aromatic and bitter, and has been much employed in medicine.


17. **Tanacetum.** Linn. Tansy.

*Involucre* hemispherical, imbricated. *Receptacle* naked. *Florets* of the ray trifid, obsolete, sometimes wanting. *Fruit* crowned with a membranous margin or *pappus*.—Name, altered from *Athanasia*, being *a*, *not*, and *Oavuros*, death, or that which does not easily fade. **Syngenesia.** *Superflua.*


Borders of fields, road sides, and hilly pastures; generally near towns and villages. *Fl.* Aug. 2.—One to three feet high. *Flowers* in
a terminal corymb. Whole plant bitter and aromatic, formerly much used in medicine, and for domestic purposes. The curled variety common in gardens is considered the mildest and most wholesome for use.


Involucre hemispherical, imbricated, with nearly equal scales, whose margins are membranaceous. Receptacle convex, chaffy. Fruit crowned with a membranaceous border or pappus.—Name; ανθεμνος, a flower, from the profusion of its blossoms. Symgenesia. Superflua.


Sandy open fields near Cahafersy, Killarney, and other places in the County of Kerry. Southern and western parts of the County of Cork; Mr. J. Drummond. On Knock-Cree, near Lough Bray, County of Wicklow; Mr. James Gunning. Derry; Mr. D. Moore. Fl. Aug.


Corn fields and waste ground, but not common. In the Phoenix Park near the Hibernian School, and near Lambeg, County of Down; Mr. Templeton. Fl. July, Aug. O.—Stem upright, much branched, and as well as the leaves, hoary with down; each branch terminating with a single flower, whose disk is yellow, the ray broad and white.


Waste places, corn fields, and by ways sides. Fl. July, Aug. O.—Stem a foot or more high, glabrous. Flowers solitary, terminal, their disk convex, pale yellow, ray rather large, white.—The whole plant has a fetid smell, and is said to blister the hands of those who gather it. When examined with a microscope, it is found to be sprinkled all over with little glands, in which the acrid matter is probably lodged. Hooker.
19. **Achillea**. Linn. Yarrow.

*Involucre* ovate, imbricated. *Receptacle* plane, chaffy. *Florets* of the ray 5—10, roundish, obcordate. *Pappus* none.—Name; its healing virtues were said to be first discovered by Achilles. *Syngenesia.* *Superflua.*


Moist meadows and pastures; especially in mountainous districts. *Fl.* July, Aug. 2. — *Stem* 1—3 feet high, erect, terminating in a rather large *corymb*, the *disk* as well as the *ray* of whose *flowers* is white.—When dried and pulverized, the plant has been employed to excite sneezing.


Pastures and waysides, common. *Fl.* all the summer. 2. — *Flowers* small, white, sometimes rose-coloured.


Said to grow in dry hilly pastures in some parts of Scotland. The late Sir James Smith states, that he received it also from Ireland, but does not mention the name of the person who sent it, or where it was found. *Fl.* Aug. 2.


*Barren fl.* *Involucre* of few scales, with many small, capitate *flowers*, upon a common receptacle. *Calyx* none. *Corolla* obovate, sessile. *Anther* terminating a tube which is inserted at the base of the corolla. *Germen* none. The rudiment of a *style*. *Fertile fl.* *Involucre* single, prickly, with two beaks, entirely enclosing two flowers; the two *stigmas* only protruded from small apertures within the beaks. *Calyx* none. *Corolla* none. *Fruit* 1-seeded, included in the enlarged and hardened *involucre*.—Name, खाँट, yellow, or *fair*, because an infusion of it was supposed to improve the colour of the hair.

*Monoezia.* *Pentandria.*


Said to have been found near Listowel, County of Kerry. Vide,
Smith's history of that county. As I found many of the plants mentioned by him in the places he found them, I have little doubt of his being correct in this instance, although I did not find it when passing rather hurriedly through that part of the country. Fl. Aug. Sept. ©.


*Involute* of many scales, outer ones or bracteas at the base foliaceous. *Receptacle* plane, chaffy. Corollas sometimes radiant. Fruit crowned with from 2—5 persistent awns, which are rough with minute, deflexed bristles.—Name; *bis, double, and dens, a tooth*; from the two awns or teeth which crown the fruit. *Syngenesia. *Æqualis.*


Sides of ditches, rivulets and lakes, frequent. Fl. June—Aug. ©.—One to two feet or more high, branched and slightly hispid. *Leaves* glabrous, deeply serrated. *Flowers* large, greenish-yellow.


Marshy places, sides of pools and lakes, not unfrequent, in various parts of the country. Fl. July. ©.—Readily distinguished by its deeply serrated dark green leaves, which are divided into three or five deep segments. *Flowers* smaller than the last, slightly drooping.

Tribe II. *Cynarocephali.* Juss.


*Involute* oblong, imbricated with unarmed scales. *Receptacle* setose or chaffy. *Pappus* double, sessile; *exterior* of short, rough bristles, persistent; *interior* feathery, united at the base and deciduous.—Named in honour of the two Saussures, Father and Son. *Syngenesia. *Æqualis.*


Moist alpine rocks. Cliffs near the summit of Brandon mountain County of Kerry. 1804. Fl. Aug. 4.—*Stem* 8 to 12 inches high.
erect, simple, woolly. *Leaves* few upon the *stem*. *Flowers* rather large, purple.

23. **Cnicus.** *Linnaeus*. **Plume-thistle.**

*Involucre* tumid, imbricated with spinous scales. *Receptacle* hairy. *Pappus* deciduous, feathery.—Name from χνίξω, to *prick* or *wound*.

* Syngenesia. *Æqualis.*

* * * Leaves decurrent.


Way-sides and pastures, common. *Fl.* July, Aug. *$.*—Three to four feet high. *Leaves* downy beneath; *their* points long and very sharp. *Flowers* standing singly, large, purple, rarely white.


Moist meadows and in ditches by way-sides, frequent. *Fl.* July. *$.*—Four to six feet high, very full of rather short spines, erect. Remarkable for its clustered heads of *flowers*, whose *involucres* have the scales broad, appressed, keeled and mucronated.

* * * Leaves sessile or nearly so.


4. *C. Forsteri*, *Sm.* **Branching Bog Plume-thistle.** Leaves slightly decurrent, pinnatifid, spinous, downy beneath; *stem* panicle, hollow; *involucre* ovate, rather cottony; *outer* scales spinous. *Br. Fl. 1.* *p. 351.* *E. Fl. v.* *iii.* *p. 390.*

In a meadow in Garvagh demesne, and by the side of the river *Bann* below Coleraine; *Mr. D. Moore*. *Fl.* July, Aug. *$.*—"The fruitification most accords with that of the last two species, while the herbage and habit approach some of the following, or rather the exotic *Cnicus rivularis, Wildenow.*" *Sm.*—Perhaps only a hybrid between *C. palustris* and *C. pratensis*, as Mr. Borrer remarks.

5. *C. eriophorus*, *Willdenow*. **Woolly-headed Plume-thistle.** Leaves sessile, pinnatifid, every other segment pointing upwards, spi-

Sandy fields, rare, near Londonderry; Mr. Nuttall. *Fl.* July. 3. — *Stems* much branched, three feet high, the stoutest of the genus, furrowed. *Leaves* acuminated, white and downy beneath; their lobes alternately pointing upwards and downwards, and terminated by sharp spines. *Involucre* very large, its *scales* linear, mucronate, very much interwoven with a woolly substance.


Low wet meadows, more rarely in high boggy grounds, in various parts of the country. Glen-Cree, County of Wicklow, and near Castle-Connel, County of Limerick. Near Dungiven and elsewhere in Derry; Mr. Templeton. Plentiful in the County of Fermanagh; Mr. J. Johnston. *Fl.* July. 4.—A foot or more high. *Leaves* waved, toothed, and spiny. *Flowers* solitary. *Scales* of the *involucre* with short spines, lanceolate, closely imbricated, cobwebbed.


*Involucre* imbricated, tumid; the *outer scales* with numerous spines, the *inner ones* coloured, spreading, membranous. *Receptacle* chaffy. *Pappus* feathery.—Name; the same as *Carolina*, from a tradition that the root was shown by an angel to Charlemagne, as a remedy for the plague which prevailed in his army.

*Syngenesia. Æqualis.*


Dry hilly pastures, fields, and sandy commons. Plentiful on Howth, Portmarnock and other places near Dublin. Little-island, near Cork; Mr. J. Drummond. *Fl.* June. 3.—One foot high; very spinous, but the spines generally short. *Ext. scales* or *leaflets* of the *involucre* much resembling the *leaves*, but smaller; *inner ones* linear, membranous, yellow, entire, spreading and forming an horizontal ray around the purplish florets. *Anthers* with two bristles at the base.

25. ARCTIUM. *Linn*. Burdock.—LAPPA. *Tourn.*

*Involucre* globose, each of its *scales* with an incurved hook at the extremity. *Receptacle* chaffy. *Pappus* simple.—Name, ἀρκτος, a bear, from the coarse texture of the involucres.

*Syngenesia. Æqualis.*

26. **Centaurea.** Linn. Knapweed, Blue-bottle, Star-thistle.

*Involucr* imbricated. **Receptacle** bristly. **Pappus** simple or none. **Corollas** of the *ray* funnel-shaped, irregular, longer than those of the *disk.*—Name; with this plant it is said the **Centaurs**, Chiron, cured himself of a wound received in the foot from Hercules. **Syngenesia. Frustranea.**

1. **C. Jacea,** Linn. **Brown radiate Knapweed.** Scales of the involucr radiate, torn, the outer pinnatifid; leaves linear-lanceolate, the lower ones broader and toothed; flowers radiant; pappus very short, in a single row. **Br. Fl. I. p. 368. E. Fl. v. iii. p. 465. E. Bot. t. 1678.**

In a field near Belfast, very sparingly; Mr. Templeton. Base of Carig mountain, near Kenmare; **Doctor Taylor.** Dry gravelly bank, near Enagh Lough, County of Derry; Mr. D. Moore. **Fl. Aug. Sept. 2.**—Lower leaves obovato-lanceolate, petiolated, the upper ones entire, sessile. **Scales** of the *involucr* pale brown, shining, the outer ones deeply pinnatifid, the inner or uppermost torn. **Florets** very numerous, spreading, purple.

2. **C. nigra,** Linn. **Black Knapweed.** Scales of the involucr ovate, fringed with capillary teeth; lower leaves angular, lyrate; upper ones lanceolate; ray wanting; pappus very short, tufted. **Br. Fl. I. p. 368. E. Fl. v. iii. p. 465. E. Bot. t. 278.**

Meadows and pastures, frequent. **Fl. June—Aug. 2.**—**Stem** 2—3 feet high. **Leaves** scabrous. **Scales** of the *involucr* almost black, the teeth brown. **Florets** purple, numerous, all fertile.

3. **C. Cyanus,** Linn. **Corn Blue-bottle.** Scales of the involucr serrated; leaves linear, entire, the lowermost toothed. **Br. Fl. I. p. 368. E. Fl. v. iii. p. 466. E. Bot. t. 277.**

Corn fields. **Fl. July, Aug. 2.**—Two or three feet high, covered with a loose cottony down, especially on the *stems* and the undersides of the leaves. **Florets** of the *disk* small, purple; those of the ray few, larger, bright blue, spreading. **Scales** of the *involucr* greenish, the margin brown. In gardens where it is much cultivated it varies
very much in the colour of its flowers; hence its name in the seed shops "Bottles of colours."


Dry banks and fields, frequent. Fl. July—Aug. 2. Two to three feet high, erect, much branched. Involucres globose, very large, their scales cottony, almost black, the fringe pale.


Sandy fields. This was found in July 1821, in a sandy field at Portmarnock, by Doctor Charles Croker, when on a botanical excursion with me to that interesting place, but as the field where it grew in considerable quantity, has since been ploughed up, it has not been found there of late, and was probably introduced among the seeds of Lucerne, a field of which was in the neighbourhood. Fl. July—Sept. 9.


Involucre tumid, imbricated with spinous scales. Receptacle hairy. Pappus deciduous, rough.—Name; Theis derives this from ard, in Celtic, a point; whence also απός, in Greek; arduus, in Latin; and Cardo, and even Cardinal.

Syngenesia. Æqualis.

* Leaves decurrent.


By the side of the road between Gort and Corrofin, on a limestone soil, sparingly, in 1805. County of Derry; Mr. D. Moore. Fl. July, Aug. 2. Leaves oblong, deeply sinuated. Flowers large, handsome, purple; smelling strongly of musk in warm weather according to Lightfoot.


Way-sides and waste places, frequent. Fl. June, July. 9. Three to four feet high, uninterrupted winged, branched. Flowers clustered at the ends of the branches, deep purple.

3. C. tenuiflorus, Curt. Slender-flowered Thistle. Leaves decurrent, sinuated, spinous, somewhat cottony beneath; invo-

Waste grounds and way-sides, common. *Fl. June, July.*—Two to four feet high, winged the whole way up the stem with the decurrent bases of the leaves.

**Leaves sessile.**


Waste ground and in old Churchyards. Plentiful at the old Church of Kilbarrick, and about Baldoyle and Howth, &c. *Fl. July.*—Three to five feet high. Distinguished at once by the milky veins on its leaves, and the great recurved scales of the involucre.—A variety which I have seen, is rarely found in England, with the dark shining green leaves of the more common variety, but without having the milky veins.

Tribe III. *Cichoraceae.* Juss.

Florets all ligulate and hermaphrodite. Receptacle scarcely fleshy.—Sap generally milky.

28. **Sonchus.** Linn. *Sow-Thistle.*

Receptacle naked. *Calyx* imbricated, swelling at the base. *Down* simple, sessile.—Name; *σαφός* in Greek, from *σαφές*, soft, in allusion to the soft nature of the stems.

*Syngenesia.* Æqualis.


160

COMPOSITÆ.


29. PRENANTHES. LINN. Wall-Lettuce.

Involucre cylindrical, its scales equal, with smaller ones at the base. Florets few. Receptacle naked. Pappus simple, sessile.—Name, from πρινθ, drooping, and αὔβος, a flower.

Syngenesia. Æqualis.


On old walls and in woods. Woods at Collon, County of Louth; Doctor Wade, where I have also seen it. Fl. Julv. §.—Stem 2 feet high, paniced above. Flowers small, yellow. Fruit with an elongated, narrow neck, not really stipulate.

30. LAPSANA. LINN. Nipple-wort.

Involucre with small scales at the base. Receptacle naked. Fruit quickly deciduous. Pappus none.—Name; λευκ时效, to purge, from its laxative qualities.

Syngenesia. Æqualis.


Waste and cultivated ground, common. Fl. July, Aug. Q.—Stems 2—4 feet long. Leaves soft and thin, slightly hairy, the radical ones more or less lyrate. Flowers small, yellow.

31. LEONTODON. LINN. Dandelion.

Involucre imbricated with scales, of which the outermost are frequently lax and flaccid. Receptacle naked. Pappus stipitate, simple.—Name; λευκ, a Lion, and ὀὖς, a tooth, from the tooth-like margins of the leaves.

Syngenesia. Æqualis.


Meadows and pastures. Fl. all summer. Q.—Leaves all radical, their segments more or less deep. Scape with a single, large flower.

2. L. palustre, Sm. Marsh Dandelion. Outer scales of the involucre erect, appressed; leaves sinuated and toothed, nearly

Watery and marshy places. On rocks in the bed of the Dargle river, abundant. Fl. all the summer. 2.—Readily distinguished by its more glossy, shining leaves, and more slender habit than the preceding. It is, however, doubted by many acute Botanists whether it should be considered a distinct species from the last.


Involucre tumid at the base, surrounded with deciduous scales, ribbed and furrowed, (often very obscurely). Receptacle naked. Pappus simple, sessile.—Name; ἕππης, a slipper or last in Greek; but why applied to this plant is not known. 

Syngenesia. ἈΕὐατίς.

1. C. virens, Linn. Bab. Smooth-green Hawk's-beard. "Calyx equal in length to the pappus; leaves glabrous, lanceolate-runcinate or remotely dentate, cauline ones with their margins flat; fruit oblong, with smooth ribs, shorter than the pappus." Babington's MSS.—C. tectorum, Br. Fl. 1. p. 347. E. Fl. v. iii. p. 372. E. Bot. t. 1111.

Meadows, pastures, and waste ground, frequent. Fl. July. 2.—Very variable in size and luxuriance, from 1—2 feet high, generally of a fine deep shining green, nearly smooth, except the calyx which is more or less downy and glandular; leaves smooth, variously runcinate or jagged, the upper ones dilated and clasping at the base, where also they are mostly toothed.—I have adopted the name lately given to this plant by Mr. Charles C. Babington, of St. John's College, Cambridge, it being now considered by him and others to be C. virens of Linneus. The C. tectorum of foreign authors which has not yet been found in Britain, is described as having the leaves sinuato-pinnatifid, the fruit oblong, attenuated, with rough ribs, equalling the pappus; whereas our plant has the fruit smooth, oblong, shorter than the pappus.

2. C. biennis, Linn. Rough Hawk's-beard. "Calyx shorter than the pappus; stem and runcinato-pinnatifid; leaves rough; fruit linear-oblong, attenuated, with rough ribs equalling the pappus." Bab.—Br. Fl. 1. p. 347. E. Fl. v. iii. p. 373. E. Bot. t. 149.

Sandy fields and ditch banks. Plentiful near Kilbarrick and Baldoyle, at Portmarnock and other places on the northern side of Dublin. Fl. June, July. 3.—Stems 2—4 feet high, furrowed, rough above. Lobes of the leaves toothed. Flowers much larger than in the preceding. Involucre downy and somewhat bristly. Pappus very white, crowning the much elongated fruit.


Involucre double; inner of eight close scales, outer of four large, lax, leafy ones. Receptacle naked. Pappus feathery,
stalked. Fruit transversely striated.—Name; εἰμι·, εἰμι, a worm, and ηγη, a case; from the form of the fruit.

Syngenesia. ΑΕqualis.


Borders of fields and ditch banks, not unfrequent near Dublin, and occasionally along the coast as far north as Drogheda; plentiful by the Mill-stream between Donnybrook and Midtown, and about Roe-buck, as well as on the northern side of Dublin. Fl. June, July. *—2—3 feet high, stout, hispid with numerous rigid hairs, springing from the tubercles. Lower leaves lanceolate; upper ones cordate, amplexicaul. Flowers small, yellow. Outer involucre with large heart-shaped scales.

34. Picris. Linn. Picris.

Involucre double; inner of many compact, upright, equal scales, outer of several lax, small, linear ones. Receptacle naked. Pappus sessile, slightly feathery. Fruit transversely striated.—Name; πικρος, bitter, as are many of this tribe.

Syngenesia. ΑΕqualis.


Sandy field at Portmarnock, the only place in Ireland in which it has been found. Fl. July, Aug. *—Plant dark green, hairy. Stem 2—3 feet high. Flowers an inch broad, solitary, yellow.


Involucre imbricated, ovate. Receptacle nearly naked, dotted. Pappus simple, sessile.—Name; ἰπαξ, a hawk; because birds of prey were supposed to employ this plant to strengthen their powers of vision.

Syngenesia. ΑΕqualis.

* Scape leafless, or rarely with one leaf, single flowered.


Banks and dry pastures, frequent. Fl. May—July. *—Distinctuishable at all times by its creeping scions. Flowers of a pale lemon-yellow.

* * Stem with few (one or two) leaves, many-flowered.

2. H. Lawsoni, Vill. Glaucescent hairy Hawkweed. Hairy,
especially the petioles; stem more or less branched upwards, having 1—2 sessile leaves, those of the root ovato-lanceolate, entire or toothed; involucres with hairs which are black at the base and mixed with black pedunculated glands. Br. Fl. 1. p. 343. E. Fl. v. iii. p. 363. E. Bot. t. 2083.

Beneyevena, County of Derry; Mr. D. Moore. Fl. Aug. 2.—This species is best distinguished by its nearly entire and very villos leaves, especially their petioles which are often quite silky. In some of Mr. Moore’s specimens the root leaves are furnished with distant teeth, in others they are quite entire.—The whole plant is of a soft and flaccid texture.

3. H. pulmonarium, Sm. Lungwort Hawkweed. Hairy, especially the petioles; stem 2—6 flowered, with 1—2 leaves, those of the root ovato-lanceolate, acute, deeply and unequally toothed throughout and lengthened into a petiole; those of the stem sessile; involucre hairy; hairs black at the base and often glandular. Br. Fl. 1. p. 344. E. Fl. v. iii. p. 362. E. Bot. t. 2307.

Rocky places. Newtown Glen, County of Down; Mr. Templeton. Fl. Aug. 2.—Stem about a foot high, round; stem leaves very few, radical leaves erect, acute, spotted with purple. Flowers golden-yellow.

4. H. muralum, Linn. Wall Hawkweed. Stem with one petiolated leaf, branched upwards, subcorymbose, downy, especially below the involucre, where are a few black glands; radical leaves ovate, mostly toothed at the base, and hairy as well as the longish petioles; involucre downy. Br. Fl. 1. p. 344. E. Fl. v. iii. p. 359. E. Bot. t. 2080.

Rocks and old walls. Near Bantry; Mr. J. Drummond. Newtown-Glen, and Cave-hill, County of Down; Mr. Templeton. Beneyevena and other places in the County of Derry on rocks; Mr. D. Moore. Stem one or two feet high, erect, rather hairy. Leaves broad, wavy, glaucous-green. Flowers about four or six, large, yellow.

* * * Stem with many leaves, many-flowered.

5. H. sylvaticum, Sm. Wood Hawkweed. Stem many-leaved; branched upwards, and subcorymbose, slightly hairy, and more or less downy beneath the involucre; leaves ovato-lanceolate, toothed with the sharp teeth pointing upwards, somewhat hairy; involucre with very short pubescence. Br. Fl. 1. p. 344. E. Fl. v. iii. p. 361. E. Bot. t. 2031.

Mountain woods, walls and rocks. Rocks by Powerscourt Waterfall, Devil’s Glen, County of Wicklow, and many other places. Fl. Aug. 2.—One or two feet high, scarcely hairy on the stem. The leaves are usually numerous, more or less distinctly toothed.

6. H. paludosum, Linn. Succory-leaved Hawkweed. Glabrous; stem panicled, fistulose; leaves alternate, somewhat elliptical, toothed, sharp pointed, clasping the stem with their

Moist woods, marshes, and rocky places, not unfrequent in various parts of the country. *Fl. Aug.* 2. — Readily known by its smooth stems and leaves, amplexicaul stem-leaves with spreading teeth, and by the long black hairs on the calyx.


Moist rocks on Magillycuddy’s Reeks and other mountains in Kerry, 1805. Rocks near the river Sullane, County of Cork; *Mr. J. Drummond*. A specimen in the herbarium of Doctor Robert Graves, was found by him at the Devil's Glen, County of Wicklow. *Fl. July*, Aug. 2. — Plant one foot high or upwards, remarkable for its obtuse radical leaves, which taper gradually into a long footstalk. *Scales of the involucr* a few, black, glandular hairs.


On moist rocks near the Dargle. In several Glens near Belfast; *Mr. Templeton. Fl. Aug.* 2. — Three or four feet high. Lower leaves elliptic-oblong, upper heart-shaped. *Flower-stalks glandular and cottony.*


Woods and coppices, in dry rocky places. Plentiful in Ross Island, Killarney, and in the woods at Glengariff, where the late Miss Hutchins found a variety with spotted leaves. *County of Derry; Mr. Templeton* and *Mr. D. Moore. Fl. Aug.*, Sept. 2. — Stems of a woody texture, two or three feet high, erect, wand-like, roundish, furrowed, rough to the touch. *Leaves rough. Flowers numerous, yellow, in compound downy panicles, in small weak plants often solitary.*


Woods and groves in stony and rocky places. In the Devil’s Glen and other places in the County of Wicklow. Rocks on Benyevena; *Mr. D. Moore. Fl. Aug.*, Sept. 2. — Of a more slender habit than the last. *Stems two feet high or upwards, almost smooth. Leaves*
numerous, almost linear. Flowers bright yellow, in corymbs or imperfect umbels.


Involucre oblong, imbricated. Receptacle chaffy. Pappus feathery, stipitate or sessile.—Name; vpo, for, and χωρος, a hog, the roots being eaten by that animal.

Syngenesia. AEqualis.


Meadows, pastures and way sides, frequent. Fl. July. 2.—Leaves all radical, spreading. Stem a foot or more high. Peduncles a little thickened upwards (remarkably so at the upper extremity). Flowers rather large, yellow. Pappus stalked in fruit.


Involucre simple, of many scales. Receptacle naked. Pappus feathery, stalked. Fruit longitudinally striated.—Name; ραγος, a goat, and πατερνη, a beard; from the beautifully bearded fruit.

Syngenesia. AEqualis.


Meadows and pastures in various places near Dublin. Near Cork; Mr. J. Drummond. Oldcastle, County of Meath; Rev. Mr. Halpin. Fl. June. 3.—One to two feet high. Flowers yellow; head of fruit large. Pappus feathery, elevated on a long stalk.


Involucre nearly simple, multipartite, with a few small scales at the base. Receptacle naked, pitted. Pappus of the florets of the circumference scaly, those of the centre feathery, sessile.—Name; επικος, a feather, in allusion to the feathery pappus.

Syngenesia. AEqualis.


Gravelly and sandy pastures, frequent. Fl. July, Aug. 2.—Root abrupt, not tapering. Flowers small; florets destitute of hairs on the tube, as well as of glands under their tips, the inner ones with a less perfect corolla than the outer row.

Involucre imbricated, the innermost scales equal, outer ones smaller. Receptacle naked, pitted. Pappus feathery, sessile.
—Name of uncertain origin. Ἀπαργία, was applied to some plant of this tribe.

Syngenesia. Aequalis.

—Hedypnois hispida, Huds.—E. Bot. t. 554.—Leontodon hispidus, Linn.

Meadows, pastures, gravelly and sandy places, frequent. Fl. June, July. 2.—Root tapering, long and slender. Leaves lanceolato-oblong, with reversed, nearly equal and regular teeth, their base tapering, and more entire. Flowers smaller than Dandelion, erect when expanded, bright yellow.


Moss rocks on Magillycuddy's Reeks, and other mountains in Kerry. Fl. Aug. 2.—Remarkable as Doctor Hooker observes for its scape being thickened upwards, and there, as in the involucre, clothed with black hairs. Flowers rather large, yellow.


Meadows and pastures, frequent. A variety with dark hairs on the involucre found in marshy places on Howth, has sometimes been mistaken for the last, which is only found in alpine situations. Fl. Aug. 2.
—Involucre cylindrical, and tapering gradually into a pedicel, which is scaly. Flowers small, numerous, yellow.


Involucre of eight scales, surrounded by five smaller ones at the base. Receptacle naked or slightly hairy. Pappus sessile, scaly, shorter than the fruit.—Name; chikouryeh, in Arabic. The Egyptians eat a vast quantity of this vegetable.

Syngenesia. Aequalis.

Borders of fields and gravelly banks. Plentiful near Balbriggan; also near Cork, and in the North of Ireland, as noticed by Mr. Drummond and Mr. Templeton. Fl. July, Aug. 4.—Stem one to three feet high, erect, branched. Flowers numerous, large, bright, but pale blue. This is much used in France as a salad, as another species of the genus C. Endivia or Garden Endive is in Britain and Ireland. The roots cut into small pieces, and slightly roasted are employed as a substitute for Coffee in some parts of Germany, and in Belgium a portion of Chichory is generally mixed with Coffee beans. In England it is sometimes cultivated on dry gravelly or chalky soils as an early fodder for cattle.

SUBCLASS III. COROLLIFLORÆ. De Cand.

Calyx free (not adnate with the ovary), formed of sepals more or less combined. Petals united, so as to form an hypogynous monopetalous corolla, which bears the stamens. Ovary free.

ORD. 42. BORAGINEÆ. Juss. Borage Family.

Calyx with 5 (rarely 4) divisions, persistent. Corolla hypogynous, monopetalous, mostly regular, 5, sometimes 4-cleft; its aestivation imbricated. Stamens inserted upon the corolla, of the same number with its segments, rarely more. Ovary 4-partite, 4-seeded or simple, and 2—4-celled; ovules definite, pendulous. Nucules 4, distinct or combined below; sometimes a 4-celled drupe, or a berry with 2—4 bony seeds. Seeds without albumen or nearly so. Embryo inverted.—Herbs or shrubs. Leaves alternate, without stipules, generally rough. Flowers frequently in second spikes, sometimes panicled or corymbose, sometimes axillary, solitary.

1. ECHIUM. Linn. Viper's Bugloss.

Calyx 5-parted. Corolla with a short tube; limb large, campanulate, obliquely 5-lobed; segments unequal; the two upper largest, the lowest small, acute and reflexed. Nuts covered with little tubercles.—Name from εχιός, a Viper; because this, or some allied plant, was supposed to be an effectual remedy against the bite of that animal.

Pentandria. Monogynia.


In fields and waste ground, in a sandy or gravelly soil. Near Bantry; Mr. J. Drummond. Mansfieldstown, County of Louth;
Mr. P. Kearns. Field near Belfast; Mr. Templeton. Fl. June, July.
3. — Corolla very beautiful, on expansion reddish-purple, afterwards brilliant blue. "In Scotland and in England it is occasionally found with white flowers." Hooker.


Calyx 5-parted. Corolla small, 5-lobed, funnel-shaped. Anthers oblong, included in the throat of the corolla. Stigma obtuse, bifid. Nuts shining, even or wrinkled. — Name from λιθος, a stone, and σπέρμα, a seed; from its shining, very hard seeds or nuts. The English, Gromwell, has the same origin in the Celtic; gráun, a seed, and mil, a stone.

Pentandria. Monogynia.


Dry, waste and uncultivated places, and among rubbish, frequent. Near Dublin, and many other parts of the country. Fl. May, June. 2. — One to one foot and a half high. Fl. pale yellow. Nuts whitish-brown, highly polished.


Sea-side among sand or loose stones, but not common. Plentiful at the Murrow of Wicklow; coast between Balbriggan and Skerries. Coast near Dundrum, County of Down; Mr. Templeton. Fl. May, June. 2. — Lower leaves on footstalks and acute, upper ones sessile. Flowers somewhat racemed, of a beautiful purplish blue: tube of the corolla short. Whole plant very glaucous and when the bloom is rubbed off, rough callous points are seen upon the surface, which become white and almost stony in drying, when the rest of the plant is nearly black.


Calyx 5-cleft. Corolla cylindrical, campanulate; tube very short; limb ventricose, with five short lobes. Scales of the orifice subulate, converging. — Name from συμφονεῖν, to unite; from its supposed healing qualities.

Pentandria. Monogynia.

Banks of rivers and moist meadows. Kelly's Glen above the gap of Ballinascoruey. Abundant in the County of Derry; Mr. D. Moore. On the Cave-hill; Mr. Templeton. Near Cork; Mr. J. Drummond. *Fl.* May, June. Two or three feet high, branched above. Root leaves ovate, petiolated. Racemes in pairs, secund, drooping. Corollas large, yellowish-white, often purple.

4. **Borago.** Linn. Borage.

*Calyx* 5-parted. *Corolla* rotate, 5-cleft, usually spreading. *Scales* of the orifice obtuse, emarginate. *Nuts* wrinkled.—Name from *Cor, heart, and ago, to bring: thence corrupted into Borago, or, as the French spell it, Borrago.

5. **Lycopsis.** Linn. Bugloss.

*Calyx* 5-cleft. *Corolla* funnel-shaped, 5-lobed; limb nearly erect; tube incurved. *Scales* of the orifice ovate, prominent, converging. *Stigma* emarginate. *Nuts* sculptured at the base.—Name from ἄκος, a wolf, and ὄψις, a face: from a fancied resemblance in the gaping flower to the head of a wolf.

6. **Anchusa.** Linn. Alkanet.

*Calyx* 5-cleft. *Corolla* funnel-shaped, 5-lobed; the limb erect;
the lobes entire. The other characters of Lycopsis. De Candl.—Name from σωσα, paint. The roots of one species, A. tinctoria, yield a red dye which has been used in former times to stain the face.

**Pentandria. Monogynia.**


Waste ground and hedge banks. Hedges near Dunglass, County of Cork; Mr. J. Drummond. Near the ruins of Grey Abbey, County of Down; Mr. J. Campbell. Near Port Glenone and Maghrafelt; Mr. Templeton. *Fl.* May, June. 2.—Flowers of a beautiful blue. The shape of the corolla as Sir James E. Smith observes is rather salver than funnel-shaped.

7. **Myosotis. Linn.** Scorpion-grass.

*Calyx* 5-cleft, or 5-toothed. *Corolla* hypocrateriform, with a short tube; limb flat, with five emarginate lobes. *Scales* of the orifice convex, converging. *Nuts* smooth.—Name from μος, μως, a mouse, and ους, οσο, an ear; from the shape of the leaves.

**Pentandria. Monogynia.**


Ditches and sides of rivers, abundant. *Fl.* during the summer months. 2.—About a foot high. *Flowers* among the largest of the British species, bright blue with a yellow eye, and a small white ray at the base of each segment.

2. **M. cespitosa,** Schultz. *Tufted Water-Scorpion-grass.* Nuts smooth; calyx with straight appressed bristles, when in fruit campanulate, open, shorter than the divergent pedicels; limb of the corolla concaee, equaling the tube; pubescence of the stem appressed. *Br. Fl.* 1. p. 82. *E. Fl.* v. i. p. 250.

In watery places. In wet ditches above Dundrum. Banks of Lough Neagh; Mr. D. Moore. Cranmore near Belfast; Mr. Templeton. *Fl.* May, June. 3. or 2. *Sm.—Root* fibrous, not creeping. *Stem* throwing fibres from the lower joints. *Calyx* sparingly sprinkled with appressed, white bristles, cleft more deeply than in *M. palustris.* *Corolla* varying in size, but usually not much exceeding the calyx.

3. **M. sylvestra,** Hoffm. *Upright Wood Scorpion-grass.* Fruit smooth; calyx with spreading uncinate bristles, deeply 5-cleft, when in fruit ovate (closed) shorter than the divergent
pedicels; limb of the corolla flat, longer than the tube; root-leaves on long dilated stalks. Br. Fl. 1. p. 84. E. Bot. Suppl. t. 2630.

In dry shady places. The Cave-hill and other places near Belfast; Mr. Templeton. Fl. June, July. 2.—Nearly allied to the following species, from which it may be distinguished by its greater size, somewhat more deeply divided calyx, and its shorter less remarkably hooked bristles.


Very common in cultivated grounds, &c. Fl. June—Aug. O.—From 6 to 12 inches high. Stems usually several, erect, from a curved base, with ascending auxiliary branches. Lower leaves obtuse, ovate, or spatulate, tapering down to a broad winged stalk. Upper ones acute, oblong-lanceolate, sessile, and partially embracing the stem, which is angular from the edges and midrib of the leaves being decurrent, and like the leaves, greyish with abundance of soft spreading hairs curved upwards. Racemes terminal, solitary or in pairs, dense and revolute at first, as usual in the genus, and gradually becoming lax and erect as the flowers expand, and then separated by a considerable interval from the uppermost leaf. Flowers numerous, small; tube of the corolla yellowish, a little inflated, rather shorter than the calyx, with a concave limb about the same length, rose-coloured at first, afterwards pale bright blue.


Common in wet meadows, as well as dry sandy places. Plentiful in sandy fields near Kilbarrick Church, &c. Fl. April—June. O.—Leaves narrow. Clusters much elongated and erect when in fruit.


Calyx 5-parted. Corolla short, funnel-shaped, 5-lobed. Scales of the orifice convex, converging. Stigma emarginate. Nuts depressed.—Name from κοινων, a dog, and γλυκωσα, a tongue: from the shape and texture of the leaf.

Pentandria. Monegynia.

Waste and sandy grounds. Plentiful in the Phoenix Park; Kilbar-  
rick; sand hills opposite Malahide, &c. At the latter place I have observed a variety with white flowers. *Fl. June, July.*  
Whole plant soft to the touch, dull green, of a fetid smell like that of mice; often two feet high. *Lower leaves* on long footstalks. *Flowers* (generally) purplish red. *Fruit* very rough.

2. **C. sylvesticum**, Hænke. **Green-leaved Hound's-tongue.** 
Stem-leaves lanceolate, broad at the base, shining, sessile, slightly hairy and scabrous, especially beneath; stamens shorter than the corolla. *Br. Fl. 1.* p. 87. *E. Fl. v.* i. p. 266. *E. Bot.* t. 1642.

Shady places by road sides, rare. A specimen in the late Dr. Scott’s herbarium was found by him near Balbriggan, but it has not been found there of late. *Fl. June, July.* 2.—Readily distinguished from the last by the more or less shining and brighter coloured *leaves*, free from pubescence, and their different figure. *Root-leaves* ovato-lanceolate, on very long footstalks.

**ORD. 43. CONVOLVULACEÆ. Juss. Bind-weed Family.**

Calyx with five divisions, persistent. Corolla monopetalous, hypogynous, regular; the limb 5-fid, generally plaited, deciduous. Stamens 5, inserted at the bottom of the corolla, and alternate with its segments. Ovary single, with an annular gland at the base, 2—4-celled, rarely imperfectly 1-celled, sometimes 2—4-partite, with few definite, erect ovules, when more than one, collateral: style 1, often divided at the apex, sometimes as far as the base: stigmas obtuse or acute. Capsule 1—4 celled, the margins of the valves corresponding to the angles of a free dissepiment, bearing the seeds at its base, sometimes without valves or opening transversely (*capsula circumscissa*). Seeds with a small quantity of mucilaginous albumen. Embryo curved: cotyledons wrinkled: radicle inferior.—*Herbs* or shrubs chiefly of the tropics, generally climbing and milky, glabrous or with a simple pubescence. Leaves alternate, undivided or lobed, rarely pinnatifid, without stipules. Inflorescence axillary or terminal; peduncles one, or many-flowered, the pedicels often with two bracteas.

The roots yield a copious acid and purgative milky juice. *Convolvulus Jalapa* affords Jalap, and *C. Scammonia* the Scammony, and many others may be employed medicinally. An esculent root, the Sweet Potatoe, is afforded by *Convolvulus Batatas*.

1. **CONVOLVULUS. Linn. Bindweed.**

*Capsules* of 1—3 cells, with as many valves. *Cells* 1—2—
seeded.—Name from *convolve*, to entwine: whence, too, the English name *Bindweed*. Pentandria. Monogynia.

* With two small bracteas remote from the calyx.


* * With two large bracteas applied to the calyx. (Calystegia. *Br.*)


*Calyx* 4—5-cleft. *Corolla* campanulate, 4—5-lobed. *Capsule* bursting all round transversely at the base, 2-celled, with the cells 2-seeded.—Parasitical leafless plants, with long twining *filiform* stems.—Name, the same as *κασσοβα*, probably from the Arabic *Keshout*. (Théis.)

Pentandria. Digynia.


Parasitical on the common flax. *Fl.* Aug. Sept. *Fl.*—*Stems* very large, red, having small tubercles and papillae, which act as *roots*. *Flowers* clustered, of a pale yellowish rose colour.—The lesser *Dodder* (*C. Epithymum*) which grows parasitically on furze, heath and other plants in England and Scotland, has not yet been found in Ireland.
ORD. 44. POLEMONIACEÆ. Juss. Greek-Valerian Family.

Calyx free, of one piece with five divisions, persistent, sometimes irregular. Corolla regular, 5-lobed. Stamens 5, inserted into the middle of the tube of the corolla, and alternate with its segments. Ovary 3-celled, with a few or many ovules: style simple: stigma trifid: ovules ascending or peltate. Capsules 3-celled, 3-valved, few or many-seeded, opening between the dissepiments, or opposite to them; the valves separating from the axis. Seeds angular or oval, or winged, often enveloped in mucus, ascending. Embryo straight in the axis of a horny albumen: radicle inferior: cotyledons elliptical, foliaceous.—Herbaceous plants, with opposite, or occasionally alternate, compound or simple leaves.


*Calyx* 5-cleft. *Corolla* rotate, with a short tube; *limb* 5-lobed. *Filaments* broadest at the base; *anthers* incumbent.—Name from πολεμός, war. According to Pliny this plant caused a war between two kings, who laid claim to its discovery.

Pentandria. Monoecy.


Banks and bushy places, rare. Knockmaroon-hill near Chapelizod. *Fl.* June. 2.—One to two feet high. *Stem* angular. *Flowers* large, blue, sometimes white.

ORD. 45. PLANTAGINEÆ. Juss. Rib-grass Family.

Flowers perfect or separated. In the Perfect Flowers; *calyx* (?) 4-partite, persistent: *corolla* (?) monopetalous, tubular, hypogynous, scariose, persistent; the limb 4-partite. Stamens 4, inserted upon the tube, alternate with its segments; filaments exserted, flaccid, with an induplicate aestivation: anthers 2-celled, the cells placed close together, side by side, bursting longitudinally. Ovary sessile, without any disk, 2, rarely 4-celled, the ovules peltate, solitary, in pairs or indefinite. *Style* 1, capillary: stigma slightly hispid, undivided, rarely cleft. Capsule opening transversely, with a longitudinal dissepiment, at length free. Seeds sessile on the dissepiment, solitary or two, sometimes indefinite: testa mucilaginous. Albumen of the same shape as the seed, fleshy. Embryo in the
centre of the albumen, straight: radicle inferior.—In the separated flowers: Sterile Fl. Calyx and corolla as in the perfect flowers. Stamens inserted upon the receptacle: rudiment of the pistil minute.—Fertile Fl. Calyx none, unless the bracteas be considered as such. Corolla urceolate, undivided, contracted at the mouth, obsoletely toothed. Stamens none. Ovary 1-seeded, with an erect ovule. Style and stigma as in the perfect flowers. Capsule opening transversely.—Herbs universally dispersed. Stems generally short, or scarcely spiked bractea.

1. **Plantago.** Linn. Plantain.

Corolla 4-cleft, the segments reflexed, Stamens very long. Caps. 2-celled, two or many-seeded, bursting all round transversely.—Name of doubtful origin.—All the species are mucilaginous and astringent. **Tetrandria. Monogyinia.**


Pastures and road sides, frequent. **Fl.** June, July. 2. —Leaves all radical, spreading, somewhat erect, with seven nerves, entire or toothed, glabrous or pubescent. Petioles varying in length, sometimes as long as the leaf, ribbed. **Spike** dense.


Dry limestone pastures. On the lands of Pea-hill below Feltrum; Mr. John White, but I have not seen Irish specimens. **Fl.** July. 2. —Stamens long, with dark purple filaments. Spikes shorter than in *P. major,* and more silvery from the shining scarisoce corollas. The most ornamental of the British species and very conspicuous when in flower.


Meadows and pastures, common. **Fl.** June, July—2. —Leaves plaited, erect, **spike** blackish with large cream-coloured anthers.

Salt marshes and crevices of rocks on the sea-shore; also on grassy bases of mountains sloping towards the sea at considerable elevations. Fl. June—Sept. 2. —Varying very much in the breadth and hairiness of the leaves and scapes as well as in size, sometimes proliferous.


Gravelly and sterile sandy soils, generally near the sea-coast. Fl. June, July. 0.—Leaves mostly spreading, very variable in size and pubescence, pinnatifid; segments often toothed or again divided. Scape hairy. Spike mostly cylindrical.


Gravelly shores of lakes in various parts of the country, plentiful at Lough Bray, Lough Dan, &c. Fl. June 2. —Leaves all radical, three or four inches long, linear, fleshy. Scapes several. Corolla white, with an inflated tube. Fertile flowers sessile in the axils of the leaves.

Ord. 46. PLUMBAGINEÆ. Juss. Lead-wort Family.

Calyx tubular, plaited, persistent. Corolla of one or five petals, equal. Stamens definite, hypogynous in the monopetalous corollas, inserted upon the petals in the polypetalous ones. Ovary 1, free, 1-seeded, with the ovule inverted, pendulous from the apex of a stalk arising from the bottom of the ovary. Styles 5 (rarely 3 or 4); stigmas as many. Fruit an almost valveless utricule. Seed inverted; integument simple. Embryo straight: radicle superior.—Herbaceous or suffrutescent plants, frequently growing on the sea-coast, in various situations, and with a very diversified aspect. Leaves alternate or clustered, undivided, somewhat sheathing at the base. Flowers spiked or capitate.


Calyx of one piece, funnel-shaped, plaited, dry and membra-
naceous. Petals 5, united at the base, bearing the stamens. Capsule with one seed invested with the calyx.—Name from στατικός, to stop, from its supposed qualities in checking dysentery.

* Flowers collected into a rounded head. (Armeria, De Cand.)


Muddy sea-shores, among rocks by the sea-side, and on the tops of the highest mountains in Kerry. Fl. July, Aug. 2.—Leaves all radical, numerous. Heads of flowers rose-coloured, intermixed with scales and having, besides, a brown, membranous, 3-leaved involucre, terminating below in a sheathing, jagged covering to the upper part of the scape.

* * Flowers unilateral on a paniculated scape. (Taxanthena, Neck. Br.)


Muddy shores in various parts of the country. Plentiful on the shore near Baldoyle, &c. Fl. July, Aug. 2.—Leaves two or three inches long, leathery, somewhat glaucous. Panicle spreading, alternately branched. Flowers small, imbricated, blue, each sheathed in a green tubular bractea.


Gravelly bank on the shore near Baldoyle, with the last, and at Portmarnock; also on rocks by the sea on the south side of the hill of Howth; Killiney-Hill, and many places on the Kerry coast. Fl. Aug. 2.—From three inches to a foot high. Leaves from one to two and a half inches long, coriaceous, with a white border extending from the base of the petiole to the upper extremity. Panicle more compact than in the last; spikes erect, with larger flowers.—The smaller states of this species very much resemble S. reticulata of E. Bot. hence the mistake that several other Botanists as well as myself have fallen into concerning it.
ORD. 47. OLEINEÆ. Hoffmannsegg and Link. Olive Family.

Flowers perfect or sometimes dioecious. Calyx monophyllous, divided, persistent, inferior. Corolla hypogynous, monopetalous, 4-cleft, occasionally of 4 petals, connected in pairs by the intervention of the filaments, sometimes without petals; aestivation somewhat valvate. Stamens 2, alternate with the segments of the corolla or the petals; anthers 2-celled, opening longitudinally. Ovary simple, without any hypogynous disk, 2-celled; the cells 2-seeded; the ovules pendulous and collateral. Style 1 or 0. Stigma bifid or undivided. Fruit drupaceous, berried, or capsular; often by abortion 1-seeded. Seeds with dense, fleshy, abundant albumen; embryo straight; cotyledons foliaceous, partly asunder; radicle superior; plumula inconspicuous.—Trees or shrubs. Leaves opposite, simple, seldom pinnated. Flowers in terminal or axillary racemes or panicles; the pedicels opposite, with single bracteae.


Corolla 4-cleft. Berry 2-celled, with the cells 2-seeded.—Name from ligo, to bind, on account of the use sometimes made of its long and pliant branches.

Diandria. Monogynia.


Hedges. Fl. June, July. T.—A bush with opposite leaves, often used for hedges, mixed with the common thorn, particularly the evergreen variety. Flowers small, white. Berries black, globose.


Calyx 0, or 4-cleft. Corolla 0, or of four petals. Capsule 2-celled, 2-seeded, compressed and foliaceous at the extremity. Seeds solitary, pendulous. (Some flowers without stamens.)—Name from φραξις, a separation, in allusion to the facility with which the wood may be split.

Diandria. Monogynia.


Woods and hedge-rows. T.—A lofty tree, the wood of which is

**Ord. 48. ERICEÆ. Juss. Heath Family.**

*Calyx* persistent, free, 3—4, often 5-partite. *Corolla* inserted into the base of the *calyx* (almost hypogynous), 4—5-cleft, marcescent. *Stamens* definite, equal and alternate with the segments of the *corolla*, or twice as many, distinct, inserted at the base of the *calyx* or of the *corolla*. *Anthers* 2-celled, the cells hard and dry, usually opening by pores, and furnished with appendages. *Ovary* 1, free, surrounded at the base by a disk or by scales: style 1: stigma 1. *Fruit* many-celled, baccate, or frequently capsular, many-seeded, many-valved; dehiscence various. *Seeds* minute, attached to central placentas: testa firmly adhering to the nucleus. *Embryo* straight in the axis of a fleshy albumen; radicle next the hilum.—*Shrubs or undershrubs.* *Leaves* evergreen, rigid, entire, whorled, or opposite, without stipules. *Inflorescence* variable; the pedicels generally bracteate.

1. **Andromeda. Linn. Andromeda.**

*Calyx* deeply 5-cleft. *Corolla* ovate or campanulate. *Anthers* with awns. *Capsules* superior, 4—5-celled, the dissepiments from the middle of the valves.—Name given in allusion to the story of *Andromeda*, who was chained to a rock and exposed to the attack of a sea-monster: so does this beautiful tribe of plants grow in dreary and northern wastes, feigned to be the abode of præternatural beings.

**Decandria. Monogynia.**


β. *costeflora*; leaves inversely ovato-lanceolate; flowers in umbels, 5-sided. *Templ. MSS*.

Peat bogs in various parts of the country. β. on a dry bog between Newport and Castleconnel. Near Grey Abbey, County of Down; Mr. Templeton. *Fl.* June. β.—A small evergreen shrub, with beautiful oval or urceolate, rose-coloured, drooping flowers, a good deal concealed among the terminal leaves. Two other distinct varieties are cultivated in gardens besides the two described above.

2. **Calluna. Salisb. Ling.**

*Calyx* of 4 coloured sepals, surrounded by 4 coloured bracteae.
Corolla campanulate, 4-cleft. Stamens 8. Capsules 4-celled, the dissepiments adhering to the axis, and with 4-valves dehiscent through the dissepiments.—Name from καλλυνω, to cleanse or adorn, and hence particularly applicable, as Sir James E. Smith observes, to this plant, whether we consider the beauty of its flowers, or the circumstance of brooms being made of its twigs. Octandria. Monogynia.


Heaths and moors, common; sometimes with white flowers. Fl. June—Aug h. A much branched, tufted shrub with opposite, imbricated leaves, in four rows, varying very much in the colour of its flowers, more particularly so in different parts of Scotland, probably owing to the variation of the soils in which it grows.—I have seen in the Botanic Garden of Edinburgh eight or ten varieties, all of which have been collected by the excellent curator, Mr. M'Nab.—A variety with double flowers is not uncommon in collections. The common Ling is much used for brooms, and even for fuel where that article is scarce.


Calyx 4-parted. Corolla ventricose, with a spreading 4 or 5-toothed limb. Stamens 8 or 10, inserted into the base of the corolla. Capsule 4-celled, many-seeded, with 4 valves dehiscent through the dissepiments.—Name, "Nomen dedi," says the learned founder of this Genus, "in honorem Archibaldi Menzies Scotici, peregrinatoris et Botanici indefessi, priscæ fidei ac urbanitatis viri."

Octandria. Monogynia.


Frequent on dry heaths over all the wild district of Cunnamara, and the mountainous parts of Mayo. Fl. July, Aug. h. —Stems twelve to eighteen inches high, bushy. Leaves ovate, half an inch long, shining, dark green above. Flowers large, drooping, purplish-red. Corolla with four blunt angles. A beautiful variety with white flowers first found by J. Kenny, Esq. in the County of Mayo, about fifteen years ago, has since been observed in several parts of Cunnamara, and is now a favourite plant in gardens.


Calyx 4-parted. Corolla campanulate, often ventricose, 5-toothed. Stamens 8. Capsule with from 4 to 8 cells, and the same number of valves.—Name from ρικω, to break; because it was formerly supposed to have the power of destroying calculi in the bladder. Octandria. Monogynia.

Moist heaths and boggy ground. Fl. July, Aug. 12. — The (longer) almost linear and revolute leaves of this species, noticed by Mr. Babington in the above description, serve along with other characters to distinguish it from the following.

2. E. Mackaiana, Babington. Many-branched Cross-leaved Heath. “Leaves four in a whorl, ovate, ciliated, smooth; flowers capitate, pedicelled; sepals ovate, ciliated, smooth; pedicels villous and downy; corolla oblongo-ovate; anthers awned, included; style exerted.” Bab. MSS.

On the declivity of a hill by the road side within three miles of Roundstone, Cunnamara; Mr. W. M'Culla. Fl. July, Aug. 12. — Specimens of this presumed new species were left for me in Sept. 1835, by Mr. Babington, and soon after I received others from the discoverer, when at first sight it struck me as being different from any species I was acquainted with. In its ovate, ciliated leaves, it much resembles E. ciliaris, while in its mode of flowering and awned anthers it agrees with E. Tetralix; it however differs from that species in its more shrubby habit and in the disposition of its branches, which, instead of having the flowering ramuli generally springing from one point (determinate ramosi) they are irregularly disposed and much crowded towards the top of the main branches. Doctor Hooker, who has kindly sent me a figure of this, is not as yet decided in his opinion whether it will ultimately prove a distinct species from E. Tetralix. There is however, I think, no doubt of its being at least a very distinct variety.


Dry heaths, woods and thicket, common. Fl. July, Aug. 12. — Stem from one to one and a half foot high in exposed situations; in woods at Mucruss, it attains the height of five or six feet. Flowers numerous, in dense leafy panicles, drooping, reddish-purple, occasionally white. Leaves nearly linear, glabrous.

4. E. mediterranea. Mediterranean Heath. Anthers without awns, and as well as the style exerted; corolla narrow, urceolate; bracteas about the middle of the peduncle; calyx coloured; flowers axillary; leaves four in a whorl. Bot. Mag. t. 471.

Var. β. flowering branches and style shorter. Hook. in Suppl. to E. Bot. t. 2774.

β. On the western declivity of Uris-beg mountain near Roundstone, Cunnamara, Sept. 1830, covering a space of nearly three acres. It has since been found by John Wynne, Esq. of Hazle-wood, and others
in the wild district of Erris, County of Mayo. *Fl.* March, April. *Arbutus.* An upright much branched shrub from two to four feet high, more compact and less luxuriant in growth than var. *a.* cultivated in gardens.


_Calyx_ deeply 5-cleft. _Corolla_ ovate. _Berry_ superior, 5-celled, many-seeded.—Name, according to Theis, from ar, rough or austere, and boise, a bush in Celtic.

_Decandria._ Monogynia.


Plentiful in the woods of Mucruss, and in all the islands in the lower and upper lakes of Killarney, as well as at Glengariff; near Bantry, generally among limestone rocks. About most of the mountain lakes in the barony of Beer, certainly indigenous; *Mr. J. Drummond. Fl.* Oct. The fruit ripens in the following October or November. *Arbutus._—In 1805, when I first visited Killarney, I measured a tree of this beautiful evergreen in Rough-island opposite to O'Sullivan's Cascade, whose stem was nine feet and a half in girth. A single tree of the scarlet flowered variety was pointed out to me near the entrance to Glengariff growing on red slate. The flowers are large, in the common variety, pale-greenish white. The fruit red and not ungrateful to the taste when fully ripe. Black-birds and thrushes are very fond of them.


Very abundant on the limestone mountains, barony of Burren, County of Clare, and on several mountains in Cunnamara. At Fairhead, County of Antrim; *Mr. Templeton. Fl.* May. *Arbutus._—Stems very long and trailing. Leaves obovate, stiff, rigid, glabrous, their margins revolute. Flowers in small crowded racemes, terminal, of a beautiful rose-colour. *Berry* small, red, austere, mealy; eaten by Moor fowl.

**Ord. 49. PYROLACEÆ. Lindl. Pyrola Family.**

_Calyx_ 5-leaved, persistent, free. _Corolla_ monopetalous, hypogynous, regular, deciduous, 4 or 5-toothed, with an imbricated aestivation. Stamens hypogynous, twice as numerous as the divisions of the corolla: anthers 2-celled, opening by fissures or pores, with or without appendages. _Ovary_ superior, 4—5-celled, many-seeded, with an hypogynous disk: style 1, straight or declinate; stigma simple. Fruit capsular, 4—5-celled, dehiscent, with central placentas. Seeds indefinite, very minute: testa large, loose and reticulated. Albumen
fleshy. Embryo at one extremity of the albumen.—*Herbaceous, rarely frutescent plants. Leaves simple, often wanting.

1. **Pyrola.** Linn. Winter-green.

*Calyx* 5-cleft. *Petals* 5, often connected at the base. *Anthers* opening with two pores. *Capsules* superior, 5-celled, dehiscing at the angles of the base. *Seeds* numerous, invested with a long arillus.—Name from *Pyrus*, a pear, from a fancied resemblance in its leaves to those of a *Pear-tree*.

*Decandria*. *Monogynia*.


Moist woods and bushy places in the northern counties. On a steep bank by the side of a mountain river near Garvagh, County of Derry in July, 1835, growing along with *P. minor* and *P. secunda*; Mr. D. Moore, who sent me fine specimens of all the three. *Fl. July—Sept.* 2. —“The largest of the *Pyrolae* with white spreading flowers, well distinguished by the direction and relative length of its *stamens* and *style*. The latter is more than twice as long as the fully formed capsule, and it is singularly curved. *Stigma* with five erect points.” Hooker.


In Newtownards Park, and several places in the County of Antrim; Mr. Templeton. *Fl. July, Aug.* 2. —“*Peduncle* spirally twisted. *Flowers* pendulous, globose, white, with a pink tinge.” *(Smith.*)—I insert this species on the authority of the late Mr. Templeton not having yet seen Irish specimens of it.


On the northern side of Slemish mountain, and at Glenarm among heath; Mr. Templeton. Mountain Glen near Garvagh and other places in the County of Derry; Mr. D. Moore. In woods at Ards-house near Dunfanaghy, also at Banagher, on the Owenbeg river, County of Derry, near the fall called Linapaste; Mr. E. Murphy. The most common species in Ireland. *Fl. July.* 2. —Well characterized by the shortness of its *style*, and large radiated *stigma*, quite included within the concave *corolla*. The figure given as *P. rosea* in *E. Bot.* is a good representation of this species.

Rare in Ireland. In a Mountain Glen near Garvagh, County of Derry; Mr. D. Moore. Fl. July. 2. — Stems rather straggling, branched. Peduncles 4—5 inches high, with several oval scales or bracteas. Flowers small, greenish-white. Petals erect. Style much protruded. Stigma 5-lobed.


Perianth single, of 4—5 leaves, cucullate at the base. Anthers 1-celled, 2-lipped. Capsule superior, 4—5-celled. Seeds numerous, invested with a long arillus.—Named from μονός, one, and τρέπω, to turn, the flowers all pointing one way.

Decandria. Monogynia.


Beech and Fir-woods, where the soil is dry. St. Catherine's woods, County of Dublin, and Moore Abbey, County of Kildare; Doctor Wade. Fl. June, July. 2. — Plant succulent of a uniform yellowish colour. Stem five to eight inches high. Leaves resembling scales.

Ord. 50. APOCYNEÆ. Br. Apocynum Family.

Calyx of 5 divisions, persistent. Corolla monopetalous, hypogynous, regular, 5-lobed, with an imbricated aestivation, deciduous. Stamens 5, situated on the corolla, and alternate with the segments of the limb: filaments distinct: anthers 2-celled, opening longitudinally; pollen granular, immediately applied to the stigma. Ovaries 2 or 1, 2-celled, generally many-seeded: styles 2 or 1: stigma 1. Pericarp a follicle or capsule, drupe or berry, double or single. Seeds generally without albumen. Embryo foliaceous. Plumule inconspicuous.—Trees, shrubs (or herbaceous plants), often milky. Leaves opposite, sometimes verticillate, rarely scattered, entire, frequently with interpetiolar cilia which are glandular. Inflorescence somewhat corymbose.


Calyx 5-parted. Corolla salver-shaped, the segments oblique, spirally imbricated in the bud. Follicles 2, erect. Seeds naked.—Name supposed from Vincio, to bind, as the trailing stems do the plants which grow in its neighbourhood.

Pentandria. Monogynia.

Hedge-banks and woods. Woods at Castle-hyde, County of Cork; Mr. J. Drummond. Woods near Chapelizod, scarcely indigenous. Fl. May, June. 2.—Stems round, of a woody texture, trailing. Leaves of a dark shining green. Flowers solitary, an inch wide, violet blue; rarely white.


In hedges, woods and old Church-yards, often planted. Fl. May. 2.—Twice the size of the former in all its parts. Flowers generally of a pale blue. Corolla often fringed with coarse hairs.


Calyx monophyllous, divided, persistent. Corolla monopetalous, hypogynous, often regular, marcescent or deciduous; the limb divided, equal, the lobes agreeing in number with the segments of the calyx, generally 5, sometimes 4—8, with an imbricated aestivation. Stamens situated upon the corolla, equal in number to the segments and alternating with them, some rarely abortive. Ovary 1, 1—2-celled, many-seeded. Style 1, or 2, more or less connate: stigmas 1—2. Capsule sometimes a berry, many-seeded, 1—2-celled, often 2-valved, with the margins of the valves introflexed, and in the 1-celled pericarps bearing the seeds, in the 2-celled ones they are inserted upon a central placenta. Seeds small. Embryo straight, in the axis of a soft, fleshy albumen: radicle directed to the hilum.—Herbs, or rarely shrubs, generally glabrous, with opposite, entire, exstipulate leaves. Flowers terminal or axillary.


Calyx 4-cleft. Corolla 4-cleft, salver-shaped, marcescent, the tube swelling. Anthers opening longitudinally. Stigma entire. Capsule 1-celled, 2-valved. Seeds attached to two sutural receptacles, which at length separate with the opening of the two valved-capsule.—Name, εξεκ, out, and αργω, to conduct, anciently applied to the Erythrea Centaurium, a genus allied to this, and which was supposed to have the property of ejecting poison from the stomach.

Tetrandria. Monogynia.

1. E. filiforme, Sm. Least Gentianella. Leaves linear-

Sandy turf-bogs, near Bantry; Miss Hutchins, Mr. J. Drummond, and Mr. W. Wilson. Fl. July. - A small slender graceful plant, with yellow flowers, differing from Gentiana in the number of the stamens, and the divisions of the calyx and corolla.


Calyx 5-cleft. Corolla funnel-shaped, withering, with a short limb. Stamens 5. Anthers when burst becoming spiral. Style erect. Stigmas 2, roundish. Capsule linear, 2-celled. R. Br.—Name from ερυθρός, red, the colour of the flowers in most of the species. 


Dry pastures, frequent. Fl. July, Aug. —8—10 inches to a foot high. Root-leaves spreading, three-nerved, broader than those of the stem, which are in distant pairs. Panicles of flowers fascicled near the top of the stem, and forming a sort of corymb. Corolla rose-colour.


Sandy sea-shores, &c. On Cape Clear Island; Mr. J. Drummond. On rocky ground below Bangor, County of Down; Mr. Templeton. Fl. Aug. Sept. —Stems 2—4 or 6 inches high, slender and much branched from the base. Panicle spreading, leafy, dichotomous, with a single flower-stalk between the branches.—Probably only a variety of the preceding, as Doctor Hooker well remarks.


Portmarnock sands. Fl. June—July. —Stem about two inches high; leaves nearly uniform. I agree with Doctor Hooker in thinking this species not permanently distinct from E. Centaurium, which at Portmarnock varies very much in appearance.

4. E. latifolia, Sm. Broad-leaved tufted Centaury. Stem 3-cleft at the top; flowers in dense forked tufts; calyx as long as

On Portmarnock sands growing along with E. Centaurium and is perhaps only a stunted variety of that species, with broader leaves. County of Down; Mr. Thomas Drummond. Hook. Fl. July. ©.


Calyx 4 or 5-cleft. Corolla funnel-shaped or hypocra teriform, 4 or 5-cleft, with the orifice naked. Stamens 5. Stigma 2-lobed. Seed not bordered. R. Br.—Named from Gentius, King of Illyria, who, according to Pliny, brought into use the species that is so much valued in medicine as the bitter Gentian, G. lutea. Pentandria. Digynia.


In barren mountainous situations on a calcareous soil. Plentiful on the Burren mountains near Gort. On hilly grounds about eight miles west of Tuam, in great abundance; Mr. John McGregor. Fl. April. 2.—Much smaller in all its parts than G. acaulis of the gardens and readily distinguished from it by its salver-shaped corolla; that of the other being subcampanulate, and not found in a wild state in Ireland. Stem shorter, central, leafy, bearing a single flower, with a bright blue corolla.


Pastures, particularly in subalpine situations. Mr. Templeton found this and the following species with double flowers, about Cave-hill and other places in the County of Antrim. Fl. June—Sept. ©.—From three inches to a foot high, and covered with flowers of a pale purplish blue.


Hilly pastures, particularly near the coast, most frequent on a limestone soil. Fl. Aug.—Oct. ©—Very similar to the last in general habit; but with larger flowers, which are of a paler blue. On the grassy tops of Magilligan rocks, County of Derry, which are composed of basalt, I found in pretty great abundance a variety with white flowers.
4. CHLORA. Linn. Yellow-wort.

_Calyx_ 8-parted. _Corolla_ hypocretiform; the tube short, the limb 8-parted. _Stamens_ 8, very short, inserted in the orifice. _Style_ 1. _Stigma_ 4-cleft. _Capsule_ 1-celled.—Name derived from χλωρος, pale or yellowish-green, in allusion to the colour of its flowers. _Octandria._ Monogynia.


Plentiful in the County of Dublin, chiefly on a limestone soil; (it is however found in fields about Kingstown over granite.) At the marble quarries near Kilkenny, and in Lord Desert’s demesne. South Isles of Arran; Messrs. Ball and Thomson. Not found in the northern counties or in Scotland. _Fl. July—Sept._

§ Menyantheae.

Leaves alternate, usually toothed or divided.

5. MENYANTHES. Linn. Buck-bean.

_Calyx_ 5-parted. _Corolla_ funnel-shaped; the limb spreading, 5-parted, bearded internally, with a simple margin. _Stigma_ capitate, with from two to five furrows. _Glands_ 5, hypogynous, alternate with the stamens. _Capsule_ 1-celled, 2-valved; the valves bearing the seed in their axis. _Leaves_ ternate.—Name μῆνη, a month, and ἀνθός, a flower. Sir J. E. Smith says the blossoms continue in perfection about a month. _Pentandria._ Monogynia.

1. _M. trifoliata_, Linn. _Common_ Buck-bean. Leaves ternate; disk of the corolla densely shaggy. _Br. Fl. 1. p. 91._ _E. Fl. v. i. p. 274._ _E. Bot. t. 495._

Marshy places, boggy ground, &c. frequent. _Fl. June, July._ 2. _Roots_ densely creeping and matted, so as often to render the boggy ground firm where the plant grows. _Leaves_ ternate, stalked; _leaflets_ obovate, obscurely toothed. The base of the leaf is sheathing, whence arises a _flower-stalk_ supporting a compound _raceme_ or _thyrus_, of many white _flowers_, tipped externally with red and beautifully fringed with white filaments within. “In the Highlands of Scotland, employed as tea, it is considered to strengthen weak stomachs. It cures the disease called _darn_ in cattle; and is sometimes used as a substitute for hops, (Mr. Gibb.) All these qualities indicate the bitter principle which abounds so much in the Gentian tribe.” _Hooker._

5. VILLARSIA. Vent. Villarsia.

_Calyx_ 5-parted. _Corolla_ somewhat rotate, the limb spreading, 5-parted, smooth in the disk, bearded or scaly at the base,

**Pentandria. Monogynia.**


Naturalized in the Laggan a little above the Belfast Botanic Garden, and near Lurgan. *Fl. July, Aug.*.—A beautiful plant, and difficult to be eradicated. *Flowers large, yellow, curiously plaited.*


*Calyx* tubular, ventricose, with 5 angles, 5-toothed, deciduous, leaving behind a broad orbicular base. *Corolla* funnel-shaped; the tube long; the limb with 5 angles, 5 plaits, and 5 points. *Stamens* 5. *Stigma* of 2 plates. *Capsule* echinate or smooth, 2-celled; the cells divided occasionally by spurious dissepiments.—Name from its Arabic appellation *Tatorah*, (Forskal). In some parts of the East Indies too, it is called *Daturu*. **Pentandria. Monogynia.**

Waste ground in the neighbourhood of towns, occasionally, where the seeds have probably escaped from gardens. Fl. July. &—Well known for its narcotic properties and was much used in London, Dublin, and other places several years ago as a cure for asthma, smoked like tobacco.


Calyx tubular, 5-cleft. Corolla funnel-shaped, the limb spreading, obliquely 5-lobed, unequal. Stigma capitulate. Capsule compressed, furrowed on each side, opening at the apex by a transverse aperture.—Name from *iv, vos*, a Hog, and *κυνος*, a **h**og. Hogs are said to eat the fruit, which bears some resemblance to a bean. The seeds do not prove injurious, though the plant be esteemed poisonous.

**Pentandria. Monogynia.**


On waste grounds, and dry gravelly or sandy commons, especially near the coast. Fl. July. &—Leaves sharply lobed, soft, downy, and viscid, exhaling a powerful and very disagreeable odour, like all the rest of the plant. Flowers numerous from the bosoms of the upper leaves. Corolla straw colour, pencilled with dark purple veins. **Plant** highly narcotic.


Calyx 5-parted. Corolla rotate, 5-lobed, unequal. Stamens 5, unequal; filaments declimate, almost always villous at the base. Capsule with two valves, ovate or globose.—Name altered from Barbascum, from *Barba*, a beard; in allusion to the shaggy nature of its foliage.

**Pentandria. Monogynia.**

1. V. Thapsus, Linn. Great Mullein or Shepherd's-club. Leaves decurrent, crenate, woolly on both sides; stem simple; cluster dense; flowers almost sessile. Br. Fl. 1. p. 95. E. Fl. v. i. p. 308. E. Bot. t. 549.

Banks and waste ground in light sandy, or gravelly soils, in many places. Fl. July, Ang. §.—Stem four or five feet high, angular, winged. Leaves thick, excessively woolly, ovate or oblong. Spike long, cylindrical. Flowers handsome, golden yellow. Three of the stamens are hairy; two longer ones glabrous.—The leaves boiled in milk are much used by the peasantry in hæmorrhoidal complaints.

2. V. virgatum, With. Large-flowered Primrose leaved Mullein. Leaves ovato-lanceolate, toothed, sessile; radical ones downy, somewhat lyrate; stem branched; flowers aggre-

Fields and by road-sides, rare. On the College grounds at West Green-lane near Kenmare in 1804, where it had been previously noticed by Doctor George Clarke, who accompanied me to Killarney in that year. *Fl. Aug.* 3.—*Stem* five or six feet high, winged from the partially decurrent leaves. *Flowers* large, bright yellow.

4. **Solanum.** *Linn.* Nightshade.

*Calyx* persistent, with from five to ten divisions. *Corolla* monopetalous, rotate. *Anthers* opening with two pores at the extremity. *Berries* roundish, two or more celled.—Name of doubtful origin. According to some from *Solamen,* on account of the comfort or solace derived from some species as a medicine.


Hedges and waste places. In hedges near Dublin, frequent. Near Belfast; *Mr. Campbell.* The hairy leaved variety grows on the coast near Rynville, Cunnamara. *Fl. June, July.* ½.—*Flowers* purple, with two green tubercles at the base of each segment. *Anthers* large, yellow, united into a pyramidal or cone-shaped figure.


Waste places and old dung-hills near Dublin. In Copeland Islands, County of Antrim, and on the main land opposite; *Mr. Campbell.* *Fl. July.* ☒.

5. **Atropa.** *Linn.* Dwale.

*Calyx* campanulate, 5-cleft. *Corolla* campanulate, twice as long as the calyx, 5-lobed, equal. *Filaments* 5, filiform. *Berries* globose, seated in the calyx.—Name from *Atropos,* one of the fates, in allusion to its deadly quality.

Pentandria. Monogynia.


Hedges and waste places, especially among ruins near towns. At Stradbally by the brook, near the old Monastery; *Doctor Wade.* *Fl. June.* 2.—*Flowers* lurid purple. *Berries* large, shining, violet-black, highly injurious when taken internally. Their effect are said to be best counteracted by drinking plentifully of vinegar.
Ord. 53. PRIMULACEÆ. Vent. Primrose Family.

Calyx divided, 5, rarely 4-cleft, regular, persistent. Corolla of 1 petal, hypogynous, regular, with the limb in 5, rarely 4, divisions. Stamens inserted upon the corolla, as many as there are calycine segments, and opposite to them. Ovary 1-celled: style 1: stigma capitate. Capsule valvate, with a free central placenta. Seeds numerous, peltate, albuminose. Embryo included, parallel with the hilum: radicle with no determinate direction.—Herbaceous plants. Leaves usually opposite, either whorled or scattered.


Calyx 4 or 5-parted. Corolla somewhat urceolate, 4 or 5-cleft, withering. Stamens 4 or 5, filaments beardless. Capsule globose, dehiscing by a transverse incision.—Name, it appears, anciently given to the Pimpernel, a genus allied to this, and derived, according to Theis, from Κεντο, a covering, because it was a little weed that covered the cultivated fields.

Tetrandria. Monogyenia.


Moist gravelly places, rare. Marshes at Glengariff. On the Ross Islands, County of Donegal; Mr. E. Murphy. Coast near Coleraine; Mr. D. Moore. Fl. June, July. ©


Calyx campanulate, 5-cleft, coloured. Corolla none. Stamens 5, hypogynous. Stigma capitate. Capsule with one cell and five valves. Seeds attached to a central globose placenta. Embryo straight, lying across the hilum. De Cand.—Name from γλαυκεόν, given to a plant of a sea-green colour, or because it grew near the sea.

Pentandria. Monogyenia.


Sea-shores, and muddy salt marshes, abundant. Fl. July. 2.—Stems 2—5 inches long, stout, branched; often procumbent. Leaves opposite, ovate, glabrous, fleshy, entire, sessile, small. Flowers sessile, solitary, axillary, rose-coloured, with five, obtuse, spreading lobes.


Calyx tubular, 5-toothed. Corolla salver-shaped, its tube cylindrical, its mouth open. Capsule ovate, dehiscing at the apex,
with five or ten teeth. Seeds minute, very numerous.—
Name from primus, first, on account of the early appearance
of the flowers in the commonest of the species.

Pentandria. Monogynia.

1. P. vulgaris, Hudson. Common Primrose. Leaves obo-
   vato-oblong, toothed, wrinkled; stalk single-flowered; limb of
   t. 4.—P. veris v. acaulis, Linn.

Woods, hedge-banks and pastures, abundant. Fl. April, May. 2.
—If the scapes are traced to their very base, they will be found to
spring from one common point, and to constitute a sessile umbel.

2. P. elatior, With. Oxlip Primrose. Leaves toothed,
   wrinkled, contracted towards the middle; stalk many-flowered;
   E. Bot. t. 513.—P. veris b. elatior, Linn.

In pastures, frequent; especially in the County of Dublin. Fl. May,
June. 2.—Flowers numerous, sulphur-coloured or light red. The
Polyanthus of which there are numerous varieties in gardens belong to
this species.

3. P. veris, Linn. Common Cowslip. Leaves toothed,
   wrinkled, contracted towards the middle; stalk many-flowered;
   271. E. Bot. t. 5.—P. veris a. officinalis, Henslow.

Meadows and pastures, frequent. Very common in the County of
Dublin. Fl. April, May. 2.—Readily distinguished from the last by
its smaller flowers with a concave limb. Many Botanists consider all
the three species only varieties of P. veris as Linnaeus has done. The
two last are often found growing together in open fields. P. acaulis
is generally found in sheltered situations under hedges and in thicket.


Calyx 5-parted. Corolla rotate, 5-cleft. Capsule globose,
with five or ten valves.—Name in honour of King Lysima-
chus, according to some; according to others from λυς, a
dissolving, μακά, battle. The English name, it will be at
once seen, has a similar meaning. Pliny says it tames res-
tive horses.

Pentandria. Monogynia.

* Stalks many-flowered.

1. L. vulgaris, Linn. Yellow Loosestrife. Clusters pa-
88. E. Fl. v. i. p. 278. E. Bot. t. 176.

Sides of rivers and lakes, also in wet meadows, in the southern,
northern and midland counties. Ballypheane bog, and Summerstown
bog near Cork; Mr. J. Drummond. Frequent in the County of
Down and on the low grounds near Lough Neagh, where many acer
are covered with it; Mr. J. Campbell. Fl. July. 2.—Plant erect, 2—3 feet high. Leaves nearly sessile, glabrous, or downy beneath. Panicle large; leafy, much branched. Corollas large, yellow, handsome.

**Stalks single-flowered.**


Woods and shady places, frequent. Fl. during the summer months. 2.—Stems creeping at the base, red and pellucid. Flowers golden-coloured. Divisions of the calyx awl-shaped.


Boggy pastures and borders of streams, rare. Summerstown bog near Cork; Doctor Wood. In marshy situations at the old camp, Loughlinstown, and moist woods at Collon; Mr. J. White. I have not seen Irish specimens. Fl. July. 2.—Leaves pale green. Flowers lemon-coloured. Calycine-leaves ovate.


Calyx 5-parted. Corolla with a short tube, and a flat 5-lobed limb. Stamens inserted at the mouth of the tube. Capsule globose, crowned by the long persistent style.—Named after Pierre Hotton, a Professor at Leyden during the latter half of the seventeenth century. Pentandria. Monogynia.


Ditches and pools. First found in Ireland about eighteen years ago, in ditches or drains near Downpatrick by Doctor Kennedy, then a young and promising Botanist, who died shortly afterwards. Fl. June. 2.—Root creeping. Leaves all submerged. Flowers large, handsome, pale-purple, rising above the water.


Calyx 5-parted. Corolla rotate, 5-lobed. Capsule globose, bursting all round transversely.—Name from anagax, to laugh. Pliny says the Anagallis excites pleasure; and Dioscorides that it removes obstructions of the liver which create sadness. Pentandria. Monogynia.

1. A. arvensis, Linn. Common Pimpernel, or Poor Man's Weatherglass. Leaves ovate, dotted beneath; stem procum-

Corn fields and sandy commons, frequent. Fl. June, July. — Flowers bright scarlet, sometimes purplish pink when growing on sandy grounds, as is the case at Portmarnock where it is very abundant.


Corn fields near Warrenpoint, below Newry, where it was first pointed out to me in 1816, by Mrs. Lyne. Fl. June, July. — Nearly allied to the last.


Wet mossy bogs and moist sandy places, frequent. Plentiful at Portmarnock, Howth, Glencree and other places near Dublin. Island Magee, and near Bangor; Mr. Templeton and Mr. Campbell. Fl. July, Aug. — A beautiful little plant, growing in large tufts. Flowers rose-colour, somewhat bell-shaped, on slender stalks.

† Somewhat allied to Primulaceae.


Calyx half superior. Corolla somewhat campanulate, 5-lobed. Stamens 5, bearing anthers, and opposite the segments of the limb; five sterile, and alternate. Capsule half inferior, ovate, half 5-valved, 1-celled. Placenta central, loose. Seeds numerous, fixed by one end, albuminous. Embryo included; radicle next the umbilicus.—Name, some say from the island Samos, where Valerandus a botanist of the sixteenth century, is said to have gathered our Samolus Valerandi. Others, as Theis, from San, salutary, and mos, a hog in Celtic, because it was used by the ancients for the curing of diseases in hogs. Pentandria. Monogynia.


Marshy and watery places, especially in a gravelly soil. Fl. July. — Stem 8—10 inches high, rounded, glabrous, as well as the ovate, subpetiolate, and entire fleshy leaves. Flowers small, white. Calyx small, 5-cleft, persistent; the segments surmounting the rounded capsule.

Calyx divided, persistent. Corolla monopetalous, hypogynous, irregular, spurred and 2-lipped. Stamens 2, included, inserted at the bottom of the corolla. Ovary 1-celled: style 1, very short: stigma 2-lipped. Capsule 1-celled, many-seeded, with a large central placenta. Seeds small, without albumen: embryo sometimes undivided.—Aquatic or marsh, herbaceous plants, with the radical leaves undivided or compound, root-like, and bearing bladders. Scapes with stipulisiform, minute scales, or destitute of them, sometimes with whorled vesicles, usually undivided, single-flowered, or with many-flowered racemes or spikes. Flowers with a single bractea or rarely none.


Calyx 2-lipped, upper lip of three, lower of one, bifid segment. Corolla rient; spurred. Germen globose. Stigma large, of two unequal plates or lobes. Capsules 1-celled, with the seeds attached to a central receptacle.—Name from pinguis, fat; the leaves being thick and greasy to the touch.

Diandria. Monogynia.


Bogs, moist banks and heaths, abundant, least frequent in the southern counties. Fl. June. 2.—Foliage covered with minute raised crystalline points, all radical, fleshy, the margins involute. Scapes single-flowered. Flowers purple, very handsome, drooping; palate covered with white, compactly jointed hairs. Anthers 1-celled, vertical, placed just beneath the large horizontal plate or lobe of the stigma. Style short. Caps. ovate, one-celled, bursting half way into two valves. Seeds numerous, oblong, rough.—The leaves are said to coagulate milk, whence the English name.


Western part of the County of Cork, in marshy ground; Mr. J. Drummond. Near Kenmare; Mr. W. Wilson. Fl. May. 4.—This plant, apparently as rare upon the continent as in Britain, and perfectly distinct from P. vulgaris, may be easily cultivated for a succession of years. As in the P. vulgaris, the old leaves die away in winter, and buds or hybernacula are formed, which expand into perfect individuals in the spring. "Few plants can exhibit a more beautiful appearance, early in the year, than a cluster of P. grandiflora, blossoming under the shelter of a common frame. It is a mass of large
deep and rich purple-coloured flowers, well contrasted with the pale but bright hue of the leaves." — Hooker.


Boggy grounds in mountainous situations in many parts of the country. County of Antrim; Mr. Templeton. Mourne mountains; Mr. Hyndman. County of Cork; Rev. Doctor Hincks. Achill, Croaghpatrick and Neplain, County of Mayo; Messrs. Thomson and Ball. Plentiful in Kerry; Swanlinbar mountains near Florencecourt, and in Cunnamara; also near the Three-rocked mountain above Dundrum, and in various parts of the County of Wicklow. Fl. June, July. 4.


Calyx of two sepals, the lips equal and undivided. Corolla personate; the lower lip spurred at the base. Stigma bilabiate. Capsule globose, of one cell. Seeds fixed to a central receptacle.—Name from Utriculus, a little bladder.

Diandria. Monogynia.


Ditches and deep pools, not unfrequent. Fl. June, July. 4.—Shoots or runners floating horizontally in the water, clothed with capillary multifid leaves, bristly at the margin, and bearing little cristate bladders. Scape erect, four to six inches high or more, with six or eight yellow flowers in a raceme.


Ditches and bog-holes, or deep pools. First found in Ireland in the County of Fermanagh by the late Doctor R. Scott. Bog-holes filled with water at Mucruess, Killarney, 1805, where it has subsequently been found by Mr. W. Wilson. Ballynahinch, County of Down; Mr. Templeton. Fl. June, July. 2.—Flowers smaller than the last, of a pale yellow, and have a longer lip. The stamens are more leafy, and the bladders proceed from branched stalks, not from the leaves.


Ditches and pools. Plentiful in bog-holes and small lakes in Cunnamara. Common in the county of Derry; Mr. D. Moore.
Near Grey Abbey; Mr. Templeton. Near Bantry; Mr. J. Drummond. Fl. June, July. 2.—Smaller than the last. Vesicles mixed with the leaves, which are glabrous at the margin. Flowers very pale yellow and small. Spur scarcely any. Lower lip almost plane; palate scarcely closing the mouth, not projecting beyond the lip. The British species of this genus are all aquatics; and the roots, stems, and even leaves are furnished with numerous membranaceous, reticulated vesicles, which according to Hayne, are filled with water, till it is necessary the plant should rise to the surface, and expand its blossoms above the fluid. The vesicles are then found to contain air only, by aid of which the plant floats; this air again in the autumn gives place to water, and the plant descends to ripen its seeds at the bottom of the water. Aquatic insects are often seen in these bladders." Hooker.

Ord. 55. SCROPHULARINEÆ. Juss. Figwort Family.

Calyx divided, persistent, inferior. Corolla monopetalous, hypogynous, usually irregular, deciduous, with an imbricated aestivation. Stamens 2, or 4, didynamous, very seldom equal. Ovary superior, 2-celled, many-seeded. Style 1. Stigma 2-lobed. Fruit capsular, very seldom succulent, with from 2 to 4 valves, which are either entire or bifid; the dissepiment either double, arising from the incurved margins of the valves, or simple, and, in that case, either parallel with, or opposite to, the valves. Placenta central, either adhering to the dissepiment or separating from it. Seeds indefinite. Embryo included within fleshy albumen; radicle turned towards the hilum.—Herbaceous plants, seldom shrubs, with opposite leaves. Inflorescence very variable.

Generally acrid bitter plants, frequently employed as purgatives or emetics.


Calyx 4 or 5-parted. Corolla rotate; the limb 4-parted, unequal, with entire lobes. Capsule either separable in two, or bearing the septa in the middle of the valves.—Name of doubtful origin. Diandria. Monogynia.

* Spikes or racemes terminal. Roots perennial.


Grassy pastures and moist shady places, abundant. Fl. May—July. 2.—Plant of a pale shining green, a little succulent; smooth in wet situations; in dry ones all over hairy. Leaves on short foot-stalks.
Racemes solitary, erect; leafy at their base, bracteated. Fl. pale blue, or white with blue streaks, sometimes flesh-coloured.

** * Racemes axillary. Root perennial.


Ditches and rivulets, frequent. Fl. summer months. 2.—Whole plant glabrous and very succulent. Racemes of many bright blue flowers.


Ditches, and muddy watery places. Fl. July, Aug. 2.—Stems succulent, a foot or more high. Leaves varying somewhat in width. Racemes long, many-flowered. Pedicels short, never reflexed. Flowers bluish or inclined to purple.


On dry sandy banks, barren heaths, woods, and mountainous pastures common. β. On Sally-brays, County of Antrim; Mr. Templeton. Fl. July. 2.—A very variable plant in size. Leaves as tingent and bitter, hence sometimes used medicinally as tea.


Moist woods and hedge banks, frequent. Fl. May, June. 2.—Stem procumbent. Flowers large, numerous, very bright blue, expanding in fine weather only, and of short duration. Sometimes mistaken for the German. "Forget-me-not."


Moist woods, not unfrequent. Woodlands and other places in the
County of Dublin, abundant. Fl. May—June. 4.—Stems about a foot or more long, weak, trailing. Leaves large, on stalks about equal to them in length. Capsules large, quite flat, veiny, their edges denticate and slightly ciliated.


Fields and waste places, abundant. Fl. April—Sept. o.—Prostrate. Stems three to four inches long, slightly hairy. Peduncles longer than the leaves. Fruit of two round tumid lobes, much smaller than the calyx. Seeds large, cupped.—My specimens from Mr. Moore, collected in Derry, agree with Reichenbach’s fig. in having the calyx segments three-nerved and having the edges tipped with glands.


Cultivated fields and waste places, often with the preceding. Fl. throughout the summer. o.—Mr. Borror has well illustrated this and the foregoing, V. agrestis in the Supplement to Engl. Bot. t. 2603.—Herbage of a greyish colour, not pale green as in the last, and usually less hairy. Leaves ovate, very slightly cordate at the base and less wrinkled, less deeply and more regularly serrated, or crenate. Corolla pale blue, or rose-colour in the upper half, or often entirely white. Generally smaller.


On walls and dry gravelly ground, abundant. Fl. in the spring months, and early in summer. o.—Erect, pale green. Flowers pale blue. Capsules compressed.


Strand near Sandymount, rare; *Doctor Scott*. Not found of late. *Fl.* April. —Three to four inches high, with spreading branches. *Flowers* a very deep blue, the lowermost often on very long pedicels.


*Calyx* inflated. Upper *lip* of the *corolla* compressed laterally, lower one plane, 3-lobed. *Capsules* of two cells, obtuse, compressed, with many imbricated, flat and marginal seeds. —Name; ῥυμ, a *nose*, and ἄνθος, a *flower*; in allusion to the beaked upper lip of the *corolla*, which is very remarkable in the *R. Elephas*. Didynamia. *Angiosperma.*


Meadows and pastures, abundant. *Fl.* June. —One or two feet high, glabrous, often much branched, and more or less spotted with purple. *Leaves* veiny. *Flowers* axillary in the upper leaves or *bracteas*, and hence loosely spiked. When the fruit is ripe, the seeds rattle in the husky capsules. In England Mr. Curtis observes, the hay-making begins when this plant is in full flower. In natural meadows in many parts of Ireland, the seed is ripe before the hay is cut.


*Calyx* inflated, 5-cleft, or unequally 2—3 lobed, jagged, somewhat leafy. Upper *lip* of the *corolla* laterally compressed, arched, lower one plane, 3-lobed. *Capsules* oblique, compressed, 2-celled. *Seeds* angular. —Name, from its supposed property of producing the lousy disease in sheep that feed upon it, but which rather arises from the wet pastures where such plants grow. Didynamia. *Angiosperma.*


In marshes and boggy meadows. *Fl.* June, July. —Stem one foot high, often very purple, bearing many lateral branches. *Leaves* pinnate; *pinna* ovate, almost pinnatifid. *Flowers* large, handsome, deep rose-coloured.


Moist pastures and heaths, common. *Fl.* July. —*Stems* three to four inches high, often much branched, with spreading branches. *Flowers* a very deep blue, the lowermost often on very long pedicels.
five inches long. Lower leaves pinnatifid, the rest pinnated with deeply serrated pinnae. Flowers large, handsome, pale, rose-coloured.

4. **Bartsia.** Linn. **Bartsia.**

*Calyx* tubular, mostly coloured. *Corolla* ringent with a contracted orifice; upper lip arched, entire; lower one in three, equal, reflexed lobes. *Anthers* mostly hairy. *Capsules* ovate, compressed, with two cells and many angular seeds.—Name in honour of **John Bartsch**, a Prussian Botanist, and friend of Linnaeus, who died at Surinam.

**Didynamia. Angiospermia.**


5. **Euphrasia.** Linn. **Eye-bright.**

*Calyx* tubular. Upper lip of the *corolla* divided; lower one of three unequal lobes. Cells of the *anthers* spurred at the base. *Capsules* ovato-oblong, 2-celled. *Seeds* striated.—Name from *Euphrosyne*, expressive of joy and pleasure, in allusion to its properties. **Didynamia. Angiospermia.**


Pastures and sides of mountains, abundant. *Fl. July. ©.—Varying in height according to situation. Flowers axillary, but crowded at the extremity of the branches, white or reddish, streaked with purple. The plant is still much used in rustic practice as a remedy for diseases of the eye.

6. **Linaria.** Juss. **Toadflax.**

*Calyx* 5-parted. *Corolla* personate, spurred at the base, the mouth closed by a projecting palate. *Capsule* ventricose,
2-celled, opening by valves or teeth.—Name from *Linum*, *flax*, which the leaves of some species resemble.

Didynamia. Angiospermae.


On old walls, &c. The outcast of gardens. *Fl.* all the summer. 2. —Stems very long, filiform. Leaves petiolated, often purple beneath. Flowers small, pale blue or purplish.


Corn-fields in a dry gravelly soil, rare. Fields by the side of the Bandon road; Mr. J. Drummond. Corn-fields near Rathkeale, County of Limerick; Henry Hardy, Esq. *Fl.* July—Sept. 2. —Plants clothed with fine hairs. Stems spreading, leafy, rather slender. Flowers on axillary stalks, variegated with yellow and pale violet. Segments of the calyx lanceolate.


On the refuse of an old slate quarry, a mile below Bandon, and by the old castle near it by the river side, 1805. Road side, half way between Bandon and Dunmanway; Mr. J. Drummond. County of Antrim; Mr. Templeton. *Fl.* July—Sept. 2. —Stems erect, one foot and a half high, slender, branched. Leaves somewhat whorled below. Flowers in panicked racemes, bluish, pale yellow.


In hedges and fields, in the southern, northern, and midland counties, as well as near Dublin, not unfrequent. *Fl.* Aug. 2. —One to two feet high, glaucous. Flowers large, yellow. The remarkable variety called ("Peloria" figured in *E. Bot.* t. 250), with five spurs and five, usually imperfect, stamens, has not been observed to grow in Ireland.


Sandy fields. Said to have been found near Sunday’s-well, County of Cork, by Doctor Woods, but I have not seen Irish specimens. *Fl.*
June, July. — Six to eight inches high, with small purplish-yellow flowers, which are stalked, solitary and axillary.


Calyx 5-parted. Corolla personate, gibbous at the base, (no distinct spur), its mouth closed by a projecting palate. Capsules 2-celled, oblique, opening by three pores at the extremity.—Name, arris, resembling, πυρ, a nose, muffler, or mask, from the appearance of the flowers.


Calyx in five deep unequal segments. Corolla campanulate, inflated beneath; limb obliquely 4—5 lobed, unequal. Capsules ovate, of two cells, and many seeds.—Name, digitale, the finger of a glove, which its flowers resemble. Hence Fox-glove in English, doigts de la Vierge, gants de notre Dame, &c. in French. Didynamia. Angiospermae.


Dry banks, pastures, and walls, most frequent on clay-slate. Fl. June, July. — A very beautiful herbaceous plant, which has been much used in medicine. Three to four feet high. Leaves large, veiny. Spikes very long, of numerous drooping, purple, (or rarely white) flowers, spotted within.


Calyx in five, deep, spreading segments. Corolla 5-cleft, rotate, the two lowermost segments the narrowest; stigma dilated. Capsule nearly orbicular, compressed, 2-celled, 2-valved.
Name, given in honour of Dr. Humphrey Sibthorpe, the successor of Dillenius in the botanical chair at Oxford.

_Didynamia._ Angiospernia.


Moist shady places. Under a wall on the north side of Conner-hill, near Dingle, 1805. _Fl._ July, Aug. _2._—An interesting little plant, hairy, with creeping filiform stems, and alternate, reniform, broadly crenate leaves. _Flowers_ axillary, solitary, on short stalks, pinkish white, very small.

10. _Scrophularia._ Linn. _Figwort._

_Calyx_ 5-lobed. _Corolla_ sub-globose; its limb contracted with two short lips, the upper with two lobes, and frequently a small _scale_ or abortive stamen within it, the lower 3-lobed. _Capsules_ 2-celled, 2-valved, the margins of the valves turned inwards.—Named from _Scrophula_, a disease which this plant was supposed to cure.

_Didynamia._ Angiospernia.


In hedge-banks and woods, frequent. _Fl._ July. _2._—Root large, thick and knotty. _Stem_ two to three feet high. _Flowers_ in dichotomous, axillary, and terminal _panicles_. _Corolla_ greenish-purple, with a scale in the upper lip.


Sides of rivers and in wet ditches. _Fl._ July. _2._—Three or four feet high. _Panicles_ terminal, bracteated, with remote branches. _Flowers_ dark purple at the mouth, with a scale in the upper lip. _Calyx_ margined with purple.


Marshes near Tralee, as stated by Smith in his history of Kerry. _Fl._ July. _2._—Stem about three feet high, branched, covered with short hairs. _Leaves_ three-ribbed at the base. _Flowers_ on axillary, forked peduncles, forming a long raceme. _Corolla_ greenish purple.

Ord. 56. _OROBANCHEÆ._ Vent. _Broom-rape Family._

_Calyx_ divided, persistent, inferior. _Corolla_ monopetalous, hypogynous, irregular, persistent, with an imbricated aestiva-
tion. Stamens 4, didynamous. Ovarium superior, 1-celled, seated in a fleshy disk, with 2 or 4 parietal polyspermous placentæ; style 1; stigma 2-lobed. Fruit capsular, enclosed within the withered corolla, 1-celled, 2-valved, each valve bearing 1 or 2 placentæ in the middle. Seeds indefinite, very minute; embryo minute at the base of a fleshy albumen.—*Herbaceous leafless plants, growing parasitically upon the roots of other species. Stems covered with brown or colourless scales.*


*Calyx* of two lateral, often combined and bifid segments, bracteated. *Corolla* ringent, 4—5-cleft. A gland at the base of the germen beneath. *Stigma* capitate. *Capsule* 2-valved, bearing numerous minute seeds, on parietal longitudinal receptacles.—Name, from ὀρομή, a leguminous, or pea-like plant, and ἀγριχεῖν, to strangle, the roots being often attached to plants of that description are supposed to injure them.

*Didynamia. Angiospermae.*


On the roots of broom and furze in bushy places. Plentiful near the lake at Luggy-law; at the Devil's-Glen and Seven Churches, County of Wicklow, &c. *Fl.* June, July. 2.—One to one foot and a half high, leafless. Whole plant dingy purplish-brown, pubescent. *Stem* swelling at the base and very scaly; *scales* more distant upwards and becoming bracteas among the *flowers*; one at the base of each. *Flowers* in a long spike. *Calyx* of two lateral lanceolate leaves. *Corolla* large.


Near the roots of ivy. South side of the hill of Howth, on steep banks near the sea; in Sir Robert Staple's woods, Queen's County; on the ruins of Mucruss Abbey, Killarney; south Isles of Arran, and plentiful in Palmerston and Leixlip woods. *Fl.* July, Aug. 2.—From one to one and a half foot high, more slender than the last. *Corolla* not at all tumid, upper lip unequally notched.


On the decomposed trap-rocks at Cave-hill near Belfast; *Mr. Templeton.* On the basaltic rocks at Magilligan, County of Derry. *Fl.*
July. 2. — *Plant* leafless, of a purplish colour. *Stem* about a foot high, densely scaly beneath. *Flowers* fragrant.

2. **Lathraea. Linn.** Tooth-wort.

**Calyx** campanulate. **Corolla** tubular, 2-lipped, the upper *lip* concave. A depressed *gland* at the base of the *germen*. **Capsule** two-valved, one-celled, having two spongy *receptacles* in the middle of each valve.—*Name*, λάθρα, hid or concealed, the plant being much concealed by the earth or dead leaves. Didynamia. Angiospermia.


Woods and shady places apparently parasitic on the roots of elms and other trees. Plentiful at Woodlands, County of Dublin, Balruddery, County of Wicklow and other places. *Fl.* April, May. 2.—Branching at the very base. Whole plant succulent, with many fleshy tooth-like scales. *Bracteas* broadly ovate. *Flowers* purplish. *Style* included, sometimes exserted.

Ord. 57. **MELAMPYRACEÆ. Rich.** Cow-wheat Family.

**Calyx** divided, persistent, unequal, inferior. **Corolla** monopetalous, hypogynous, deciduous, personate. **Stamens** 4, didynamous; *anthers* with acuminate lobes. **Ovarium** superior, 2-celled, 2-seeded; *style* 1; *stigma* obtuse. Fruit capsular, 2-celled, 2-valved, covered by the calyx. **Seeds** in pairs, erect; *embryo* minute, inverted in the apex of fleshy albumen; radicle superior.—*Herbaceous plants*. **Leaves opposite, without stipulae. Flowers** axillary, with coloured *floral leaves*.

1. **Melampyrum. Linn.** Cow-wheat.

**Calyx** tubular. Upper *lip* of the *corolla* laterally compressed, turned back at the margin; lower *lip* trifid. **Capsules** oblong, 2-celled, oblique, opening on one side. *Cells* 1-seeded. *Seed* gibbous at the base.—*Name*; μελας, black, and πυρος, wheat. Its seeds resemble grains of wheat, and they are said when mixed with flour to make the bread black.

Didynamia. Angiospermia.


β. smaller, somewhat succulent, *bracteas* quite entire.
Groves and thickets, (not in meadows as the name would imply), frequent. 2. on the top of Mangerton where I gathered it in 1805. It has since been observed there by Sir Thomas Gage and others. On Muckish and Croagh Patrick; Doctor Hooker. Fl. July, Aug. O.—One foot or more high, slender, with straggling, opposite branches. Flowers large, pale yellow.


Subalpine woods, rare. Bushy places near Glenarm, County of Antrim; Mr. Templeton. Errigal banks near Garvagh, County of Derry; Mr. D. Moore. Fl. July. O.—One foot high. Branches always entire. Corolla deep yellow, very small.—Mr. Moore remarks that this may be well distinguished from any state of M. pratense by its shorter and more obtuse sepals which spread widely from the corolla, and are generally a little reflexed, whereas in M. pratense the two lower ones extend horizontally along the lower lip of the corolla.

Ord. 58. VERBENACEÆ. Juss. Vervain Family.

Calyx tubular, persistent, inferior. Corolla hypogynous, monopetalous, tubular, deciduous, generally with an irregular limb. Stamens usually 4, didynamous, seldom equal, occasionally 2. Ovarium 2 or 4-celled; ovules erect, solitary or twin; style 1; stigma bifid or undivided. Fruit drupaceous, or baccate. Seeds erect; albumen none, or in very small quantity; embryo erect.—Trees or shrubs, sometimes herbaceous plants. Leaves generally opposite, simple or compound, without stipule. Flowers in opposite corymbs, or spiked alternately; sometimes in dense heads, very seldom axillary and solitary.

1. VERBENA. Linn. Vervain.

Calyx tubular, with five teeth, one of them generally shorter than the rest. Corolla tubular, with the limb rather unequal, 5-cleft. Stamens included, (sometimes only two). Seeds two or four, enclosed in a thin evanescent pericarp.—Name; verfaen in Celtic, derived from fer, to drive away, and faen, a stone, from having been supposed to cure the complaint so called. Theis. Didynamia. Angiospermia.


Road sides and waste ground in a limestone soil. Plentiful near Cork, and Killarney, and at Kilmacan nick, County of Wicklow. Fl.
July. 2.—The genus *Verbena* is placed by Sir James Edward Smith, in the first order of the class Didynamia, but as Doctor Hooker remarks, it does not naturally rank there, being considerably different in the structure of its gerumia and fruit. This herb has scarcely any aromatic or other sensible quality. The root worn about the neck with a string, is an old superstitious remedy, or charm for the King's Evil.

**Ord. 59. LABIATÆ. Juss. Labiate Family.**

Calyx tubular or regular, and quinquefid, or 5—10-toothed or 2-lipped, the lips entire or divided. Corolla monopetalous, hypogynous, tubular, irregular. Upper lip undivided or bifid; in aestivation overlapping the inferior trid one. Stamens 4, didynamous, two of them sometimes sterile; filaments inserted alternately with the lobes of the lower lip: anthers 2-lobed, the lobes often divaricated, sometimes 1-celled. Ovaries 4, 1-seeded, connected at the base by means of the style, situated upon a glandular disk: ovules erect: style 1, originating from the receptacle: stigma bifid, usually acute. Fruit of four achenia or small nuts enclosed in the persistent calyx, one or more not unfrequently abortive: albumen little or none. Embryo erect: cotyledons plane.—*Herbaceous plants or under-shrubs. Stem 4-cornered, with opposite ramifications. Leaves opposite, divided or undivided, without stipula, replete with receptacles of aromatic oil. Flowers in opposite, nearly sessile cymes, resembling whorls; sometimes as if capitulate. An extensive Natural Family, abounding in essential oils, as the Lavender, Thyme, Mint, &c. They are tonic and stomachic, and many are employed in medicine, and others as savoury herbs.


Calyx 2-lipped, tubular. Corolla labiate, the tube dilated upwards and compressed. Filaments with two divaricating branches, one only bearing a perfect, single cell of an anther. —Named from *salve*, to save or heal, in allusion to its balmy or healing qualities. *Diandria. Monogynia.*


Dry pastures and banks in a sandy or gravelly soil. Very common near Dublin, and many other places. *Fl.* June, July. 2.—One to two feet high. *Flowers* small, violet-blue.


Calyx tubular, 5-cleft. Corolla tubular, 4-lobed, nearly equal;
the upper lip broader and emarginate.—Name from λυκός, a wolf; and πος, a foot, from a fancied resemblance, in the cut leaves of this plant, to a wolf’s paw.—Der Wolfsfuss, in Germ.;—in English, Gipsy-wort, because the plant yields a black dye, which is employed by gipsies to render their skin darker.

_Diandria._ Monogynia.


Ditches and river banks, frequent. _Fl._ June, July. 2.—Leaves opposite, nearly sessile, ovato-lanceolate, wrinkled, very deeply sinuato-serrate, almost pinnatifid. Flowers small, sessile, in dense whorls at the base of the superior leaves, whitish with purple dots, hairy within.

3. _Ajuga._ Linn. Bugle.

_Calyx_ 5-cleft, nearly equal. _Corolla_ tubular, labiate; the upper lip very small, and with two teeth; the lower one 3-lobed, with a large intermediate obcordate lobe. _Stamens_ protruded above the upper lip.—Name altered from Abiga, (abigo, to drive away) of the Latins, a medical plant allied to this.

_Didynamia._ Gymnospermia.


Moist pastures and woods, abundant. _Fl._ May, June. 2.—Stem a span high, erect, leafy. _Leaves_ obovate, upper ones sessile; _whorls_ several. _Flowers_ blue (sometimes white or flesh-coloured).


Mountains, rare. Summit of Benyevena, Magilligan, County of Derry; Mr. D. Moore, whose specimens appear more dwarf than the figure in _E. Bot._ but otherwise pretty well agree. _Fl._ July. 2.


_Calyx_ tubular, 5-toothed, nearly equal, or 2-lipped. _Corolla_ with the tube shorter than the calyx; upper lip bipartite, lower one patent, trifid. _Stamens_ much exerted. Cells of the _Anthers_ confluent, spreading.—Named from Teucer, Prince of Troy, who first employed this plant medicinally.

_Didynamia._ Gymnospermia.

1. _T. Scorodonia_, Linn. Wood Germander. Leaves heart-shaped, hairy, serrated, stalked; _racemes_ aggregate, unilateral;
Glechoma.} LABIAT.E. 211


Woods and dry stony places, frequent. _Fl._ July, Aug. 4.—_Stems_ one to two feet high. _Leaves_ much wrinkled. _Flowers_ yellowish-white. The plant is extremely bitter, and has been sometimes used instead of hops.


Low wet meadows, rare. In marshy ground near the bridge at Portumna, County of Tipperary. Banks of the river near the bridge, east of Castle-Lyons; _Doctor Wade_. _Fl._ July, Aug. 4.—_Flowers_ rather small, pale-purple, about two, from the axils of the leaves.


Borders of fields and ruined walls. Field near the Cork Botanic Garden; _Mr. J. Drummond_. _Fl._ July. 4.—_Flowers_ reddish-purple, large, handsome, mostly in terminal axils.

5. _Leonurus_. Linn. _Motherwort_.

_Calyx_ with five or ten ribs, equal, with five subulate teeth, the throat naked. _Corolla_ with the upper lip very hairy above, entire; lower one patent, trifid. _Anthers_ sprinkled with shining dots.—Name, λεων, a _Lion_, and ουπα, a _tail_, from a fancied resemblance in the plant to a Lion's tail.

_Didynamia_. _Gymnospermia._


Road-side between Foaty and Cork; _Mr. J. Drummond_. _Fl._ Aug. 4.—_Stem_ three feet high, branched. _Flowers_ in crowded whorls, white with a reddish tinge; under lip of the _corolla_ shaggy. _Calyx_ with pungent, spreading teeth.

6. _Glechoma_. Linn. _Ground-Ivy_.

_Calyx_ tubular, many-nerved, equal, 5-toothed. _Corolla_ with the tube exserted; upper lip bifid, lower 3-lobed, middle lobe emarginate, plane. _Anthers_, before bursting, approaching in pairs and forming a cross.—Name, γάλκηων, given by the Greeks to a kind of _Thyme_.

_Didynamia_. _Gymnospermia._


7. **Mentha.** Linn. Mint.

*Calyx* equal, 5-toothed, its mouth naked or rarely villous. *Corolla* nearly regular, 4-fid, its tube very short. *Stamens* distant, exerted or included. *Filaments* naked. *Anthers* with two parallel cells. *Benth.*—Name; μινθα or μινθη, an ancient Greek name. *Didynamia.* Gymnospermia.


Waste places, scarcely wild. On a dry bank at Carlisle Fort near Cove. *Fl. Aug.* Sept. 2.—Whole plant viscid, and has a peculiarly acid smell which many people think highly grateful, hence it is often cultivated in gardens.


Marshy places. Said to have been found near Belfast, but I have not seen wild specimens. *Fl. Aug.* 2.—Cultivated for culinary purposes, and frequently forced in spring for an ingredient in Lamb-sauce.


Marshy places. At Farnham near the upper end of the lake. By the side of a mountain stream called the Curly-Burn, near Newtown-limavady; *Mr. D. Moore.* Banks of the Lee, near Carrigrohan Castle; *Mr. J. Drummond.* *Fl. Aug.* Sept. 2.—Much cultivated on account of its essential oil, which resides in minute glands conspicuous on the *leaves,* and especially on the *calyx.*

Banks of Lough Erne; Doctor Scott. *Fl.* Sept. 2. —"Very closely related to the following species," (Sm.) and probably only a variety of it.


Banks of rivers, lakes, and marshes, frequent. *Fl.* Ang. Sept. 2. —Very variable.—Sometimes the flowers are capitate, sometimes whorled, and sometimes the whorls are placed so close on the extremity of the branches as to form a *spike*. Anthers varying in length.—*M. sativa* of Engl. Bot. now considered to be only a variety of this, is much more slender and smaller in all its parts than any of the other numerous varieties, with the flowers in six or eight distant whorls. It grows abundantly on the gravelly margin of the lake at Farnham; near to which I found another remarkable variety with ovate acuminate sharply serrated leaves resembling those of our *M. piperita*, and is probably the *M. piperita* of Linn. the *M. hirsuta* γ. of Smith.


Wet places, in hedges and banks of rivers. Near Carrigroghan Castle, County of Cork; Mr. J. Drummond. Between the Chapel of Kilmacanick and the Glen of the Downs; Major Percy Pratt. Abundant in the County of Derry; Mr. D. Moore. *Fl.* Sept. 2. —Four to five feet high. Flowers purplish, with linear, somewhat hispid bracteas at the base.


Corn-fields in a moist gravelly soil, not unfrequent. *Fl.* Ang. Sept. 2. —The short and campanulate calyx well distinguishes this species. *Peduncles* glabrous or hairy. "The smell has been compared to that of decayed cheese." Hooker.


Corn-fields and neglected gardens. Found occasionally near Dublin, County of Derry; Mr. D. Moore. *Fl.* Aug., Sept. 2. —Nearly allied to the last and perhaps only a variety of it. It may how-
ever be readily distinguished from \textit{M. arvensis} by its stouter, more erect stems, and somewhat rounded heart-shaped leaves, which are deeply serrated.


Wet commons. Ballycotton near Cork; \textit{Mr. J. Drummond.} Very plentiful at Calnafersy and other places near Killarney. In a small island called the Creagh, in Lough-beg, County of Derry; \textit{Mr. D. Moore.} \textit{Fl.} Aug. 4.—The smallest of the genus, readily known by its prostrate stems, and small frequently recurved leaves, both of which are thickly covered with short hairs. Smell powerful. Much employed medicinally.


\textit{Calyx} somewhat salver-shaped, equal, with ten ribs and five broad, mucronated teeth, naked within. \textit{Corolla} with the upper lip erect, concave; lower one trifid, middle lobe the largest, emarginate. \textit{Cells} of the anthers spreading.—Name, \textit{ball\acute{a}w\textsuperscript{η}}, from \textit{ball\acute{a}w}, to reject, on account of its disagreeable smell. \textit{Didynamia. Gymnospermia.}


\textit{Calyx} with ten ribs and five or ten spreading teeth, the throat hairy. \textit{Corolla} with the tube exserted, upper lip straight, linear, cloven; lower one 3-lobed, middle lobe the largest, emarginate.—Name of doubtful origin; some say from a town so called in Italy. \textit{Didynamia. Gymnospermia.}


Waste places and way-sides. Strand near Carrigaline, County of Cork; \textit{Mr. J. Drummond.} Old Churchyard at Howth, and various places in the County of Wicklow between Dunganstown and the sea. \textit{Fl.} Aug. 4.—One to a foot and a half high, bushy, very hoary with a white, thick pubescence or woolliness. \textit{Flowers} small, almost white, in crowded whorls. Smell aromatic; flavour bitter. The plant is much sought after for coughs and asthma.

Calyx angular, 5-cleft, or 5-toothed, acuminate. Corolla with a short tube; the upper lip vaulted; the lower 3-lobed, with the sides reflexed. Stemens, after the anthers are burst, bent back on each side. Nuts obsoletely 3-cornered, ovate or roundish.—Name, σταχύς, a spike, from the nature of the inflorescence.

Didynamia. Gymnospermia.


Woods and shady places, frequent. Fl. July, Aug. 2.—Plant foetid, covered with coarse hairs; stem two to three feet high, erect. Leaves pointed, ovato-cordate. Flowers red.


River-banks and watery or moist places, frequent. Fl. Aug. 4.—Plant covered with spiny hairs, foetid. Leaves long and narrow, serrated. Flowers pale purple.


Dry corn-fields, occasionally, in many parts of the country. Fl. July, Aug. 6.—Readily distinguished by its small size, weak stems, small and obtuse, mostly stalked leaves, and the pale purple flowers, which scarcely exceed the calyx in length.


Calyx ovate, 10-ribbed, teeth equal, awned. Corolla with the tube exserted, cylindrical; upper lip ascending; lower one patent, trifid, its middle lobe entire, or nearly so.—Name, altered from Bentonic, in Celtic: Ben meaning head, and ton, good. Its properties are cephalic.

Didynamia. Gymnospermia.

Woods and dry bushy places. Mucruss and Ross woods, and in several islands in the lower lake of Killarney, in a limestone soil. Shane's Castle woods; Mr. Templeton. Fl. July, Aug. 2.—Stem 1—2 feet high, with few leaves, the lowermost ones on long footstalks; upper ones oblong, sessile.


Calyx campanulate, 5-ribbed, nearly equal, 5-toothed. Upper lip of the corolla incurved, arched, entire; lower one smaller, in three nearly equal, acute lobes.—Name, γάλης, a weasel, and βεκόλος, a fetid scent, and formerly considered synonymous with Galeopsis, from which genus it is now removed. Didynamia. Gymnospermia.


Woods and shady places. Woodlands and many other places in the county of Dublin; Dargle-woods, &c. county of Wicklow. Near Comber and other places in the northern counties; Mr. Templeton. Fl. May, June. 4. One foot or more high. Leaves ovato-acuminate, deeply serrated. Flowers whorled, yellow; lower lip orange and spotted,


Calyx tubular, dilated upwards, 5-toothed, nearly equal. Corolla with the throat inflated; upper lip erect, entire, arched; lower one patent, 2-lobed, with one or two teeth on each side at the base.—Name from λαμος, the throat, on account of the shape of the flower. Didynamia. Gymnospermia.


Borders of fields and waste places, abundant. Fl. June, July. 4.—Flowers large, white, rarely tinged with blush.


Borders of fields and cultivated grounds, abundant. Fl. May, June, 4. Leaves, especially the upper ones, with a silky hairiness, and a purple tinge on the floral ones.


Cultivated and waste ground. Fl. May, June, 4.—Nearly allied to the last.

Waste places, sandy fields and gardens. *Fl.* March—June. 4. — Corolla of a deep rose colour, with a very slender tube.


Calyx tubular, many- (15-) ribbed, its mouth a little oblique, 5-toothed. Corolla with the tube exserted; upper lip emarginate; lower trifid, the lateral lobes reflexed, the middle one broad, concave, notched.—Name, some say from Nepi, a town in Italy; others from Nepa, a scorpion, whose bite the plant was considered to cure.

Didynamia. Gymnospermia.


Gravelly banks and waste places. Gravelly bank by the river Dodder above Rathfarnham-bridge; Doctor Allman. Banks of the Shannon opposite Limerick and other places. *Fl.* July, Aug. 4. — Stems 2—3 feet high, downy, as well as the leaves, and whitish. Flowers white, tinged and spotted with rose colour. *Authors* reddish.


Calyx campanulate, equal, 5-toothed, teeth mucronate. Corolla with the tube exserted, the throat inflated; upper lip arched; lower one with three unequal lobes, having two teeth on its upper side.—Name, γαληνη, a weasel, and οφις, aspect or appearance; from the resemblance in the lips of the flower to the snout of an animal.

Didynamia. Gymnospermia.


Dry gravelly banks and corn-fields. Side of Knockmaroon hill, where it was first observed by Mr. Templeton. Corn-field on the hill of Howth; Doctor Aquilla Smith. Gravelly banks near Cardif's-bridge, abundant, 1835. *Fl.* Aug.—Oct. O. — Stem 10 or 12 inches high, with opposite branches. Leaves rather small, petiolate, hairy. Flowers purplish rose colour.

Corn-fields and cultivated grounds, frequent. _Fl._ Aug. 0.—One foot to two feet high. _Flowers_ purplish, or often white.


Corn-fields, &c. Potato fields near Sligo. County of Antrim, in various places; _Mr Templeton_. County of Derry, frequent; _Mr. D. Moore_. _Fl._ July, Aug. 0.—Very different from the last, with paler, rank foliage. _Flowers_ large, showy, yellow, with a large purple spot on the lower lip.

16. _Scutellaria_. Linn. Skull-cap.

_Calyx_ broadly ovate, having a conspicuous, concave tooth or scale on the upper side; its two nearly equal, entire _lips_ closed after flowering. _Corolla_ with the tube much exserted, upper _lip_ straight, arched, lower ones trident.—Name, _scutella_, a little _dish_ or _cup_, which the calyx somewhat resembles with its appendage or ear. _Didynamia_. _Gymnospermia._


Banks of rivers and lakes, especially in stony places. By the lake of Killarney, and shore of Lough Neagh, at Shane's Castle. Borders of Lough Sheelan, near Arley Cottage, Cavan; _Rev. Mr. Halpin_. Ballypheane Bog, near Cork, rare; _Mr. J. Drummond_. _Fl._ July, Aug. 0.—Eight or ten inches to a foot high. _Flowers_ rather large, blue, downy.


Moist heathy places, and by the sides of lakes, less frequent than the preceding. Shore of the lower lake of Killarney, with the last. Bogs and moist grounds in the county of Cork, abundant; _Mr. J. Drummond_. Plentiful in Cumnama, less frequent in the county of Wicklow. _Fl._ July, Aug. 0.—Four to six inches high. Lower _leaves_ sometimes with 1 or 2 teeth at the base, and hence, subhastate; upper ones much narrower, and quite entire. _Flowers_ pale reddish. Lower _lip_ spotted.

17. _Thymus_. Linn. Thyme.

_Flowers_ whorled or capititate. _Calyx_ with 10 ribs, tubular, 2-lipped, upper _lip_ 3-toothed, lower one bifid, the throat hairy. _Corolla_ with the upper _lip_ erect, nearly plane, notched, lower patent and trident. _Benth._—Name, _θυμος_, _strength_, from its balsamic odour, strengthening the animal spirits. _Didynamia_. _Gymnospermia._
* Calyx campanulate. Middle lobe of the lower lip of the corolla entire.


Hills and dry pastures, abundant, Fl. July, Aug. 2.—Variable in the hairiness of the leaves, which are sometimes all over hoary, and in the size of the plant, which on the limestone rocks at Mucruss, and in the county of Clare, assume a shrubby appearance; also in the scent of its foliage, which sometimes approaches that of the Lemon Thyme of the gardens, (S. citratum of Ray’s Synopsis,) (T. Serpyllum var. * of Smith,) which has not yet been found in Ireland. Flowers purple, rarely white.

** Calyx cylindrical. Middle lobe of the lower lip of the corolla emarginate.


Calyx ovate, upper lip plane, more or less distinctly 3-toothed, lower one bifid. Corolla with the upper lip nearly entire, arched; lower one 3-lobed. Filaments with two teeth at the extremity, one bearing the anther.—Name, from the German, braine, the quinsy, whence Brunella of Ray, softened into Prunella. Didynamia. Gymnosperma.


Moist and barren pastures, frequent. Fl. July, Aug. 2.—Flowers very densely whorled, so as to form an imbricated oblong spike, with a pair of leaves at its base, and a pair of broad, obcordate bracteas beneath each whorl. Corolla violet blue, its lower lip finely toothed at the margin.

Whorls many-flowered, with numerous, linear bracteas, forming a sort of involucre. Calyx tubular, 13-nerved, nearly equal at the base, often curved; upper lip 3-toothed; lower one trifid. Corolla with the upper lip nearly plane, emarginate; lower one 3-lobed; middle lobe emarginate.—Name κλίνη, a bed, and πες, ποῦς, a foot, from the compact stalked head of flowers.

Didynamia. Gymnospernia.


Hills and dry bushy places. Hilly grounds between Enniskerry and Bray. On several of the islands in the lower lake of Killarney, and road-side near Kenmare, on a limestone soil. Fl. Aug. 2.—One to a foot and a half high, with soft hairs. Flowers in crowded whorls, large, purple.


Spikes (or Heads) of flowers 4-sided, resembling a catkin, imbricated with bracteas. Calyx various. Corolla with the upper lip erect, nearly plane, lower one patent, trifid. Bentham.—Name, ὀψ, a hill, and γας, joy, from the dry hilly places of which the species are the ornament.

Didynamia. Gymnospernia.


Dry hills and bushy places, not unfrequent. Fl. July, Aug. 24.—Stems one foot high. Flowers purple, and the bracteas tinged with the same colour. Fragrant and aromatic.

"The Thyme strong-scented 'neath one's feet, And Marjoram so doubly sweet."—Clare.

Subclass IV. MONOCHLAMYDEÆ. De Cand.

Perianth single; the calyx and corolla forming but one floral covering, or altogether wanting.

Ord. 60. POLYGONEÆ. Juss. Buck-Wheat Family.

Perianth monophyllous, divided, with an imbricated aestivation. Stamens definite, inserted at the bottom of the perianth: cells of the anthers opening longitudinally. Ovary free, 1-
seeded, with a single erect ovule; styles and stigmas several. Albumen farinaceous, sometimes almost none. Embryo inverted, generally on one side. Plumule inconspicuous.—Herbs, rarely shrubs, common to almost every part of the world. Leaves alternate, sheathing at the base or adnate, with an intrafoliaceous sheath (ochrea), revolute when young. Flowers sometimes separated, generally racemose.

The plants of this Order, generally speaking, possess an acid and astringent principle in their stems and leaves, while the roots are nauseous and purgative. The farinaceous or mealy albumen may be used as food.


Perianth 6-parted; the three outer segments somewhat cohering at the base; the three inner becoming enlarged after flowering. Stamens 6. Styles 3, reflexed; stigmas 3, cut. Nut with three sharp angles. Embryo on one side. Radicle superior.—Name of unknown origin.

* Plants not acid. Flowers perfect. (Lapatham Dock.)


Sides of rivers and lakes. Banks of the Shannon opposite Limerick, and banks of Lough Erne, in ditches. Banks of Lough Neagh; Mr. Templeton. Fl. July, Aug. 4.—The largest of our Docks, from 3 to 5 feet high. Some of the lower leaves a foot and a half long. Root large, very astringent. Enlarged sepal, with prominent veins, and large oblong tubercles.


Way-sides, near houses and pastures, frequent. Fl. June, July. 4.—Two or three feet high. Lower leaves the broadest, all waved and crisped at the margins. Whorls of flowers very numerous and crowded.


Shady pastures, woods, and road-sides. a. In an old orchard at Friar’s-walk near Cork; Mr. J. Drummond. b. Not unfrequent. Fl. July. 2.


Moist deep soils and in watery places, common. Fl. July. 2.—Stem two feet high, somewhat purplish, and reclining. Leaf-stalks flat. Branches lax, elongated.


Pastures and way-sides. About Friar’s-walk, Cork; Mr. J. Drummond. Near Dunlcaery, &c. Fl. Aug. 2.—Stems very straggling. Whorls distant, on slender leafy branches.


Way-sides and waste places, common. Fl. July. 2.—Two or three feet high. Whorls rather close, somewhat leafy. Distinguishable by its broad, obtuse, radical leaves, which are generally crisped at the margin. Stems scabrous between the elevated lines or ridges.


Marshes, principally near the sea. In a marsh near Clay Castle, Youghal; Mr. J. Drummond. Fl. July, Aug. 2.—Well distinguished from all the preceding species by its narrow leaves, excessively crowded flowers, bright, almost orange-coloured, enlarged sepals, and their setaceous teeth.


Marshy grounds near Youghal, along with the last; Mr. J. Drummond. Fl. July. 2.—Stem two feet high, stout, sometimes reddish. Leaves stalked, crisped at the edges, radical ones large, the rest small and narrow. Whorls tawny yellow; upper half of the sepals entire; lower with three rather short teeth. Mr. Moore remarks, that there must be some mistake in supposing that this only grows remote from the sea, as he finds it plentifully on the Derry coast, between Portstewart and Portrush, where the spray of the sea washes over it.
**Flowers dioecious. Plants acid. (Acetosa or Sorrels.)**


Dry pastures, frequent. *Fl.* May—July. "—Variable in size from 2 to 10 inches, and in the form of its leaves.

2. OXYRIA. Hill. Mountain-Sorrel.

*Perianth* of four sepals, the two inner ones rather largest. *Nut* triquetrous, with a broad membranaceous margin. *Embryo* erect, inverted.—Name from φίς, sharp or acid, from the acid flavour of this, as of many other plants belonging to the same natural family. Hexandria. Digynia.


Moist alpine rocks. On Magillycuddy’s Reeks, and Brandon mountain, county of Kerry; and on Ben Bulben, county of Sligo. *Fl.* July, Aug. "—"Stems 8—10 inches high, with rarely more than one leaf, often naked. Radical-leaves numerous, all reniform, with a more or less evident obtuse sinus at the apex, on long footstalks, having membranaceous stipules at their base. Racemes and peduncles branched, with minute, ovate, membranaceous bracteas at the base of each ramification. Pedicels thickened upwards. Flowers erect, small. Stamens 6, shorter than the sepals. Pistil nearly orbicular, compressed, notched, with two feathery spreading styles. Fruit a nut, enclosed in an utricle, with a remarkably broad winged border, tipped with the styles, situated in rather a deep notch, and having at the base the pointed sepals, not at all enlarged." Hooker.

3. POLYGONUM. Linn. Persicaria, Knot-grass and Buckwheat.

*Perianth* single, in five deep, coloured, persistent segments, inferior. Stamens 5—8. Styles 2—3. Fruit a one-seeded, compressed or trigonous nut.—Named from πονος, many, and γοβά, a knee or joint; from the numerous joints of the stem. Octandria. Trigynia.


α. Fruit included within the perianth, striated with raised points. P. aviculare, Linn. E. Bot. t. 1252. E. Fl. v. ii. p. 238.

β. Fruit longer than the perianth, quite smooth on the surface; (leaves elliptic, flaccid.)—P. marinum, Raii Syn. 147; excluding all the synonyms.

Waste places, way-sides, and paved courts, common. β. Sea-east near Sandymount, and elsewhere near Dublin. Fl. May—Sept. 2.—Varying much in size. I have long thought, as Dr. Hooker does, that the maritime var. β. will prove a distinct species from the common P. aviculare. It is much larger in all its parts, with procumbent widely spreading stems. Bracteas large and scariose. Flowers twice the size of α, and the fruit much larger, protruded, and even on the surface. It may be readily distinguished at first sight by its large flaccid leaves, which are of a pale green colour.


Cultivated ground, but introduced by cultivation, being often sown as food for pheasants and other poultry. Fl. July, Aug. 2.—Stem nearly erect, waved, one foot high, branched. Flowers in spreading panicles, terminal and lateral, pale reddish.


** Styles mostly 2. Nuts compressed.

5. P. amphibium, Linn. Amphibious Persicaria. Flowers

α. aquaticum, leaves floating, broadly lanceolate, glabrous; spikes oblong.

β. terrestre, nearly erect; leaves narrow, lanceolate, rough, with short, rigid, appressed hairs on both sides; spikes ovate.

Ponds, lakes, and ditches, on their margins, frequent. Fl. July, Aug. 2. — Stem 2—3 feet long, scarcely branched when growing in the water. Leaves arising from long, tubular sheaths or stipules, glabrous in β, but hispid in α. Spikes mostly solitary, terminal, of a bright rose-colour. This is the only perennial species of the Persicaria group.


Moist ground and waste places, frequent. Fl. Aug. O. — Stems erect, branched, one foot to two feet high. Spikes terminal and lateral, dense, greenish, the tips of the flowers rose-coloured. Leaves nearly sessile, glabrous.


Fields and dung-hills. In low moist ground near Cork; Mr. J. Drummond. Dung-hills near Belfast and other places. Fl. Aug. O. — One foot or one foot and a half high. A very variable species. The flowers are either pale green, almost white, or of a reddish tint. Spikes dense, terminal and lateral.


Sides of lakes and ditches, and damp places near farm-yards. Fl. Aug. Sept. O. — One to two feet high or more, erect. Remarkable for its slender, long, more or less drooping spikes of distant, reddish flowers; they are lateral and terminal.


On gravelly, watery commons, not found near Dublin. Moist ground near Cork; Mr. J. Drummond. On the shore of Ballygowan Lake, and Castle Blaney Lake, near Church-hill; Mr. Templeton. Side of the Bann, below Coleraine; Mr. D. Moore, from whom I lately

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received specimens. *Fl.* Sept. O.—Nearly allied to *P. Hydropiper*, but much smaller, procumbent below, with upright spikes, narrow leaves, and undivided stigmas.

ORD. 61. CHENOPODEÆ. Vent. Goose-foot Family.

Perianth monophyllous, deeply divided, sometimes tubular at the base, persistent, with an imbricated aestivation. Stamens inserted at the bottom of the perianth, and opposite to its segments, equal in number to them, or fewer. Ovary single, free, rarely adherent with the tube of the perianth, with a single ovule fixed to the bottom of the cavity: style divided, 2—4-fid, rarely simple: stigmas undivided. Pericarp membranous, valveless, sometimes a berry. Embryo curved round a farinaceous albumen; or spiral or bierural, without albumen: radicle next the hilum: plumule inconspicuous.—*Generally distributed herbs or low shrubs, especially in temperate regions. Leaves alternate, without stipules, sometimes opposite. Flowers small, sometimes polygamous.*

Of this Order, many individuals are potherbs; some are tonic and anti-spasmodic; others, the saline species, yield a great quantity of carbonate of soda. *Chenopodium olibum* exhales pure ammonia.

1. **Salsola.** Linn. Saltwort.

*Perianth* single, inferior, 5-cleft, persistent, enveloping the fruit with its base, and crowning it with its broad scariose limb. *Seed* solitary, its cotyledon spiral.—Named from *sal*, salt. From many of this tribe abundance of alkaline salt is obtained, as is implied by the name of our only British species.  

**Pentandria. Digynia.**


Sea-shores, frequent. *Fl.* July. O.—*Stem* angled, very much branched. *Flowers* solitary, pale greenish, sessile, with three leaf-like bracteas at the base of each.

2. **Salicornia.** Linn. Glasswort.

*Perianth* single, turbinate, fleshy, obscurely lobed. *Stamens* one or two. *Style* short. *Stigmas* bi-trifid. *Fruit* an article, included in the enlarged *perianth.*—Name, from *sal*, salt, and *cornu*, a horn, from the horn-like branches and saline nature of the plants.  

**Monandria. Monogynia.**


Salt marshes, plentiful. Fl. Aug. Sept. 〇.—"Plant leafless, much branched and jointed; articulations a little thickened upwards, very succulent, shrinking much when dry, in which state the upper extremity of each articulation forms a two-lobed membranous socket or short sheath, which receives the base of the articulation above it. Spikes of flowers dense, lateral and terminal, equally jointed with the stem, and bearing at the base of every short articulation, on two opposite sides, a cluster of three flowers, each composed of a single perianth, apparently quite closed at the top, and pierced, as it were, by the bifold or trifid stigma, and the single or two stamens: when two, appearing in succession. Mr. Wilson observes, that the central flower (of the erect var. at least) has two stamens, one placed below, the other above, the laterally compressed germen; and that the side-flowers have only one, placed above the germen." Hooker.


Muddy and gravelly sea-shores. Strand at Narrow-water, below Newry, where it was first pointed out to me, above twenty years ago, by the late Mr. Templeton. Fl. Aug. Sept. 2.—This scarcely differs from the last, except in its more branching, straggling, and perennial stem, quite woody below. The true S. fruticosa, not uncommon in green-house collections, is a very different plant, confined to the south of Europe and north of Africa.


Perianth single, inferior, 5-cleft, persistent and unaltered, closing upon, but not wholly enveloping, the fruit. Seed solitary.—Name from χνης, χνηρος, a Goose, and πεπο, a foot, from the shape of the leaves in some of the species. They are more or less employed as potherbs. Pentandria. Digynia.

* Leaves semicylindrical. Flowers each with two bracteas.


Sea-shores in muddy and sandy places, frequent. Fl. July, Aug. 〇.—From 9—18 inches high. Root small, tapering. Stems one or more, or a woody texture, erect, much branched, roundish, clothed with
numerous sessile, alternate, narrow, thick, juicy, smooth leaves, about half an inch long, salt to the taste, of a light bright green. Flowers several together, sessile, each with a pair of small acute, close bracteas. Seed orbicular, black, minutely striated. The alkaline salt of this herb renders it serviceable in making glass, though supposed inferior to some kinds of Salsols, found in the south of Europe.

* * Leaves plane, undivided; bracteas under each flower none.


Waste places and under walls, especially near the sea. Found spirally near Sandymount, and between the Custom-house and Annesly-bridge, several years ago. Fl. Aug. ०.—Leaves small, petiolate, greasy to the touch, and covered with a pulverulent substance, which, when bruised yields a detestable odour, resembling that of putrid fish.

* * * Leaves plane, toothed, angled or lobed; bracteas none.


Waste places under walls, particularly about towns and villages. In the College-park and other places near Dublin. Fl. Aug. ०.—Stem erect, angular. Leaves large, truncate, or subcuneate at the base, of a light or subglaucescent green, their margins deeply and irregularly toothed. Flowers on the spikes, in rather small, but remote clusters; spikes very long and erect. Seeds (or fruits) large in comparison with those of the following species, “almost as large as rape-seed.” (Curtis.)


Dung-hills and under walls. Near Dublin, Cork, and Belfast. Fl. Aug. Sept. ०.—Of a darker green than the last. Stems frequently reddish. Leaves always more or less attenuated at the base, by no means truncate. Spikes very compound, thick. The salt (or alkali) contained in the juice of this plant, crystallises upon the surface of the stem. (Mr. W. Wilson.) Hooker.


β. Leaves green, more entire, spikes elongated, more branched. C. viride, Linn.

Waste places, dunghills, &c. common. Fl. July, Aug. —Leaves covered with a whitish and mealy substance, varying in width, and in the erosion, or blunt toothing, of the upper half of the margin of its leaves. When these are nearly entire, it is the C. viride of Linn.


Dunghills and waste ground. Found in the County of Cork by Mr. Drummond, but the particular place is not mentioned. (Dr. Hincks.) Fl. Aug. Sept. 0.


Perianth single, half inferior, 5-cleft, persistent. Seed one, reniform, imbedded in the fleshy base of the calyx.—Name derived from the Celtic beit, according to Theis, which means red.

Pentandria. Digynia.


Sea-shores in muddy places, and on decayed rocks, as at Howth, on the Sutten side, and many other places. Fl. Aug. 2. Root large, thick and fleshy. Stem tall, branched, angular. Root-leaves sub-ovate, succulent, entire, waved. Spikes of flowers numerous, leafy. Leaves small at the base of the flower, or pair of flowers, which are greenish. A good substitute for spinage in the winter and spring months, and is often cultivated at Cork and other places on the coast on that account. Dr. Hooker states, that Mr. Wm. Wilson finds that there are always three styles in this species, and that the germen is 3-seeded, that the flowers are often three together, and that, when the seed is ripe, the germen becomes purple and granulated.


Sterile fl. and united fl. (which too are mostly barren.) Perianth single, 5-parted, inferior. Stamens five. Style 2-parted.

...Pistilliferous fl. Perianth single, of two, persistent, en-


On decayed granite rocks on steep banks by the sea-side. On the south side of Howth, principally in one place. It has also been lately found near Tramore, county of Waterford. *Fl.* July, *Aug.*.—One to two feet or more high, with small, yellowish *flowers*, in axillary spikes.


Cultivated and waste ground, and in salt marshes. *Fl.* July, *Aug.*.—Stems straggling; branches long, striated. *Flowers* in small *clusters*, in long interrupted axillary spikes. The var. *v.* of *Smith* often occurs in sandy places near the sea. It is prostrate, more glaucous and fleshy, with a frequent tinge of red, and smaller, less toothed, or quite entire *leaves*, differing from its natural inland habit, as many other plants, in maritime situations, often do.


Cultivated and waste ground. *Fl.* July, *Aug.*.—This seems to be but a narrow-leaved var. of the preceding. *(Hooker.)*


I have not seen Irish specimens of this species, but insert it on the authority of the accurate *Mr. Drummond*, who mentions his having found it on the coast near Cork. *Fl.* *Aug.*.


Muddy salt-marshes, on the coast. On the muddy shore of Howth on the Sutton side, abundant. Fl. July. —The under side of the leaves and flowers are mealy. The latter are in rather crowded, axillary, and terminal spikes.


Muddy salt-marshes. Cushtrower Bay, Cunnamara; Doctor Wade. I have not seen Irish specimens of this species, nor have I had an opportunity of examining the place where it is said to have been found. Fl. Aug. Sept. —Well distinguished from all the other species by its long peduncles, and the peculiar shape of the seed-bearing perianth, especially when the fruit is ripe.

ORD. 62. SCLERANTHÆ. Link. Scleranthes Family.

Flowers hermaphrodite: Calyx 4 or 5 toothed, with an urceolate tube. Stamens from 1 to 10, inserted into the orifice of the tube. Ovary simple, superior, 1-seeded. Styles two or one, emarginate at the apex. Fruit a membranous utricle, enclosed within the hardened calyx. Seed pendulous from the apex of a funiculus, which arises from the bottom of the cell; embryo cylindrical, curved round farinaceous albumen. Small herbs. Leaves opposite, without stipules. Flowers axillary, sessile.


Calyx of one piece, 5-cleft. Corolla none. Stamens inserted upon the calyx, five frequently abortive or wanting. Capsule 1-seeded, covered by the calyx.—Name, from σκληρός, hard, and αὐθός, a flower; from the indurated nature of the floral covering.

Decandria. Digynia.


Flowers monoecious or dioecious, scattered or clustered, or surrounded by a 1-leaved involucre. Perianth of one piece, membranaceous, lobed, persistent. Barren Fl. Stamens definite, inserted into the base of the perianth, and opposite its lobes: anthers curved inwards in aestivation, and often curving backwards with elasticity when bursting.—Fertile Fl. Ovary simple, free: ovule solitary, erect: stigma 1. Fruit an achene, surrounded by the membranous or fleshy perianth. Embryo straight, curved, or spiral, with or without albumen: radicle superior, and thus remote from the hilum.—Trees or shrubs, of almost every part of the world. Leaves alternate, sometimes opposite, with stipules often hispid and stinging, (sometimes very powerfully so), or rough.


Parietaria 4-fid, inferior. Filaments of the stamens at first incurved, then expanding with an elastic force. Fruit 1-seeded, enclosed by the enlarged perianth, (One or more of the central florets without stamens).—Name from paries, a wall, from the species frequently growing on old walls.

Tetrandria. Monogynia.

1. P. officinalis, Linn. Common Pellitory of the wall. Leaves ovato-lanceolate, 3-nerved above the base; "involucre in two portions, each of about seven segments; in each portion are three flowers, with one fertile one between them." Wilson. Br. Fl. 1. p. 69. E. Fl. v. i. p. 222. E. Bot. t. 597.

Old walls and waste places. Fl. during the summer months. 2.—Stems often procumbent upon the wall, reddish, pubescent. Leaves alternate. Flowers small, hairy, purplish, clustered in the axils of the leaves. "In each portion of the involucre are three flowers apparently fertile," (Wilson), but of which the central one has only a pistil. The lateral ones have stamens and pistil. Filaments jointed, in which peculiarity exists the elastic property by which the pollen is so copiously discharged. This is remarkably the case in a hot summer’s day. Fruit black, shining. Pericarp closely investing the seed.


Barren fl. Perianth single, of four leaves, containing the cup-shaped rudiment of a pistil. Fertile fl. Perianth single, of two leaves. Pericarp 1-seeded, shining.—Name; from uro, to burn, in allusion to its stinging property.

Monoeicia. Pentandria.

1. U. pilulifera, Linn. Roman Nettle. Leaves opposite,
ovate, serrated, with transverse nerves; fertile flowers in glo- 
t. 148.

Under walls and among rubbish, principally near the sea. Ballylickey, near Bantry; Miss Hutchins. Fl. June, July. —The most vene-
mous of our native Nettles.


Waste places, cultivated ground, and old dung-hills, frequent. Fl. June—Oct. 0. —The most ven-
vinous of our native Nettles.


Waste places, under walls and hedges, frequent. Fl. July, Aug. 2. —The root, boiled with alum, is said to dye yarn of a yellow co-
our; from the fibres of the stalk a kind of hemp is manufactured, as with the Urtica cannabina of N. America, (Whitlow's Nettle), and I remember having seen several years ago a piece of very good linen made from it, under the direction of a lady at Ballitore. In Scotland the young tops of Nettles are boiled and eaten by the peasantry; and they were also much used by many of the poor in the north of Ireland during the late years of scarcity, owing to the failure of the potato crops.


Barren fl. Perianth single, of five sepals. Anthers with two 
pores at the extremity. Fertile fl. Scales of the catkin 
large, persistent, concave, entire, single-flowered. Perian-th 
none. Styles two. Seed one.—Name, humus, rich soil or 
mould, in which the plant flourishes. 

Diocia. Pentandria.


Hedges, &c. probably introduced. Hedges between Cullenagh and 
Stradbally, Queen's County, and near Nenagh; in the largest of the 
south isles of Arran, creeping over the limestone rocks, and producing 
excellent hops. Fl. July. 2. —Stems long, weak and climbing, scab-
rous. Leaves petiolate, opposite, 3—5-lobed, serrated, veiny, rough. 
Flowers greenish yellow. The fragrant bitter, so valuable in the ma-
ufacture of beer, resides in the catkins, or cones of the hop, as they 
are often called.
Ord. 64. Resedaceae. Lindl. Mignonette Family.

Flowers included within a many-parted involucre, neuter on the outside, hermaphrodite in the centre. Calyx 1-sided undivided, glandular. Barren stamens of the sterile florets linear, petaloid. Fertile stamens perigynous, definite; filaments erect; anthers 2-celled, opening longitudinally. Ovarium sessile, 3-lobed, 1-celled, many-seeded, with three parietal placentae. Stigma 3, glandular, sessile. Fruit dry and membranous, or succulent, opening at the apex. Seeds several, reniform, attached to three parietal placentae; embryo taper, arcuate, without albumen; radicle superior.—Herbaceous plants, with alternate leaves, the surface of which is minutely papillose.


Fruit dry, many-seeded, surrounded by the withered involucre.
—Name from resedo, to calm; from some supposed medical qualities. Dodecandria. Trigynia.


I first observed this plant growing by the way-side between Cork and Glenmire in 1803, and the following year on the banks of the Dodder near Dundrum; a few years after it was found covering a ditch-bank at Portmarnock, where it has continued to grow in great abundance ever since. In all cases it has probably been introduced from gardens, or otherwise; it being a well known plant in gardens as the
Upright Mignonette. Fl. June. © or ³. — Stems growing in a shrub-like manner from the root, (which is woody and tapering,) more or less branched, wand-like, hollow, striated, leafy, two or three feet high. Racemes terminal, erect, tapering, many-flowered. Flowers somewhat scattered below, but becoming extremely dense towards the top.

**ORD. 65. EUPHORBIACEÆ. Juss. Spurge Family.**

Flowers separated, naked, or with a three or more cleft perianth. **Barren Fl.** Stamens definite or indefinite, distinct or monadelphous: anthers 2-celled.—**Fertile Fl.** Ovary free, single, sessile, or stalked, 2—3- or more celled. Ovules solitary or in pairs, suspended from the inner angle of the cell: styles two, three, or many: stigmas simple, with many lobes or compound. Fruit of two, three, or more dehiscent cells (or cocci), separating with elasticity from their common axis. Seeds solitary or in pairs, suspended, arillate. Embryo in the axis of a fleshy albumen: radicle superior; cotyledons flat.—**Trees, shrubs or herbs,** sometimes succulent and leafless, most common in the tropics, rare in cold and even temperate climates; abounding in an acrid and milky juice. Leaves alternate, opposite or whorled, rarely compound, often stipuled.

This extensive and important Order affords a milky juice, which is acrid, caustic, and frequently highly poisonous. Many individuals belonging to it yield Caoutchouc, some are important articles of food. The albumen of the seeds in **Euphorbiaceæ** is harmless and even eatable. The embryo is acrid and dangerous.

1. **Euphorbia. Linn. Spurge.**

*Involucre* of one piece, including several barren flowers and one fertile.—**Barren fl.** A single stamen without calyx or corolla. **Fertile fl.** A single pistil without calyx (or rarely a very minute one) or corolla. **Germen** 3-lobed. **Styles** 3, cleft. **Capsules** 3-seeded.—Named from Euphorbus, Physician to Juba, King of Mauritania, who brought the plant into use.

*Glands of the involucre four, rounded on the outside.*


Abundant in waste and cultivated ground. **Fl.** July, Aug. ©.—The acrid milky juice is employed to destroy warts.

Woods and bushy places in moist ground. County of Donegal; *Robert Brown, Esq. LL.D. Abundant in the County of Cork; Mr. J. Drummond.* Plentiful between the lower and upper lakes of Killarney, and other places in Kerry, where I was told, many years ago, that it was used by the peasantry to stupefy fish, by floating a basket in the water with its bruised roots and stalks.  *Fl. June. 2*.  

**Glands of the involucrum pointed or angular.**


Ballycotton, County of Cork; *Mr. J. Drummond.* Plentiful on the sand-hills near Ballydowly, and at Portmarnock, and other places on the coast near Dublin. It is also said to be found on the coast near Killkeel, County of Down.  *Fl. Aug. Sept. 2.*—Stems numerous, from the same root, woody at the base. Leaves very closely imbricated, especially on the young shoots.

4. *Euphorbia Portlandica*, Linn. *Portland Spurvy-grass*. Umbel with about five principal dichotomous branches, and several inferior scattered ones; bracteas triangular, cordate; leaves membranaceous, obovato-lanceolate, generally obtuse and submucronate; glands of the involucrum (four) lunate, with two long points; capsule rough at the angles; seeds dotted (almost white.) **Br. Fl.** 1. p. 383.  **E. Fl. v. iv. p. 62.  E. Bot. t. 441.**

Principally confined to the coast near Dublin. On the ruined walls of the Church of Kilbarrack. Sand-hills opposite Malahide, and on the south side of Killiney-hill, below the Rev. Doctor Mac Donell’s cottage, and farther westward on steep banks overhanging the sea. Cork-beg and Ballycotton, County of Cork; *Rev. Dr. Hincks. Fl. Aug. 2.*—Much smaller than the preceding, being only from six to ten inches high. “This is very rare, if not unknown, on the Continent.”—*Hooker.* It is found in Wales, on the Galloway coast, Scotland, and in the Isle of Man, and on Portland Island, whence its name.

5. *Euphorbia exigua*, Linn. *Dwarf Spurvy-grass*. Umbel of generally three principal branches; leaves linear-lanceolate, as well as the bracteas, rather rigid, entire, glabrous, often truncate and mucronate; glands of the involucrum with two horns; capsules nearly smooth; seeds wrinkled. **Br. Fl.** 1. p. 383.  **E. Fl. v. iv. p. 60.  E. Bot. t. 1336.**


Barren fl. Perianth single, tripartite. Stamens 9—12. Anthers of two, globose lobes. Fertile fl. Perianth single, tripartite. Styles two. Capsules 2-celled; cells 1-seeded.—Name; the god Mercury is said to have discovered the virtues, of what kind soever they may be, of this plant.

Dioecia. Enneandria.


Woods near Bantry; Miss Hutchins. Said to be common in the woods near Parsonstown. Not found near Dublin. Fl. April, May. 2.—About one foot high. Leaves mostly on the upper part of the stem, ovate, serrated. Flowers in axillary, short, lax spikes. The plant in drying often becomes of a bluish, or blackish, green.


Ord. 66. EMPETREÆ. Nutt. Crow-berry Family.

Flowers dioecious, separated, or polygamous. Perianth (?) of many imbricated scales, of which the 2—4 inner ones are
sometimes larger, equal and petaloid. Stamens 2—4, alternating with the inner segments of the perianth: filaments long; anthers 2-celled, roundish, the cells bursting along their margin. Ovary free, situated on a small fleshy disk: cells variable. Ovules solitary, ascending. Style 1: stigma multiform, subpellate. Fruit fleshy, surrounded by the persistent perianth, 3—9-celled, the coating of the cells bony. Seeds solitary, ascending: testa membranaceous. Embryo cylindrical, in the axis of a fleshy or somewhat horny albumen; radicle inferior: cotyledons much shorter than the radicle.—Small heath-like shrubs, of Europe and N. America, and the Straits of Magellan. Leaves evergreen, alternate or verticillate, without stipules. Flowers small, axillary.

**Empetrum. Linn. Crow-berry.**


*Diecia.* *Triandria.*


Mountainous heaths, abundant. *Fl. May.* 15.—A small, procumbent, much branched shrub, whose leaves are much recurved. *Flowers* axillary towards the summit of the branches, small, purplish. *Berries* black, clustered, affording abundant food to the moor-game when ripe.

**Ord. 67. CALLITRICHINEÆ. Link. Water Starwort Family.**

Flowers usually bisexual, monoeious, naked, with two fistular coloured bracteae. *Stamen* single; filament filiform, furrowed along the middle; anther reniform, 1-celled, 2-valved; the valves opening fore and aft. *Ovarium* solitary, 4-cornered, 4-celled; ovules solitary, peltate; *styles* two, right and left, subulate; *stigmas* simple points. Fruit 4-celled, 4-seeded, indehiscent. Seeds peltate; embryo inverted in the axis of fleshy albumen; radicle very long, curved, superior: cotyledons very short.—Small aquatic herbaceous plants, with opposite, simple, entire leaves. *Flowers* axillary, solitary, very minute.


*Barren fl.* Perianth single, of two leaves (they are, rather,
two bracteas) or none. Anther of one cell.—Fertile fl. Germen 4-lobed, lobes laterally compressed, indehiscent, with four 1-seeded cells.—Name; καλος, beautiful, and θρις, hair. Its stems are long and slender, and resemble hairs.

Monœcia. Monandria.


Ditches, pools and slow streams, abundant. Fl. April, May. — This varies much, as do almost all aquatic plants, in its foliage. Leaves invariably connate. (W. Wilson.) Upper and floating ones generally oval and stalked, 3-ribbed; lower ones single-ribbed, linear; rarely all linear. (Hooker.)


Ditches near Lough Neagh; Mr. Templeton and Mr. D. Moore. Fl. June—Oct. — Leaves always sessile, (W. Wilson.) C. Pedunculata described by Doctor Hooker and Mr. Arnold, in the works above-mentioned, I have not found in Ireland.

Ord. 68. CERATOPHYLLEÆ. D C. Hornwort Family.

Flowers monoeccious. Calyx free, many-parted; the lobes equal. Petals none. Masc. Stamens 12—20, without filaments; anthers ovato-oblong, 2-celled, with two or three points at the apex, collected into the centre of the calyx. Fem. Ovary free, ovate, 1-celled: style filiform, incurved, oblique: stigma simple. Nut 1-celled, 1-seeded, apiculated with the persistent style, indehiscent. Seed pendulous. Albumen none. Embryo straight: radicle superior: cotyledons 4, whorled, alternately smaller, with a much divided plumule.—Aquatic, submerged herbs, distinct as an Order but of very doubtful affinity; with whorled rather rigid leaves, cut into slender segments and somewhat serrated.


Nut superior, 1-seeded.—Name; κέρας, κέρατος, a horn, from the spines of the fruit. Moncecia. Polyandria.


In slow streams, ditches, and ponds. Pools near the bridge at Navan; Doctor Scott. Near Killaleagh, isle of Rathlin, and Lough Neagh; Mr. Templeton. Fl. July. 4.—Floating. Stem long, slender. Leaves setaceous, whorled, two or three times forked, 2-celled. The foliage of this plant is often inflated and jointed, so as to look like a Conferæa. Hooker.


Lake near Ballynahinch, County of Down, 1808, in company with Mr. Templeton. Fl. Sept. 4.—Scarcely different from the preceding, but in the absence of spines on the fruit.

ORD. 69. ULMACEÆ. Mirb. Elm Family.

Flowers perfect, or polygamous, often clustered. Perianth free, monophyllous, campanulate, divided. Stamens definite, inserted into the base of the perianth, straight in aestivation. Ovary free, 2-celled: ovules solitary, pendulous; stigmas two, distinct. Fruit 1—2-celled, indehiscent, membranous or drupaceous. Seed solitary, pendulous. Albumen little or none. Embryo straight; cotyledons foliaceous; radicle superior.—Trees or shrubs of the colder or temperate parts of the northern hemisphere, with scabrous, alternate, simple, deciduous leaves and stipules.

1. ULMUS. Linn. Elm.

Perianth single, superior, persistent, 4—5-cleft. Capsule compressed, winged all round, (a Samara); 1-seeded.—Name, according to Theis, from the Anglo-Saxon Elm. Ulm is, however, still the German word for this tree.

Pentandria. Digynia.


In hedge-rows and woods, abundant, but scarcely indigenous. Fl.
March, April. t 2.—A large tree, with rugged bark. Flowers in dense heads, each subtended by a small scale or bractea. This yields the best wood of all the Elms. The bored trunks were formerly in great demand for conveying water through Dublin and other large cities, before the introduction of metal pipes, and is still much used in carpen-
tary work. It forms the best tree when grafted on seedling plants of the broad-leaved Wych Elm, (U. montana,) when it is also less liable to be blown down by high winds. The Hertfordshire Elm is sup-
posed by Mr. Lindley to be a variety of U. campestris.

2. U. suberosa, Ehrh. Cork-barked Elm. Leaves nearly orbicular, acute, obliquely cordate at the base, sharply, reg-u-
larly, and doubly serrated, always scabrous above, pubescent below, chiefly hairy on the axils; branches spreading, bright-
brown, winged with corky excrescences; when young very hairy; fruit nearly round, deeply cloven, naked. Lindl. Syn.

Hedges and woods, but probably introduced. Fl. March. t 2.—Remarkable for the cork-like covering to the branches, which is full of deep fissures.

3. U. glabra, Mill. Smooth-leaved Elm. Leaves ovato-
lanceolate, acuminate, doubly and evenly crenato-serrate, cu-
neate and oblique at the base, becoming quite smooth above, smooth or glandular beneath, with a few hairs in the axils; branches bright-brown, wiry, weeping; fruit obovate, naked, deeply cloven. Lindl. Syn. p. 226. E. Fl. v. ii. p. 23. E. Bot. t. 2248.

I have observed this growing in woods at Collon, and at Glyde Farm near Ardee, where it is known by the name of the Feathered Elm. It forms a very graceful tree, with its tall stem, and drooping branches. To this species Mr. Lindley thinks the Downton Elm and Scampston Elm of the nurseries may probably belong. The vars. β. and γ. of Lyndl. I have not observed in Ireland. Fl. March. t 2.


Woods and hedges in more elevated situations than any of the pre-
ceding, and is probably the only species that can be considered truly in-
digenous. Fl. March, April. t 2.—Distinguished at first sight by its large spreading branches and broad leaves, appearing just as the “hop-
like fruit” comes to perfection. A variety is called the Weeping Elm, another var. the Giant Elm, and Mr. Lindley says the Chichester Elm also belongs to this species. This last var. as well as the common Wych Elm, forms a quick screen for protecting other more delicate trees in exposed situations.
Ord. 70. AMENTACEÆ. Juss. Amentaceous Family.

Flowers dioecious, monoeious, or rarely perfect. Barren flowers capitate, or amentaceous, subtended with a scale or scale-like perianth. Stamens inserted upon the scale, almost always monadelphous; anthers 2-celled. Fertile flowers fascicled, solitary or in close catkins, subtended by a scale. Ovary free, simple or rarely compound. Stigmas several. Fruits as many as there are ovules, bony or membranaceous. Albumen none or thin. Embryo straight or curved, plane; radicle generally superior.—Trees or shrubs, with mostly deciduous leaves, the younger ones with two stipules at the base.


Fruit indehiscent, membranous, 2-celled, with solitary ovules. Seeds pedulous, naked.—Trees or shrubs, with leaves having their venæ primariae running straight from the midrib to the margin.


Woods, especially in heathy soil in mountainous countries. Fl. April, May. b.—The Weeping Birch, or Pearl Birch, although considered by some authors a distinct species, appears to be only a variety of this, and may be readily distinguished in its young state by its pearly or warty shoots, and when it acquires a considerable age by its pendent branches.—The birch is one of the most hardy of trees. The wood, which is tough and white, is employed for various purposes. Much of it, and also the wood of the Alder, is burned into charcoal for the manufacture of gunpowder and other purposes, and brooms are made of its tops. The oil obtained from the "white rind" is said to be used in tanning the well-known Russian leather. A wine is made of its sap in Scotland.


Flowers collected into imbricated catkins.—Barren fl. Scale of
the catkin 3-lobed, with three flowers. Perianth single, 4-parted. Fertile fl. Scale of the catkin subtrifid, with two flowers. Perianth none. Styles two. Nut compressed.—Name derived from the Celtic al, near, and lan, the river-bank. **Monæcia. Tetrandria.**


Wet meadows and banks of rivers. Fl. March, April. ß.—A well known tree, whose wood is used for various purposes, and is particularly valuable for the piles of bridges, as it remains under water, undecayed, for a considerable length of time. Sterile catkins long, large, and cylindrical, pendant, their footstalks branched. Fertile catkins small, ovate, with deep scales.

§ 2. **Salicineæ.** Richard.

Fruit 2-valved, 1-celled, many-seeded. Seeds pendulous, comose.—Trees or shrubs, with leaves having their venæ primæ ramifying within the margin, and forming venæ arcuatae.

3. **Salix.** Linn. Willow, Sallow and Osier.


* Monandræ. Borr. Filament one, with a double, or, in S. rubra, forked upwards, and bearing two anthers. Trees of low stature, or shrubs, with twiggy branches, and more or less lanceolate and serrated leaves often broader upwards. Catkins very compact.


In wet grounds and hedges in the northern counties. About Newtownards, and between Stewartstown and Moneymore; Mr. Templeton. Ditch-bank near Garvagh, county of Derry; Mr. D. Moore. Fl. March. ß.—A small shrub with purple, somewhat trailing branches. Leaves glaucescent, especially beneath. Fertile catkins singularly compact. This is, according to Sir J. E. Smith, a valuable osier for basket
work, and for plaiting into low close fences, its bark being so intensely bitter, that hares or rabbits will not touch it.


Marshy grounds, &c. Near Carrigaline, County of Cork; *Mr. J. Drummond*. On the dry sandy beach by the sea-side near the mouth of the Killery, County of Mayo, and hedges near Florencecourt, County of Fermanagh. County of Derry; *Mr. D. Moore. Fl. March, April. #.—When cultivated, forming a small tree about ten feet high, smooth in every part, altogether of a lighter hue than the last; the branches are not trailing, but upright, smooth and polished, of a pale yellow, or purplish ash-colour, tough and pliable, less slender and elongated than the foregoing. *Leaves* light, rather glaucous green, turning black in drying. Frequently used for tying fruit trees.


By the side of the Bann, and other places near Coleraine; *Mr. D. Moore*. Nearly allied to the last, but distinguishable by the broader and rather short leaves, which are dilated above the middle. *It is, as well as the last, an excellent basket osier, the shoots being tough and pliant. Fl. April. #.*


Glendermot, near Derry; *Mr. D. Moore. Fl. April. #.—Stems yellowish-green, glossy. Allied to *S. Helix*, but differing widely in the foliage and much greater length of its twigs. Much esteemed by basket-makers for the fine sorts of wicker-work.


In hedges about Stewartstown, Newtownards, and Moneymore; *Mr. Templeton*, By the side of the Faughan-river, County of Derry; *Mr. D. Moore*. Near Fermoy; *Mr. Drummond. Fl. March, April. #.—A small tree, with longer and more lanceolate leaves than any of the preceding species. *Branches* tough and pliant. One of the most valuable Osiers when cut down annually.

** Triandrea. *Borr.* Stamens three. *Leaves lanceolate,*
approaching to ovate, with evident deciduous stipules, serrated, glabrous. Catkins lax. Germens stalked, mostly glabrous.—Most of the species constitute excellent Osiers, and become trees if left to themselves.


Hedges between Coleraine and Magilligan, 1833, where it has subsequently been found by Mr. D. Moore. *Fl. April, May. b.—It is said to be cultivated and cut down annually for the use of basket-makers, the rods serving for brown hampers, crates, &c. The leaves are truly lanceolate, and not all undulated. The true *S. undulata, which I received twelve years ago from Mr. M'Cab of the Edinburgh Botanic Garden, who had it from Germany, is, as Mr. Forbes observes, a totally different plant, with linear-lanceolate undulated leaves.


Wet woods and hedge-rows at Florencecourt, County of Fermanagh. *Fl. May—Aug. b.—Becoming a tall tree, twenty feet high and upwards, if left to itself, casting its bark in the autumn. It is said to be much cultivated in osier-grounds, and reckoned among the most valuable of the Osiers.


Banks of rivers and ditches. River-side near Castle-Hyde, County of Cork; Mr. J. Drummond. By the side of the Bann at Fairhead, among rocks; Mr. Templeton. *Fl. April, May. b.—A low tree, with much furrowed, yellowish young branches. Stipules deciduous, serrated, glabrous.

** Pentandraceae. Borr. Stamens more than three, usually five. Moderately sized trees, with ample, glossy, fragrant foliage, exuding a resin from the glandular serratures of the leaves. Stamens, in each catkin, so numerous and long as to render the flowers, which too are in perfection at the same time with the foliage, quite handsome, while the tree itself is the most ornamental of the whole genus. Germens glabrous.

9. S. pentandra, Linn. Bay-leaved Willow. Stamens five;

Banks of rivers and ditches. Natural woods near Blarney, County of Cork; Mr. J. Drummond. Common in the County of Derry; Mr. D. Moore. Ditch-banks at Florencecourt. Fl. May, June. t. — A tree eighteen or twenty feet high, with copious, large, shining leaves, which give it the appearance of an evergreen. Sterile catkins yellow, fragrant and handsome. The most ornamental of the larger Willows.

* * * Fragiles. Borr. Stamens two, (as in the following groups). Trees of considerable size, with lanceolate, glabrous, serrated, stipulated leaves, and very lax catkins, with elongated, more or less stalked, glabrous germens.


Hedges near Newtownlimavady, and parish of Tamlaght; Mr. D. Moore. Fl. May. t. — My specimens have more completely lanceolate and narrower leaves than those represented in the figures in E. Bot. and Salict Wob., with shorter foot-stalks, and more rounded stipules. I have not as yet seen the catkins.


Banks of rivers, and in marshy ground, frequent. Fl. April, May. t. — “A tall bushy tree, whose branches are not set on obliquely, somewhat crossing each other, not continued in a straight line, by which it may be readily distinguished in winter.” Sm. These branches are fragile, especially in spring, and the wood is of little or no value — Whatever good qualities have been attributed to the present species, Sir J. E. Smith observes, belong to the following, which has often been mistaken for it.

12. S. Russelliana, Sm. Bedford Willow. Leaves lanceolate, tapering at each extremity, strongly serrated, glabrous, very pale beneath; germens stalked, lanceolate, acuminate, glabrous; style as long as the bifid stigmas; scales narrow, lanceolate, slightly ciliated or pubescent. Br. Fl. 1. p. 418. E. Fl. v. iv. p. 186. E. Bot. t. 1808. Salict. Wob. p. 55. t. 28,
and frontispiece (the tree).—S. fragilis, Woodville, and other medical writers. Hooker.

Marshy woods. A cutting planted in the College Botanic Garden in 1808 has now a trunk seven feet and a half in circumference, and is thirty-six feet high. *Fl. April, May. 15.*—“This extremely valuable tree was first brought into notice by the late Duke of Bedford, and hence most appropriately honoured by bearing his name. Of the size to which it reaches, some interesting details are given in the present Duke of Bedford's Introduction to the Salicium Woburnense. It was one of this species, and the favourite tree of Dr. Johnson at Litchfield, which was very recently destroyed by a hurricane, after it had attained a height of sixty feet, and a girth of thirteen feet. Another tree at Gordon Castle, Scotland, at the age of sixty-one years, was fifty-seven feet high, and above eleven feet in its greatest circumference. Great as is the affinity, botanically speaking, between this and the preceding, its properties are wholly different. So important is it as a plantation tree, that Mr. Lowe, in his survey of the County of Notts, states, that at eight years growth, the poles yielded a net profit of £214. per acre, and in two years longer they would probably have produced £300 per acre. The late George Biggen, Esq. of Cosgrove Priory, an able chemist, ascertained that the bark of this tree contains the tanning principle in a superior degree to that of the oak; and it is supposed that medical properties stated to belong to S. fragilis, are attributed to it by mistake, and should be referred to the present. The leaves are of a peculiarly handsome shape, when in perfection, deeply serrated, and much attenuated.” Hooker.

* 5. Alba. Borr. Trees of considerable elevation, having lanceolate serrated leaves, with long silky hairs beneath, especially in a young state, which give to the foliage a light or whitish hue. The serratures glandular. Catkins lax: germens glabrous.


River sides and woods, frequent. *Fl. May. 15.* A well-known tree, attaining a large size, and of very rapid growth, more particularly the var. β, which is considered by many a distinct species; and Mr. Forbes, who has paid much attention to this genus, observes, that the new leaves, after the wood has been cut, are of a larger size, and, as well as the twigs, of a darker hue than the common var. (the real S. alba). They seem to be alike valuable for their bark and timber, and are both amply deserving of cultivation. A tree of the var. β, planted when a cutting, in 1808, has now a tall trunk, measuring six feet eight inches in circumference at a foot from the ground, and it is nearly forty
feet high. A variety occurs in various parts of the country, with red twigs, by which it may be readily known at all times of the year.


Osier-grounds. By the side of the Faughan river, County of Derry; Mr. D. Moore. Fl. May. h. Remarkable for the bright yellow colour of its branches, and the leaves often partake of the same tint.—The twigs are much used for tying and packing trees, they being very tough.


15. S. fusca, Linn. Dwarf silky Willow. Leaves elliptical or elliptic-lanceolate, acute, entire, or with minute glandular serratures, somewhat downy, glaucous, and generally very silky beneath; germens upon a long stalk, lanceolate, very silky; stigmas bifid; stems more or less procumbent. S. repens, Hook. Scot. 1. p. 284.


f. Stem spreading or erect; leaves elliptical, with a recurved point, very silvery beneath. S. argentea, E. Bot. t. 1364. E. Fl. v. iv. p. 297.

a. Heathy mountains, Cunnamara. Heaths near Skibbereen; Mr. J. Drummond. b. Mourne mountains; Mr. Templeton. Tittour, County of Wicklow; John Nuttall, Esq. g. Cave Hill, near Bel-
fast; Mr. Templeton, where I have gathered it. i. Errigal banks, above Garvagh; Mr. D. Moore. ϖ. Portmarnock sands, abundant. Fl. April, May. h. — I agree with Dr. Hooker, in considering all the foregoing species of authors as varieties of one species.

* 7. Glaucae. Borr. Small, erect, very closely allied shrubs; remarkable for their soft, hairy, and silky oblongo-lanceolate leaves, often white and cottony beneath. Germens sessile, very downy or silky.


Shore of Lough Neagh, near Antrim; Mr. Templeton, the fertile plant only. The two other British species of this section are not found in Ireland. Fl. July, Aug. h.

* 8. Viminales. Borr. Trees of a more or less considerable size, with long pliant branches and lanceolate leaves. Germens nearly sessile, hairy or silky; their styles elongated, their stigmas linear, mostly entire.


Ditch banks and Osier grounds, frequent. Fl. April, May. h. — This is much cultivated for basket work.


Hedges and woods, becoming a large tree when left undisturbed. Fl. March. h. — Allied to the preceding in fructification; differing in its larger and coarser leaves, less white beneath, and with large, very remarkable stipules. Although frequently found in Osier grounds, intermixed with the last, it is much inferior to it for any economical purpose.

By the side of the Mill-stream in Dawson Park, near Ball’s-bridge, and various places in the county of Wicklow, particularly near Dun-ganstown. *Fl.* April, May. 5.—A small tree, with lanceolate, acuminate leaves, green above, silky and very soft beneath. *Stipula* minute, curved, toothed, hairy. Of little use for economical purposes.


Woods and bushy places near Cork; *Mr. Drummond*. Banks of the Laggan, near Belfast; *Mr. Templeton*. Hedges in the County of Wicklow, frequent. *Fl.* April. 5. In its upright mode of growth, shape of its leaves, and general habit, it agrees much better with the three preceding than with any of the Sallow tribe in the next division, in which it has been placed by some authors. At Florencecourt, where I collected specimens in the autumn of 1833, it has become a tree of about twenty feet high, although growing in an elevated situation.

* 9. **Cineræ. Borr.** *Trees or low shrubs, with downy branches and mostly ovate, grey, hoary, toothed, more or less wrinkled and stippled leaves, very veiny beneath. Germens sericeo-tomentose.*—This group is usually denominated the Sallows.


Banks of rivers and moist woods, abundant. *Fl.* April. 5.—A tree of twenty or thirty feet high, of little use.

Wet hedge-rows and swampy places, woods, &c. frequent. \textit{Fl. April. h}.  


In woods and hedges, frequent. Plentiful at the Dargle. \textit{Fl. March. h}.—A small tree, nearly allied to \textit{S. cinerea}, and by some Botanists considered only a variety of it.


Upland pastures and moist banks, by the side of mount streams, &c. very common. \textit{Fl. April, May. h}.—A shrub, generally from three to four feet high, with numerous straggling branches, remarkable for its conspicuous roundish, semicordate \textit{stipules}. \textit{Leaves} dark-green above, somewhat glaucous beneath, wrinkled.


Woods and hedges, common. \textit{h}.—A moderate sized \textit{tree}, with spreading, round, brown or purplish branches, with large broad \textit{leaves}, very conspicuous in spring, when covered with its handsome yellow catkins before the \textit{leaves} appear. The Highlanders are said to employ the \textit{bark} in tanning leather, and to make various implements of the \textit{wood}. The bark is also said to have been used with success instead of that from Peru. Mr. Fraser informs me that \textit{S. caprea} is one of the best and hardiest species for protecting other plants near the sea.

* 10. \textit{Nigricantes}. \textit{Borr}. \textit{A group as difficult to define as are the species which compose it}. Many approach the last division very nearly, having more or less ovate or obovate leaves, but they are less wrinkled, and, when dry, generally become black, whatever care may be taken in the preservation of them. Shrubs with long branches, or small trees. Germens glabrous or silky, stalked. \textit{Style} more or less bifid.

26. \textit{S. cotinifolia}, Sm. \textit{Quince-leaved Sallow}. \textit{Leaves} elliptical-orbicular, obsoletely toothed, slightly downy above,

Woods and bushy places, near Cork, frequent; Mr. J. Drummond. Near Dunkerrin, County of Kerry: Doctor Taylor. Fl. April, May. 17.—A low shrub, with leaves two or more inches long, shaped almost like those of the Gorden Rhus Cotinus.


By the side of the river Roe, above Dungiven; Mr. D. Moore, who finds the fertile plant only. Fl. April, May. 18.—A small tree, resembling the preceding, but with narrower leaves, heart-shaped at the base. The style is bifid, though only for a very short way, bearing capitate emarginate stigmas.


Rocks on a hill called Skerries, County of Antrim; Mr. Templeton, but I have not seen Irish specimens. Fl. May. 19.


Road-side between Castle Dawson and Bellaghy, County of Derry; Mr. D. Moore. Fl. April, May. 17.—Branches at first erect and wand-like, round, of a mahogany colour, beset with copious nearly upright leaves, and attaining the height of six feet. When neglected, becoming a small tree. This species is, according to Sir J. E. Smith, unfit for any economical use. The twigs are brittle, the leaves are large and handsome, and retain their green colour pretty well in drying.

30. S. radicans, Sm. Tea-leaved Willow. Leaves obovato- or elliptic-lanceolate, with often wavy serratures, glabrous,

Side of Enagh Lough, County of Derry; Mr. D. Moore. 1834. Fl. May. b.—A low, spreading, smooth bush, whose long, recumbent, brown or purplish branches take root as they extend in every direction. Leaves on shortish footstalks, not much spreading; about two inches long, not one broad; very acute at the point; not at all rounded at the base; smooth at all times, except an obscure downiness on the midrib above; harsh to the touch, bitter, variously crenated or serrated, the serratures peculiarly, and sometimes remarkably undulated; the upper side of a dark shining green; under glaucous. I have not as yet seen the catkins of Irish specimens.


Near Carrigaline, County of Cork; Mr. J. Drummond. I insert this species on Mr. Drummond’s authority, not having seen Irish specimens; further observations must decide whether he meant *S. tenuifolia* of Fl. Br. or the present plant. Fl. April, and again in July. (Forbes.) b.


Summits of Tomlaguee and Lugnaquilla, the two highest of the Wicklow mountains, and Sivee Donard, County of Down. An unusually large variety was found by Mr. Templeton on the top of Sivee-Naue, County of Antrim, similar to some of the large varieties gathered by Mr. McNab, of Edinburgh, on the mountains of Sutherland. Fl. June. b.—The least of our native Willows. Mr. Moore has lately sent me very luxuriant specimens from Dart-mountain, County of Derry.


the people, as it was esteemed to be in the time of the Romans and of the French revolution.

Dicaea. Octandria.


Natural woods near Blarney, County of Cork; Mr. J. Drummond. Fl. April. §. A large tree, with smooth bark and spreading branches; of very rapid growth. The wood is white and soft, and used only for coarse purposes.


Kelly’s Glen, County of Dublin. Agnew’s Hill, and other places in the counties of Antrim and Derry; Mr. Templeton and Mr. D. Moore. Blarney woods; Mr. J. Drummond. Fl. March, April. §. This tree is well known by the tremulous movement of its leaves with the slightest breath of wind. The motion is aided by the compression of the stalk.


Common in plantations, scarcely indigenous. Fl. April. §. A large tree of quick growth, having a light wood of little value, as is the case with most trees that come soon to perfection.


Flowers monoeccious. Barren ones amentaceous. Stamens 5—20, inserted into the centre of the scales of the perianth, generally distinct. Fertile Fl. aggregate or amentaceous. Perianth aduate with the ovary, with a small toothed limb, and with a coriaceous involucre (cupule) at the base, variously formed. Ovary with two or several cells and several ovules, the greater number of which are abortive: stigmas several, nearly sessile, distinct. Pericarp (glands) bony or coriaceous, 1-celled, more or less enclosed in the enlarged involucre. Seed solitary or 2—3, pendulous, without albumen. Embryo large, with plano-convex, fleshy cotyledons, and a minute superior radicle.


Barren fl. in a globose catkin. Perianth single, of one leaf, campanulate, 6-cleft. Stamens 5—12. Fertile fl. two, within
a four lobed prickly involucre. Perianth single, urceolate, with 4—5 minute lobes. Germens incorporated with the perianth, 3-celled, two becoming abortive. Styles three. Nuts 1-seeded, invested with the enlarged involucre.—Name; φαγετος, in Greek, from φαγειν, to eat, on account of the nutritive qualities of the fruit. Monoeccia. Polyandria.


Woods, scarcely indigenous. Fl. April, May. ½.—The tree bears clipping or scutching very well, and is frequently used for hedges, where shelter is the object, and then retains the leaves throughout the winter. The wood is employed for various purposes, by carpenters, turners, and wheelwrights. Swine feed upon the seeds or masts.

2. CASTANEA. Tourn. Chesnut.


Woods and Parks, but not indigenous. Fl. May. ½.—This fine tree is much cultivated, both for ornament and its valuable timber. Full grown specimens may be seen at Shelton Abbey, and other places in the County of Wicklow. The Chesnut ripens its fruit, near Dublin, late in autumn.

3. QUERCUS. Linn. Oak.

Barren fl. in a lax catkin or spike. Perianth single, 5—7-cleft. Stamens 5—10. Fertile fl. Involute of many little scales, united into a cup. Perianth single, closely investing the germs, 6-toothed. Germens 3-celled. Style one. Stigmas three. Nut (or acorn) 1-celled, 1-seeded, covered by the persistent, enlarged perianth, and surrounded at the base by the enlarged cup-shaped involucre.—Named from the Celtic quer, beautiful, and cuez, a tree. It produced the Misseltoe of the Druids, and was thence also called drew; hence ἕπας, in Greek, and Dryades. Monoeccia. Polyandria.

1. Q. Robur, Linn. Common British Oak. Leaves deci-

Woods. *Fl.* April, May. 7.—The uses of this valuable tree are well known. It may be readily distinguished from the following species by its smoother and more even stem, and slower growth, when growing together, as well as by the pedunculated catkin. The word *Robur*, Doctor Hooker remarks, is derived from *rove*, another Celtic word for the *oak*: whence arises *robur*, *strength*, in Latin.


Woods, often intermixed with the last. *Fl.* April, May. 7.—The specific name, as Doctor Hooker observes, is calculated to mislead. The flowers are sessile upon the peduncle in both species; but here the peduncle is very short, or almost wanting: in *Q. Robur* it is much elongated.—The wood of the present species is said to be much inferior to the last: although Doctor Hooker states that an eminent modern author has lately expressed his opinion that it is the *Q. sessiliflora* which yields the best timber for ship-building.


Barren fl. in a cylindrical catkin; its scales 3-cleft. Perianth none. Stamens eight. Anthers 1-celled. Fertile fl. Perianth obsolete. Germens several, surrounded by a scaly involucre. Stigmas two. Nut 1-seeded, invested at the base by the enlarged, united, coriaceous scales of the involucre.—Name; *kopvs*, a casque or cap: the fruit, with its involucre, appearing as if covered with a bonnet.

Monacia. Polyandria.


Hedges and copes, abundant. *Fl.* March. 7.—The wood of the Hasel is used for a number of domestic and agricultural purposes, and makes an excellent charcoal for drawing. The nuts are well known at our tables.


Barren fl. in a cylindrical catkin; its scales roundish, ciliated at the base. Stam. 8—20. Fertile fl. in a lax catkin; its
scales large, foliaceous, 3-lobed, 1-flowered. Involucræ none. Perianth of 1 leaf, urceolate, 6-dentate, incorporated with the 2-celled germinæ, of which 1 cell is abortive. Styles 2. Nut ovate, striated, 1-seeded.—Name: car, wood, and pin, a head, in Celtic: wood employed to make the yokes of oxen.

Monacia. Polyandria.


Woods and hedges. Fl. May. 17.—Fine specimens of this tree may be seen at Woodlands, near Lucan. It was formerly a good deal used for hedges.—Leaves ovate or subcordate, doubly-serrated, acute, the veins somewhat hairy, beautifully plaited when young. The wood of the Hornbeam is white, tough and hard. It is used in turning-work, for implements of husbandry, cogs of wheels. &c. The inner bark is said to yield a yellow dye.


Flowers separated, amentaceous. Barren Fl. Stamens one or several, each with a hypogynous scale. Anthers 2—4-celled, opening lengthwise.—Fertile Fl. Ovary 1-celled, surrounded by several hypogynous scales: ovule solitary, erect, with a foramen in the apex: stigmas two, subulate. Fruit often covered with waxy secretions, drupaceous, formed of the hypogynous scales of the ovary, become fleshy and adherent, or dry and dehiscent, with the scales distinct. Seed solitary, erect. Embryo without albumen; cotyledons plano-convex; radicle short, superior.—Shrubs with resinous glands and dots. Leaves alternate, simple.


Diæcia. Tetrandria.


Bogs and moory ground, abundant. Fl. May. 17.—The plant diffuses an agreeable smell, and the leaves have a bitter taste; hence they are said to have been sometimes used in place of hops. Doctor Hooker states that in Isla and Jura the inhabitants scent their clothes with them, and that in many parts of Scotland, beds are made of the twigs.
Ord. 72. CONIFERÆ. *Juss.* Fir Family.

Flowers monoecious or dioecious. Sterile Fl. monandrous or monadelphous; each floret consisting of a single stamen, or of a few united, collected in a deciduous catkin about a common rachis. Anthers 2- or many-lobed, bursting outwardly; often terminated by a crest, which is an unconverted portion of the scale out of which each stamen is formed: pollen large, usually compound. —Fertile Fl. generally in cones, sometimes solitary. Ovary in the cones, spread open, and having the appearance of a flat scale destitute of style or stigma, and arising from the axil of a membranous bractea; in the solitary flower apparently wanting. Ovules naked; in the cones in pairs on the face of the ovary, having an inverted position, and consisting of one or two membranes open at the apex, and of a nucleus, in the solitary flower erect. Fruit consisting either of a solitary naked seed, or of a cone; the latter, formed of the scale-shaped ovaries, become enlarged and indurated, and occasionally of the bracteas also, which are sometimes obliterated, and sometimes extend beyond the scales in the form of a lobed appendage. Seeds with a hard crustaceous integument. Embryo in the midst of a fleshy and oily albumen, with two or many opposite cotyledons: the radicle next the apex of the seed, and having an organic connexion with the albumen. —Resinous trees or shrubs. Leaves linear, acerose or lanceolate, rigid, entire at the margins or dilated and lobed, always with parallel veins, sometimes fascicled and sheathing at the base.

1. *Pinus.* Linn. Fir.

Barren fl. in crowded, racemose *catkins*; the scales peltate, bearing two 1-celled, sessile anthers. *Perianth* none. *Fertile* fl. in an ovate *catkin*; its scales closely imbricated, 2-flowered. *Perianth* none. *Pericarp* 1-seeded, terminated by a long winged appendage, and covered with the imbricated scales, forming a *cone* (*strobilus*). —Name; *pin* or *pen*, means a crag or stony mountain, still so called in Wales: (as *Ben* in Scotland): where the pine delights to grow, "moored in the rifted rock." *Hooker.*

*Monœcia.* *Monadelphia.*

1. *P. sylvestris,* Linn. Scotch *Fir.* Leaves in pairs, rigid; cones conico-ovate, acute, young ones stalked, recurved, as long as the leaves, generally in pairs; crest of the anthers very
Taxus.)  CONIFERÆ. 259

Now almost, if not entirely extinct, in a wild state. Fl. May, June. t. —This tree appears to have been abundant in Ireland, as trunks of very large dimensions are often found in bogs, sufficiently fresh for roofing houses, and found to be very durable. A section of a trunk was lately sent me from the Queen's County by the Rev. Doctor Vignoles, that had been lately dug out of a bog, whose diameter is two feet eight inches, indicating by its circles or rings of wood about eighty years' growth. The resinous roots are sold in Dublin as fire-wood, and are used by the peasantry in the west of Ireland in lieu of candles.


Woods at Killarney, &c. On many of the mountains all over the country. Fl. May. h. —A shrub growing to a considerable size in woods. The var. β. retains its procumbent form when cultivated. The berries, which are bluish-black, form an important article of commerce in Holland, where they are employed in the distillation of Geneva, and impart to it that peculiar flavour by which it is distinguished from other spirituous liquors.


Barren fl. Perianth single at the base. Stamens numerous. Anthers peltate, 6—8-celled; cells opening beneath. Fertile fl. Perianth single, urceolate, scaly. Style none. Drupe fleshy, perforated at the extremity. —Name; τοξον, an arrow; it is said because arrows were poisoned with its juice. Dicecia. Monadelphia.


Fine specimens of a very great age are to be met with in church-
yards in various parts of the country. *Fl. March.* 17.—A low *tree*, but with a *trunk* often of considerable diameter, with widely spreading branches. On Benyevena, County of Derry, where Mr. Moore finds it growing in the crevices of rocks, at an elevation of 1200 feet, it assumes the appearance of a low shrub. He also informs me that large trunks and roots are dug up in the flat of Magilligan, between the rocks and the sea, which is the principal bog timber of that district. Large trunks, of very great age, are also found in bogs in many parts of the country. The wood is hard and beautifully veined, and much valued for cabinet-makers' work, and was formerly still more highly prized for making bows, and on that account is said to have been planted extensively in church-yards. The *leaves* are fetid and very poisonous, and prove speedily fatal to cattle accidentally eating them when young and tender. The *berries* have a sweet mawkish taste, and may be eaten without danger.—The *Upright or Florencecourt Yew*, *T. fastigiata* of Lindl. *Syn.*, is a very distinct variety, if it be not a distinct species. I have only seen the fertile plant, the fruit of which, as Professor Lindley observes, is oblong (not roundish, as in the common var.) It is readily distinguished by its upright mode of growth, and deep green scattered leaves. The finest specimens in Ireland, or perhaps any where to be met with, grow at Comber in the County of Down, and near the town of Antrim, and are supposed to have been planted above fifty years. It is said to have been first observed at Florencecourt, the seat of the Earl of Enniskillen, but it has not been found in a truly wild state.
Class II. Endogenæ or Monocotyledons.

Monocotyledonous or Endogenous plants. Trunk formed of cellular tissue and tubular vessels, which are irregularly scattered, with no distinction, into bark, wood and pith, and destitute of medullary rays: the oldest formation most external, the centre the newest and softest. Leaves mostly alternate, often sheathing, generally with parallel nerves. Flowers evident, the parts of which they are composed mostly arranged in a ternary manner; the perianth very frequently single. Embryo with one cotyledon; if with two, then the accessory one is imperfect and alternate with the other. Plumule included within the cotyledon, of which the opposite extremity usually encloses the radicle, and through which it bursts on germination.

Subclass I. Petaloideæ. Lindl.

Flowers with the segments of the perianth verticillate, in one or two rows, or wanting and naked, not covered by imbricated bracteas.


Flowers monoecious, arranged upon a spadix, often naked. Perianth 4—6-parted, or wanting. Stamens definite or indefinite, hypogynous, very short; anthers 1—2- or many-celled, ovate, turned outwards. Ovary free, 1- rarely 3-celled; stigma sessile. Fruit succulent or dry, not opening. Seeds solitary or several; embryo in the axis of fleshy or mealy albumen, straight, cylindrical, with a cleft on one side in which lies the plumule; radicle next the hilum, rarely at the opposite extremity.—Herbs or shrubs. Roots often tuberous or thickened. Leaves sheathing at the base, with parallel or branching veins.


Spatha of one leaf, convolute at the base. Perianth none. Spadix with germens at the base. Stamens (sessile) near the middle of the spadix, which is naked above. Berry with
one cell and many seeds.—Name; formerly written Aron, and supposed to be an ancient Egyptian word by which one of this tribe was known. Monoeia. Polyandria.


Groves and hedge-banks, plentiful in many places about Dublin, Cork, Belfast, &c. Fl. April, May. 2.—*Root a tuber, affording an abundant amylaceous substance.*—*Leaves large, shining, often spotted with black. Spatha large, convolute. Above the germens, on the spadix, is a ring or circle of 2-celled, sessile anthers, and above these, another of apparently imperfect germens. The extremity of the spadix is purplish. Berries remaining during winter, after the leaves and spadix have decayed; crowded into an oblong spike of a bright scarlet colour.*

ORD. 74. TYPHACEÆ. Lindl. Reed-mace Family.

Flowers monoeious, arranged upon a naked spadix. Perianth 3-parted. Stamens three or six; filaments long and slender; anthers wedge-shaped, erect. Ovary single, superior, 1-celled; ovule solitary, pendulous; style short; stigmas 1—2, linear, simple. Fruit dry, indehiscent, 1-celled, 1-seeded. Embryo in the centre of albumen, straight, taper, with a cleft in one side, in which lies the plumule; radicle next the hilum.—*Herbs growing in marshes or ditches. Stems without nodi. Leaves rigid, ensiform, with parallel veins.*

1. Typha. Linn. Cat's-tail or Reed-mace.

*Flowers collected into very dense, cylindrical spikes or catkins. Barren fl. Perianth none. Stamens three together upon a chaffy or hairy receptacle, united below into one filament. Fertile fl. Perianth none. Pericarp pedicellate, surrounded at the base with hairs resembling a pappus.—Name; Typhos, a marsh, where the plant grows. Monoeia. Triandria.*


Borders of ponds, lakes, and in ditches, frequent. Fl. July, Aug. 2.—*Leaves very long, about an inch broad. Catkins very long, close together; fertile one greenish-brown; sterile one yellow, with one or two large membranaceous bracteas.*

2. T. angustifolia, Linn. Narrow-leaved Reed-mace. Leaves linear, grooved below; sterile and fertile catkins a little distant
from each other.  

2. **Sparganium. Linn.** Bur-reed.

*Flowers in sphaerical, dense heads. Barren fl. Perianth single, of three leaves. Fertile fl. Perianth single, of three leaves. Drupe dry, with one seed.—Name, σπαργάνον, a little band, from its narrow and long leaves.*

**Monocia.** Triandria.

1. **S. ramosum,** Huds. **Branched Bur-reed.** Leaves triangular at the base, their sides concave; common flowerstalk branched; stigma linear.  

*Fl. July. 2.—Stem about three feet high, with a few, long, sword-shaped *leaves or bracteas,* having broad membranous sheathing bases on the upper or branching part. Root-leaves very long, linear-ensiform, triangular at the base, their sides concave. *Sterile flowers in sphaerical heads,* distantly placed; *fertile ones below.*

2. **S. simplex,** Huds. **Unbranched upright Bur-reed.** Leaves triangular at the base, their sides flat; common flowerstalk simple; stigma linear.  

*Ditches and stagnant waters, especially in a gravelly soil. Curragha bog near Ashbourne, in the County of Dublin, near Belfast, and many other places. Fl. July. 2.—Much smaller than the last. Stem rarely if at all branched, though the lower heads of *flowers* are stalked. The sides of the *leaves* are plane, not concave or grooved. The *flowers* pale yellow.*

3. **S. natans,** Linn. **Floating Bur-reed.** Leaves floating, plane; common flowerstalk simple; stigma ovate, very short; head of sterile flowers mostly solitary.  

*Lakes, ditches, and stagnant waters. Plentiful in Cunnamara, and in a marsh on the Hill of Howth, &c. Fl. July. 4.—Leaves very long, linear, pellucid.*
ORD. 75. FLUVIALES. Vent. Pond-weed Family.

Flowers separated, monœcious or dioecious, sometimes perfect. Perianth of two or four pieces, often deciduous, rarely wanting. Stamens definite, hypogynous. Ovary one or more, superior; stigma simple; ovule solitary, pendulous. Fruit dry, not opening, 1-celled, 1-seeded. Seed pendulous; albumen none; embryo having a direction contrary to that of the seed, with a lateral cleft for the emission of the plumule.—Water-plants. Leaves very vascular, with parallel veins. Flowers inconspicuous, usually arranged in terminal spikes.


* Leaves all opposite: stipules none.


Ditches. About Limerick and elsewhere, not unfrequent; Mr. W. H. Harvey. Fl. June, July. 2.—Head of flowers small, rounded. Leaves keeled below, middle nerve or rib of many longitudinal cells, with two, and sometimes three lateral parallel veins on each side, the inner one the strongest.

* * Leaves alternate, all submersed, with adnate stipules.


Rivers, lakes, and salt-water ditches, frequent. Fl. July. 2.—Root tuberous, with creeping scions. Stems very much branched, various in length, leafy, zigzag. Spikes few, solitary, each from one of the uppermost forks of the branches, on a longish stalk, cylindrical,
with considerable interruptions, rising just above the surface, seldom produced but in still waters. Fl. two or three together, dull green. Seeds scarcely more than one or two from each flower, gibbous. Few plants vary in the size of its herbage, which is most considerable in rivers and rapid streams, where the flowers seldom appear. It flowers more freely in salt-water ditches, where it grows less luxuriantly.

** * ** Leaves alternate, all linear, submersed; stipules free.


Ditches and still waters, not uncommon. β. In Ballypheane bog; Mr. J. Drummond. In the Bann river; Mr. Templeton. In a pond at Florencecourt. *Fl.* July. 2.—The stem is here, as in all of this division, more or less compressed. The leaves are more or less acute; the spike oblong, compact, or a little interrupted.


Ponds and bog-drains. Drains at Portmore, County of Down; Mr. Templeton. Bog-drains at Enagh-Lough, County of Derry; Mr. D. Moore, 1834. Near Youghal; Mr. R. Bull. *Fl.* July. 2.—Nearly allied to the last, but stouter, darker coloured, and with short peduncles, scarcely longer than the stipule of the leaf, from the axil of which they spring.


River Shannon, at Plassey and Castle-connel, near Limerick, (with leaves only); Mr. W. H. Harvey. *Fl.* July. 2.—The leaves in Mr. Harvey's specimens are longer and broader than those represented in the figure in *E. Bot.* Suppl., but exactly correspond with the description in having the leaves linear, acuminate, with numerous parallel nerves.

** * *** Leaves alternate, ovate, or lanceolate: all submersed; stipules free.


Ditches and rivers, frequent. *Fl.* June, July. 2.—Whole plant immersed, bright green; leaves obtuse, crisped at the edges.

Ditches and lakes, in many places. Fl. July. 2.—Leaves pellucid, olive-coloured. Peduncles rather short, thick. Spikes raised above the water, consisting of a few brownish flowers, with white pollen.


Lakes, pools, and streams, not unfrequent. Fl. June, July. 2.—A large species, very beautiful in the nervation of its leaves, which are of an olive-green colour. Spikes raised above the water, with numerous green flowers.


In one of the small lakes above Kilrea, County of Derry; Mr. D. Moore. Fl. June, July. 2.—"This is best distinguished by its truly oblong (by no means elliptical) leaves, nervèd from the base, where they are semiamplexicaI, and by the lengthened peduncle. In size it almost equals P. lucens. Reichenbach has given an excellent representation of this species." Hooker.

** *** *** Leaves alternate, upper ones floating, broader than the rest; stipules free.


Rivers and lakes. In the river Liffey, above the Salmon-leap, River Lee, above the basin, and at Sunday's-well; Mr. J. Drummond. River Bann, between three and four feet long, and flowering, without any floating leaves; Mr. D. Moore. Fl. June, July. 2.—Leaves distantly inserted on the stem, upper ones considerably larger than the rest.—"Distinguished by these marks from P. rufescens and P. lanceolatus." Wilson.

Rivers, ditches, and bog-drains. Ditches near Limerick, not common; Mr. W. H. Harvey. Emagh Lough, and in the river Roe, County of Derry; Mr. D. Moore. Fl. July. 2.—As Mr. Wilson states in his letter to Doctor Hooker, “This does in some situations much resemble P. Lucens.” It is remarkable for its reddish olive-colour, and is perhaps better known by its general aspect than by any character that can be applied to it.


Stagnant waters and slow streams, frequent. Fl. June, July. 2.—Stem branching, several feet long, submersed; spike raised one or two inches above the water; flowers sessile, olive-green, with yellow anthers. A very troublesome weed in ponds, when the bottom consists of a clay soil.

2. ZOSTERA. Linn. Grass-wrack.

Stamens and pistils inserted in two rows upon one side of a spadix. Spatha foliaceous. Anthers ovate, sessile, alternating with the germs. Germen ovate. Style bifid. Drupes with one seed.—Name; ζωστήρη, a girdle, or ribbon, which the leaves somewhat resemble.

Monocia. Monandria.


Creeks and ditches of salt water and on the sea-shores, common. Fl. through the summer. 2.—Stems various in length, are the linear, obtuse, somewhat 3-nerved leaves, which have sheathing bases. Spadix linear, arising from a sheathing portion of the leaf, which thus forms the spatha. Flowers green, on one side of the spadix, quite destitute of perianth, in two rows. Pistils and anthers alternate.—This is the now well known “Alva (Ulua,) marina,” used for beds, &c.

3. RUPTA. Linn. Ruppia.

Flowers two, on a spadix arising from the sheathing bases of the leaves, which perform the office of a spatha. Perianth none. Drupes four, pedicellate, their nuts one-seeded.—Named after Henry Bernard Ruppius, author of Flora Jenensis, in 1718. Tetrandria. Tetragnnica.


Salt-water pools and ditches. Near the North Wall, Dublin; Dr. R. Scott. Near Passage, County of Cork; Dr. D. H. Scott. Abundant along the shore of Lough Foyle; Mr. D. Moore. Fl. July, Aug. 2.—“Stems slender, filiform, flexuose, branched, leafy. Leaves
linear-setaceous, with sheaths sometimes narrow and small, at other times large and inflated. Spadix at first very short, included in the sheaths or spatha, with two green flowers, one above another on opposite sides, and quite destitute of perianth. Anthers large, sessile, subquadrate, bursting horizontally, 1-celled. Mertens and Koch say that each pair is in fact the two cells of one anther, and that there are in reality but two sessile stamens. Pollen, a tube with three globules, one in the middle and one at each end of the tube. Germens resembling four minute tubercles in the centre between the anthers. After flowering, the spadix lengthens remarkably, to the height of five or six inches or more, and becomes spirally twisted, as if to bring the fruit to the level of the water, in which the flowers are always immersed, but Mr. Wilson observes the fruit to be submerged in every stage. The germens now swell, and their base is elongated into a footstalk, as the fruit ripens, one or two inches long. Each then becomes an oblique, ovate, acuminate drupe. This drupe is sometimes more beaked than at other times, and the sheaths of the leaves are sometimes but little inflated; then the plant becomes R. rostellata of Koch, and of Reichenbach in his Icon. t. 174. f. 306." Hooker.


Ditches and stagnant waters, frequent. Fl. Aug. 0.—Floating. Stems long, filiform, branched. Leaves opposite, linear, entire, sometimes emarginate at the point. Flowers axillary, from a membranaceous bractea. Fertile fl. upon a very short stalk, from the base of which arises a single naked anther, borne on a short white filament.


Flowers two, naked, enclosed in a spatha.—Sterile Fl. Stamens definite. Fertile Fl. Ovary 1-celled, with one or more erect ovules; style short; stigma simple. Fruit membranaceous or capsular, not opening, one- or many-seeded. Seeds with a fusable testa, and a thickened indurated foramen. 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.—Aquatic floating plants, with very cellular lobed fronds, which bear the flowers from the margins.

*Perianth* single, monophyllous, membranaceous, urceolate.  
*Fruit* utricular.—Name, λεμνα, of the Greeks, from λείνω, a scale.  

Diandra. Monogynia.

1. *L. trisulca*, Linn. *Ivy-leaved Duckweed.* Fronds thin, elliptico-lanceolate, caudate at one extremity, at the other serrated; roots solitary.  

Clear stagnant waters. In the Boyne, near the bridge at Navan, and many other places.  
*Fl.* July.  
—*Fronds* from one-half to three-fourths of an inch in length, pellucid at the margins, reticulated.  
*Roots* solitary, tipped at the extremity, with a small *sheath*.  
*Hooker.*

*E. Fl.* v. i. p. 32.  
*E. Bot.* t. 1095.

Stagnant waters, common.  
*Fl.* July.  
—About a line or a line and a half long; of a rather thick and succulent, but compact texture, slightly convex beneath.  
“This is the most abundant of all the species, covering the surface of ditches and ponds, and harbouring various insects and molluscs, the food of ducks and other water-fowl, whence the English name of *Duckweed*.  
*The young fronds constitute the Lemna arhiza* of the French authors.  
*The capsule* is single-seeded;  
*seed* transverse, with its hilum “directed towards the narrow end of the frond.”  
*Wilson.*  
*Hooker.*  
*The fruit of this species was first pointed out to me at the lake near Sandymount, by W. Wilson, Esq. of Warrington, in July, 1829.*

*E. Fl.* v. i. p. 33.  
*E. Bot.* t. 2458.

Stagnant waters. Common about Limerick and elsewhere; Mr. W. H. Harvey.  
*Flowers* unknown in Britain.  
—The largest of all the species, half an inch long and nearly as broad, succulent, firm, faintly striated; a little convex below, where, and at the margin above, it is of a deep purple colour.  
*Roots* numerous from a central point.

*E. Fl.* v. i. p. 32.  
*E. Bot.* t. 1233.

Stagnant water, less frequent than the last.  
*Fl.* June—Sept.  
—Size of *L. minor*, but readily distinguished by its gibbous or even hemispherical lower surface, which is moreover white, pellucid, and beautifully cellular, the cells filled with air, *(Wilson)*; upper side plane, green, opaque.  
“*Capsule* four-seeded.  
*Seeds* furrowed, not transversely placed, but with the hilum towards the top of the capsule.”

*Wilson.*
Ord. 77. JUNCAGINEÆ. Rich. Arrow-grass Family.

Perianth of six divisions, in a double row, both herbaceous, rarely wanting. Stamens six. Ovaries 3—6, firmly cohering; ovules one or two, approximated by their base, erect. Fruit dry, 1—2-seeded. Seeds erect. Albumen none. Embryo with a lateral cleft, for the emission of the plumule (as in Aroidcae); radicle straight, remote from the hilum.—Marsh plants. Leaves narrow. Flowers inconspicuous, in spikes or racemes.


Perianth of six, concave, deciduous leaves, three outer and three inner. Anthers sessile, lodged in the leaves of the perianth, with their backs towards the pistil. Capsules 3—6, 1-seeded, united by a longitudinal receptacle, from which they separate at the base.—Name from τρέις, three, and γλυκός, a point, from the three points of the capsules.

Hexandria. Trigynia.


Wet meadows, and by the sides of ditches in marshy situations, plentiful. Fl. Aug. 4.—Leaves all radical, linear, fleshy, slightly grooved on the upper side, sheathing and membranous at the base. Scape eight to ten inches high, terminating in a lax, simple spike or raceme. Flowers small, greenish. Capsules three, linear, united by a common receptacle, so as to form one 3-celled fruit, each cell separating at its base, and suspended by the extremity, containing one seed, and not dehiscent.—"Mr. Wilson finds that the leaves, when bruised, yield a very fetid smell, and that the root, under certain circumstances at least, is a creeping one, sending out jointed, scaly runners, with comparatively large, ovate, shortly acuminate bulbs at the extremity. These bulbs at the end of the jointed runners have very much the appearance of a scorpion's tail." Hooker.


Salt marshes, not unfrequent. Fl. May—Aug. 4.—Larger than the last, and stouter, differing essentially in its fruit, which is formed of six combined capsules, constituting a broadly ovate fruit; not separating from the base and suspended by their summits, as in T. palustre. Even when in flower, the same distinction is observable in the germin as in the fruit.
ORD. 78. ALISMACEÆ. Br. Water-Plantain Family.

Perianth of six divisions, in two rows; outer herbaceous; inner petaloid. Stamens definite or indefinite. Ovaries free, many, 1-celled; ovules erect or ascending, solitary, or two, attached to the suture, at a distance from each other: styles and stigmas as many as there are ovaries. Seed without albumen. Embryo shaped like a horse-shoe, with its radicle next the hilum.—*Aquatic or floating herbaceous plants. Leaves with parallel veins.*

1. **Alisma.** Linn. Water-Plantain.

*Calyx* of three leaves. *Petals* three. *Capsules* many, clustered, distinct, indehiscent, one-seeded. *Embryo* much curved.—Name from *alis,* *water,* in Celtic. The genus is altogether aquatic. **Hexandria. Polygynia.**


Near the margins of lakes, rivers and ditches, frequent. *Fl.* July. 2.—Two to three feet high. *Leaves* all radical, on long stalks. *Scape* branched upward; *branches* all whorled, bracteated, compound. *Flowers* of a pale rose-colour. *Embryo* curved.


*Flakes and ditches.* Very plentiful in Cunnamara, and the large marsh on the Hill of Howth. County of Down; Mr. Templeton. *Fl.* July, Aug. 2.—At the base of the plant are long linear-lanceolate, membranous *scales,* or abortive *root-leaves.* *Stem-leaves* floating, on long stalks, scarcely nerved.


β. With creeping runners. **A. repens,** "Davies’ Welsh Bot. 36."

*Fl.* v. ii. p. 205.

Ditches and turfy bogs, frequent. β. In ditches at the Murrow of Wicklow. *Fl.* Aug, Sept. 2.—*Flower-stalks* radical, erect, three to ten inches high, bearing one or two whorls of light-purple *flowers.* *Capsules* numerous, collected into a globular head, obovate, compressed, pointed, with five strong ribs.

2. **Sagittaria.** Linn. Arrow-head.

*Barren fl.* Calyx 3-leaved. Petals three. *Stamens* numer-
Fertile fl. Calyx 3-leaved. Petals three. Pistils very numerous, collected into a head. Pericarps 1-seeded, compressed, margined.—Named from sagitta, an arrow, from the shape of the leaves. *Monocca. Polyandria.*


Ditches and margins of rivers. Plentiful in the County of Fermangh, where it had been previously noticed by Dr. Scott, and banks of the Shannon, near Portumna. In the Lagan river near Lough Neagh; *Mr. Templeton.* In the lake at Kilkineen, and at Drigget, County of Cavan; *Rev. Mr. Halpin.* *Fl.* July, Aug. 2. —A beautiful aquatic, with large, truly arrow-shaped leaves, rising above the water.

**Ord. 79. HYDROCHARIDEAE. Juss. Frog-bit Family.**

Flowers perfect or separated. Perianth semipetaloid, 3—6-cleft, in the fertile flowers adherent with the ovary. Stamens definite or indefinite. Ovary one: stigmas many. Pericarp baccate or capsular, without valves, 1- or many-celled. Seeds without albumen. Plumule inconspicuous.—Aquatic, herbaaceous plants. Leaves with parallel veins. Flowers spathaceous.


*Spatha* of two leaves. **Calyx** 3-cleft. **Corolla** of three petals. **Berry** inferior, angular, with six cells, many-seeded.—Name from στρατός, an army, on account of the numerous sword-like leaves. *Polyandria. Pentagynia.*


Lakes and ditches or drains; near Crum-castle and Castle-Saunderson on the banks of Lough Erne; also on the banks of the Shannon, near Portumna. Belfast water-course; *Mr. Templeton.* *Fl.* July, 2. —A singular plant, resembling an Aloe, with numerous radical leaves thrown up from creeping runners, which penetrate far and deep in the mud. **Scape** four to six inches long, compressed, two-edged. **Flowers** white from the compressed two-leaved **spatha**. Sometimes the **flowers** are dioecious, and sometimes the **stamens** are on the flower with the 5 or 6-cleft **styles**.


**Flowers** spathaceous. **Barren fl. Calyx** in three deep segments. **Corolla** of three petals. **Stamens** nine, in three rows, within which are three imperfect **styles**. **Fertile fl. Calyx** in three deep segments. **Petals** three. **Styles** six,
each with two stigmas. Capsules inferior, coriaceous, roundish, 6-celled, many-seeded.—Name; वेप, water, and चार्ग, to rejoice: being aquatic plants. Diacia. Enneandria.


Ditches and bog-pits; near Bulruddery; bog of Curragha; near Cavan, and by the banks of the river Fergus near Ennis, &c. Fl. July. ạ.—Floating, and sending down from the horizontal stems, long, fibrous radicles. Leaves petioled, reniform, entire. Flowers subumbellate, arising from pellucid membranous spathas, large, white, delicate.

Ord. 80. IRIDEÆ. Juss. Corn-Flag Family.

Perianth petaloid, of six divisions (parted or tubular), sometimes irregular; with the three inner segments sometimes small, deciduous. Stamens three, inserted upon the base of the outer segments; filaments distinct or connate: anthers turned outwards, fixed by the base, 2-celled, opening longitudinally. Ovary 3-celled, with the cells many-seeded: style one; stigmas three, often lamellate, or petaloid, rarely 2-lipped, sometimes obsolescently 3-lobed. Capsule 3-celled, 3-valved; the valves bearing the dissepiments on their middle. Seeds fixed to the internal angle of the cell, sometimes to a central, at length free, columnar receptacle. Albumen horny or densely fleshy. Embryo included.—Herbaceous plants, very seldom under-shrubs. Roots tuberous or fibrous. Leaves equitant, distichous. Bractea usually spathaceous. Flowers brightly coloured.

1. IRIS. Linn. Iris or Flower de Luce.

Perianth single, petaloid, 6-cleft, each alternate segment longer and reflexed. Stigmas three, petaloid, covering the stamens.
—Name from the beautiful and varied colours of the flowers. Triandria. Monogynia.


Watery places, wet meadows and ditches, frequent. Fl. June, July. ạ.—Flowers large, deep yellow. Root large, horizontal, very acrid. “A piece of it held between the teeth is said to cure the tooth-ache, and is otherwise used medicinally, and also for giving a black dye and making ink. The seeds, when roasted, are recommended as a substitute for coffee.” Hooker.

2. I. fatidissima, Linn. Stinking Iris. Leaves sword-
shaped; perianth beardless, its inner segments spreading, about as large as the stigmas; stem one-angled. Br. Fl. 1. p. 18. E. Fl. v. i. p. 49. E. Bot. t. 596.

Woods, ditch-banks, and pastures. Frequent in the Counties of Dublin and Wicklow. Found at Kilgobbin, and in fields near Templeogue. On the banks of the Barrow near Portarlington; Rev. Mr. Halpin. Fl. May. 2.—Flowers much smaller than the last, dull livid purple. The leaves, when bruised, yield a disagreeable smell, which has been compared to roast-beef, whence its common name, Roast-beef plant. It appears to grow principally in the eastern parts of the country. The Iris tuberosa or Snake's-head Iris, which has tetragonal leaves, has been observed by Mr. Drummond and others growing on a dry ditch-bank, in a lane near the Cork Botanic Garden, to which it had not been introduced previously to his finding it; but as it is a native of the Levant, it can scarcely be considered as indigenous to Ireland.


Perianth coloured; tube very long; limb cut into six equal segments. Stigmas 3-lobed, plaited.—Name, from κροκη, a thread or filament, from the appearance of the saffron of the shops, which is the dried stigmas of Crocus sativus.

Triandria. Monogynia.


Meadows and fields, naturalized. Plentiful about Dunganstown, near the old castle. Fl. March. 2.—Flowers blue, or sometimes white. Stigma pale, inodorous. The top of the tube of the corolla is closed with pellucid hairs, as first noticed by Mr. Ker in Curt. Mag. where a figure of the plant is given. It is very common in gardens, flowering about a fortnight later than the still more common yellow Crocus, C. maestacus of Ker, in Bot. Mag. t. 1111.

ORD. 81. ORCHIDEÆ. Juss. Orchis Family.

Perianth superior, ringent, of six segments in two rows, the three outer usually coloured, of which the odd one is uppermost, in consequence of a twisting of the ovary, and one called the lip (labellum,) is undermost; this latter is frequently lobed, of a different form from the others, and very often spurred at the base. Stamens three, united in a central column, the two lateral usually abortive, and the central perfect, or the central abortive and the two lateral perfect: rarely all perfect; anthers either persistent or deciduous, 2- or 4- or 8-celled; pollen either powdery or cohering in definite or indefinite waxy masses, either constantly adhering to a gland or
becoming loose in their cells. Ovary 1-celled, with three parietal placentas; style forming part of the column of the stamens; stigma a viscid space in front of the column, communicating directly with the ovary by a distinct open canal. Impregnation taking effect by absorption from the pollen-masses through the gland into the stigmatic canal. Capsule inferior, bursting with three valves and three ribs, very rarely baccate. Seeds parietal, very numerous; testa loose, reticulated, contracted at each end, except in one or two genera; albumen none. Embryo a solid, undivided, fleshy mass.

Of this extensive and highly interesting and beautiful Family, the greater proportion are natives of the tropics, and they gradually diminish towards the arctic regions, where they disappear. Vanilla is the fragrant seed-vessel of *Vanilla aromatic*. Salep is made from the roots of *Orchis mascula*, and other terrestrial European species.

* Anthers of two distinct, vertical cells, fixed to the top of the column, immediately above the stigma. Pollen-mass stalked, composed of grains which cohere elastically, having a gland at the base of the stalk.

1. **Orchis.** Linn. *Orchis.*

*Flower ringent. Lip spurred. Glands of the stalks of the pollen-mass contained in a common little pouch.—Name; an ancient appellation of the plant.*

**Gynandria. Monandria.**

* Tubers two, undivided.


Meadows and pastures. Frequent in the County of Dublin. *Fl. June.* 2.—Stem from a span to a foot high. *Flowers* few, in a lax *spike*. *Calyx* purplish green, forming a sort of helmet over the rest of the flower. *Lip* purple, pale in the middle, with purple spots.


Woods and pastures, frequent. *Fl. May.* 2.—Stem one foot high. *Leaves* generally marked with dark purple spots. *Flowers* in a lax oblong *spike*, purple; the centre of the *lip* whitish at the base and spotted, sometimes altogether white.
3. O. fusca, Jacq. Great brown-winged Orchis. Lip deeply 3-lobed, with raised rough dark points; lateral lobes linear-oblong, intermediate one large, obcordate, crenate and emarginate, with a point in the sinus; sepals rather obtuse, connivent, including the two lateral petals; spur obtuse, about half as long as the germen. _Br. Fl._ 1. p. 371. _E. Fl._ v. iv. p. 13. _E. Bot._ t. 16.

Summerstown-bog, near Cork; Mr. J. Drummond, as stated by Doctor Hincks, but I have not seen Irish specimens. _Fl._ May, June. 2. —“_Stem_ one to two feet high. _Leaves_ ovato-oblong, obtuse. _Flowers_ forming a handsome _spike_, with variegated purple _petals_; the _helmet_ of a dark-greenish purple, the _lip_ much paler.”


Pastures, in loamy and sandy soils. Very common in the County of Dublin. Plentiful about Oldcastle in the County of Cavan; Rev. N. J. Halpin; not found in the southern or northern counties. _Fl._ July. 2. —“_Leaves_ very acuminate. _Flowers_ of a delicate rose-purple, spirally arranged in a close, broad and ovate _spike_, sometimes white.

** ** Tubers two, palmate.


β. palmata palustris tota rubra, Dill. in Raii. _Syn._ 382.

Marshes and moist ground, common. _Fl._ June. 2. —“_Flowers_ of a deep purple, the _lip_ dotted and marked with purple lines; in β. _Flowers_ flesh-colour. _Plant_ never more than half the size of the other, and most frequently found in salt marshes.


Pastures and heaths, frequent; often covering entire fields. _Fl._ June, July. 2. —About a foot high. _Leaves_ distant, spotted with purple. _Flowers_ pale purple or white, more or less spotted or streaked, especially the _lip_.


_Lip_ spurred. _Glands_ of the stalks of the _pollen-masses_ naked,
approximated.—Name; γυνανος, naked, and αδην, a gland, one of the essential characters of this Genus.

Gynandria. Monandria.


Wet pastures and boggy ground. Very abundant in the County of Dublin and other parts of the country. County of Derry, frequent; Mr. D. Moore. Mr. Drummond found it on the banks of the Lee, near Cork. Fl. June—Aug. 2.—Stem one foot high. Tubers palmate. Leaves linear-lanceolate, keeled. Flowers in an ovato-oblong, rather dense spike, rose-purple, rarely white. Lip 3-lobed, not spotted, the lobes equal, entire, rounded. The two lateral sepals spreading, their margins revolute. Two lateral petals connivent. Spur filiform, twice as long as the germen.


Flower ringent. Lip spurred. Glands of the stalks of the pollen-masses naked, distant.—Name; habena, a thong or lash, which the spur sometimes resembles.

Gynandria. Monandria.

1. H. viridis, Br. Green Habenaria. Spur very short, two-lobed; lip linear, bifid, with an intermediate tooth; bracteas much longer than the flowers; tubers palmate.—Br. Fl. 1. p. 373.—Orchis viridis, Sm. E. Fl. v. iv. p. 20.—Satyrium viride, Linn. E. Bot. t. 94.

Dry hilly pastures, not unfrequent. Fl. June, July. 2.—Stem six to eight inches high. Lower leaves nearly ovate, obtuse. Calyx and lateral petals connivent and forming a helmet, green. Lip small, greenish-brown.

2. H. albida, Br. Small white Habenaria. Spur obtuse, much shorter than the germen; lip 3-cleft, the segments acute; the middle one the longest; sepals and lateral petals nearly equal, ovate, concave. Br. Fl. 1. p. 373.—Orchis albida, Sm.—E. Fl. v. iv. p. 18.—Satyrium albidum, Linn.—E. Bot. t. 503.

Mountain pastures, not unfrequent. Luggelaw and other places in the County of Wicklow. Abundant in Antrim and Derry; Mr. Templeton and Mr. D. Moore. Fl. June, July. 2.—About a span high. Leaves oblong, striated, lower ones obtuse. Flowers white, small, fragrant; lip scarcely longer than the calyx, deflexed.


Moist boggy meadows and copses, frequent. Fl. June. 2.—Tu-
bers undivided, tapering. Stem 1—1½ foot high, with two, rarely three, large, radical leaves, and three to four very small, cauline ones. Spike long, of numerous rather large, yellowish-white, very fragrant flowers. The bases of the cells of the anther are very distant from each other.—This is the genus Platanthera of Richard.


On Ma'am, Cunnamara, Aug. 1835; Chas. C. Babington, Esq. Fl. June. 2. — Now that the plant has been described by Dr. Hooker, in the 3d edition of his excellent Flora of the plants of Britain quoted above, it will probably be found in other parts of the country, where it may have been overlooked for H. bifolia.—"Stouter than the preceding, differing in the form and direction of the leaves, and in the larger and greener flowers, which expand at an earlier season."—Reichenbach. Hooker.


Perianth somewhat patent. Lip without a spur. Glands of the stalks of the pollen-masses in a distinct little pouch.—Name; ὀφρυς, the eye-brow, which Pliny says this plant was used to blacken. Gynandria. Monandria.


Sandy and clayey soils, also in limestone districts. Portmarnock; field near Kingstown, and near Bray-head, in various places. Near Geneva Barracks, County of Waterford; Doctor Barker. Fl. July. 2. — Flowers large. Calyx purplish or greenish-white; lateral petals oblong, very small, of the same colour. Lip velvety or silky, of a rich brown, variegated with yellow. The only species of this interesting genus, (of which there are five species in England,) yet observed in Ireland.

** Anther parallel with the stigma. Pollen-masses farinaceous, or composed of angular grains, fixed to the apex of the stigma, not stalked.


Perianth converging, two lateral calyx-leaves including the base of the beardless lip. Column wingless. Pollen farinaceous. Br.—Name, νεόττια, a Bird’s-nest, formerly ap-
plied by Dodoneus, and even by Linnaeus, to our *Listera Nidus-Avis*, on account of its densely tufted fibres; but subsequently abandoned. It has since been chosen by Jacquin for the present genus, which is sanctioned by the high authority of Swartz, Willdenow, Smith, and Brown. "It is Spiranthes of Richard" (Hooker.)

**Gynandria. Monandria.**


Dry pastures. I found this on Bray-common, in August, 1810, where it was subsequently observed by Doctor Taylor. Phoenix Park, between Chapelizod and the Magazine; *Mr. Leslie Ogilby* and *Mr. J. Johnston.* Near Cork; *Rev. William Hincks.* *Fl. Aug.* Sept. 24.—*Tubers* oblong, three to four. *Stem* four to six inches high, rather bracteated than leafy. *Flowers* singularly spiral on the stalk, greenish-white. Upper *sepal* and two *inner petals* combined. *Lip* longer than the rest of the flower, oblong, broader and crenate at the apex. *Stigma* and *anther* both acuminate.


Dunboy, near Bearhaven, County of Cork, 1810, in small quantities; *Mr. J. Drummond*, but no one has since found it. *Fl. July.* 24.—I have not seen a specimen of this rare plant.

6. **Listera.** *Br.* Bird's-nest or Twayblade.


**Gynandria. Monandria.**


Moist heaths among moss. At Lough Bray, above the lower lake;
Doctor Stokes. County of Donegal; R. Brown, Esq. Near Cullemagh, Queen's County; Mr. Bradbury. On the heath in Newtownards Park. Near Moneymore, Derry; Mr. D. Moore. Fl. July, Aug. 2.—Root a few long fleshy fibres. Stems three to five inches high. (Nearly two feet high in Newtownards Park, overshadowed with heath; Mr. Templeton.) Flowers few, very small, spiked, greenish-brown. Leaves of the Perianth somewhat spreading, those of the Calyx ovate. Lateral petals linear, oblong. Lip pendant, linear.


Shady woods. In Collin Glen, near Belfast; Mr. Templeton. Farnham-woods, where it was first observed by Mr. Joseph Archibald. Glenarm; Mr. Robert Patterson. Glen of Altmore, Cushendall; Mr. Wm. Thomson. Fl. May, June. 2.—Roots of many short, thick, densely aggregated, fleshy fibres. Stem about a foot high. Flowers spiked, of a dingy brown. Calyx-leaves and lateral petals oblong-oval, nearly equal. Lobes of the lip spreading. This can scarcely be generically distinguished from the preceding. (Hooker.)

** Anther terminal, persistent. Pollen-masses pulverulent or composed of angular granules, eventually fixed to the back of the stigma.


Lip very concave at the base, the extremity undivided or three-lobed, the middle lobe large, and as it were, jointed. Pollen farinaceous. Br.—Name, given to some kind of Helleborine by the Greeks. Gynandria. Monandria.


Shady woods. Sans Souci, near Bray; Farnham, and many other places. Fl. July, Aug. 2.—Root creeping, with long fibres. Stem one to three feet high. Upper leaves lanceolate. Flowers in a very long, lax spike, greenish purple, but varying very much in intensity.

Moist and sandy ground. Plentiful at Portmarnock, and marshy ground about Enniskerry, and other similar situations. On the shore near Belfast; Mr. Templeton. Fl. July. 2.—Stem one foot high, purplish above. Calyx purple green; lateral petals and lip white, with rose-coloured streaks at the base.

3. E. grandiflora, Sm. Large White Helleborine. "Leaves ovato-lanceolate, sessile; bracteas much longer than the erect flowers; perianth patent; lip 3-lobed, middle lobe large, oval, retuse, shorter than the rest of the perianth." Br. Fl. I. p. 378. E. Fl. v. iv. p. 43.—E. pallens, Sw.—Hook in Fl. Lond. N. S. t. 76.—Serapias grandiflora, Linn.—E. Bot. t. 271.

Woods. Found by Mr. Geo. Whitla, in the County of Antrim, in July 1835; Mr. Campbell. Fl. June. 2.—"Stem a foot or more high. Calyx-leaves and petals nearly equal, large, oblongo-ovate, white, concave, including the small lip, which is also white, but yellowish within. Column of fructification in this and the following species very long: in the preceding ones very short."


Wood at Glengariff, where I first observed it, in company with the late Miss Hutchins, but without flowers, when I thought it might have been E. pallens of Brown in Hort. Kew., and inserted it in my catalogue under that name. Miss Hutchins having since sent me flowering specimens, I am now enabled to correct my mistake. Fl. June. 2.—Readily distinguished by its long lanceolate leaves, the uppermost of which is almost linear, and by its very minute bracteas.

** Anther terminal, deciduous. Pollen-masses at length waxy.


Perianth spreading; lip without a spur, very small, superior, undivided: two lateral petals reflexed, smaller than the calyx-leaves. Column very short. Pollen-masses in two pairs.—Name: μαλαξις, softness, from the tender nature of the plant.

Gymandra. Monandria.

1. M. paludosa, Swartz. Marsh Bog-Orchis. Leaves 4—5 oval, very concave, papillose at the extremity;* lip concave,

* These papille the Rev. Professor Henslow has clearly ascertained to be little bulbous gemmae, as he has described and figured them in the Gardener's Magazine, v. 1. p. 442.—Mr. W. Wilson confirms this interesting statement, and further finds an hybernaculum formed in the autumn among the decayed leaves. Thus, independent of the seeds, this curious little plant has a two-fold mode of increase. Hook.
Ophrys paludosa, Linn.

Spongy bogs, in many places, but apt to be overlooked on account of its small size. In a marshy spot above Powerscourt Waterfall, and at Tittour, County of Wicklow, as well as in the southern and northern counties, but never in great quantity. *Fl.* Aug.-Sept. — Stem two to four inches high. Flowers erect, minute, in a small greenish spike. Calyx of three ovate, horizontal spreading leaves, two of them erect, their bases embracing the base of the superior lip, which is thus also erect. Two lateral petals recurved.

Ord. 82. MELANTHACEÆ. Batsch. Colchicum Family.

Perianth free, petaloid, 6-partite, tubular by the union of the claws, with the segments in aestivation often involute. Stamens six: anthers often turned outwards. Ovary 3-celled, many-seeded; style trifid or tripartite; stigmas undivided. Capsule often separable into three, sometimes with the valves bearing the dissemination in the middle. Seeds with a membranaceous testa, (neither black nor crustaceous.) Albumen dense, fleshy.

—*Herbaceous plants, with fibrous, sometimes fascicled, rarely bulbous roots.* Flowers either arising immediately from the root, or in panicles on tall leafy stems, or in spikes or racemes upon naked scapes.

An acrid and highly dangerous Family, powerfully narcotic, diuretic and cathartic.


*Perianth* single, tubular, very long, rising from a spatha; limb campanulate, 6-parted, petaloid. *Capsules* 3-celled; cells united at the base.—Named from Colchis, where it was said to grow abundantly. *Hexandria. Trigynia.*


Meadows and pastures. Banks of the Shannon below Limerick. Meadows by the river-side, between Kilkenny and Innistogue; Mr. Robertson. Near Carlow; Mr. S. C. Hope Cooper. *Fl.* Sept. Oct. 2.—*Bulb* solid. The *flowers* appear in succession, rising from the bulb, with a very long, narrow tube, surrounded at the base with a membranous sheath. The *stamens* are inserted on the oblong-ovate segments of the pale purple *perianth*. *Germen* at the base of the bulb, its long thread-like *styles* running up the whole length of the tube. The *leaves* and *fruit* appear in spring, and are withered before summer. Its properties are said to be similar to those of the officinal
Squill, and it has been employed as a substitute for the famous Gout-medicine, commonly called *Eau medicinale*. It seldom produces seed in this country.

Ord. 83. **AMARYLLIDÆ.** *Br.* Amaryllis Family.

Perianth of six divisions, regular, with an imbricated aestivation, the three outer segments overlapping the inner. Stamens six, inserted at the bottom of the segments of the perianth; filaments sometimes combined at the base; anthers opening inwards. Ovary 3-celled, with the cells many-seeded; sometimes (in the baccate fruits) one to two-seeded: style one: stigma 3-lobed. Pericarp either a 3-celled, 3-valved, many-seeded capsule, with the valves bearing the dissepiment in the middle, or sometimes a 1–3-seeded berry. Seeds with a testa, which is neither black nor crustaceous. Albumen fleshy. Embryo nearly straight; radicle directed to the hilum.—**Bulbous or fibrous-rooted plants, chiefly of warm countries.**

1. **Galanthus.** *Linn.* Snowdrop.

Perianth petaloid, of six pieces, the three outer spreading, three inner smaller, erect, emarginate. *Flowers* from a *spatha*.—Name from γάλα, milk, and ἄνθος, a flower. *Hexandria. Monogynia.*


2. **Narcissus.** *Linn.* Daffodil.

Perianth superior, coloured, funnel-shaped, with a spreading 6-parted limb, and a campanulate or cup-shaped crown or nectary, within which are the stamens. *Flowers* from a *spatha*.—Name from νάρκη, stupor, in allusion to the powerful and injurious smell of its flowers. More immediately derivable from the youth *Narcissus*, who was fabled to be changed into this flower. An inhabitant sometimes of watery places by the banks of streams. *Hexandria. Monogynia.*

The true *N. Pseudo-narccissus* described above, I have not seen in a wild state in Ireland. *N. major* of Curtis Bot. Mag., so common every where in lawns, and often mistaken for it, being the plant alluded to as *N. Pseudo-narccissus* in my Cat. of Irish plants. Mr. Drummond, however, enumerates it among the naturalized species found near Cork. *Fl.* March, April. 2.—The *N. Pseudo-narccissus* of *E. Bot.* which grows in a wild situation within ten miles of Manchester, of which the late Mr. Hobson sent me plants, is never more than half the size of *N. major*, and produces flowers of a pale colour, whereas the other has the flowers of an uniform golden yellow in the single as well as the double variety, as stated by Sir J. E. Smith, in *E. Botany*.


Naturalized about Cork; Mr. J. Drummond. *Fl.* May. 2.—This is the well-known *Poet's-narccissus* of the gardens, of which there is a fine double variety, and both are general favourites on account of their fragrance and beauty. I have another plant, which I received from the late Mr. George Anderson as the true *N. poeticus* of *E. Botany*, that flowers in April (fully three weeks before the other), but in other respects there is scarcely any difference. This is not to be confounded with the more slender and less elegant *N. angustifolius* of Curtis, which flowers about the same time.


Fields near Dublin, abundant. *Fl.* April, May. 2.—Similar to the last in the general form of the flowers, but rather smaller, and not of so pure a white, and without the coloured border to the nectary, with a less agreeable scent. Very rarely one-flowered, as is the other two-flowered.

Ord. 84. ASPHODELEÆ. *Br.* Asphodel Family.

Perianth 6-partite or 6-cleft, petaloid, regular. Stamens six, inserted upon the perianth, or hypogynous; the three that are opposite the outer leaflets sometimes dissimilar or wanting. Ovary free, 3-celled, with the cells many, rarely 2-seeded: style one; stigma undivided or shortly 3-lobcd. Pericarp, in most, a 3-celled, 3-valved capsule, with the valves bearing the disseminations; sometimes an undivided or rarely a tripartite berry. Seeds with a black crustaceous fragile testa. Albumen fleshy, including the embryo.

A bitter viscid juice prevails in many plants of this family.

Perianth inferior, petaloid, of six ovate spreading pieces. Capsule triquetrous. (Flowers umbellate, arising from a two-leaved spathe.)—Name from the Celtic all, which signifies acrid, burning. (Theis.) Hexandria. Monogynia.

* Stem-leaves plane.


Sand-hills at Portmarnock and Feltrum-hill. South Isles of Arran; Messrs. Thomson and Ball. Fl. July. 2.—Stem two to three feet high, leafy below, rounded, glabrous. Heads dense, with purple flowers, rather small. Spatha often of three very short, ovate, obtuse segments.


In a field on the north side of the Royal Canal, above Phibsborough-bridge; Dr. Scott. Fl. July. 2.—Three feet high. Stems rounded, glabrous, leafy below. Flowers upon long wavy peduncles, pale brownish-white.

** Stem-leaves rounded.


Too common in meadows and pastures about Dublin. Fl. June. 2.—Stem one and a half to two feet high. Bulbs numerous. Spatha of two rather small deciduous leaves. Flowers on longish peduncles, which are thickened upwards, few, erect, reddish, green on the keels, shorter than the stamens, whose filaments as well as the anthers are protruded.

** * * Leaves all radical.


2. **Scilla.** Linn. Squill.

*Perianth* inferior, of six leaves, petaloid, spreading and deciduous. *Filaments* filiform, glabrous, inserted at the base of the perianth. *(Flowers racemed.)—Name, from σκυλλα, to injure; in Arabic also, ḥṣgal. The root of *S. maritima* is said to be highly poisonous, and a valuable medicine.

**Hexandria. Monogynia.**


Maritime situations. On Howth, Ireland's Eye, Killiney-hill, and other places on the eastern coast. *Fl. April.* 2.—*Plant* four to five inches high. *Leaves* few, nearly as long as the *scape.* *Flowers* fragrant, deep blue.

3. **Hyacinthus.** Linn. Hyacinth.

*Perianth* inferior, of one piece, petaloid, 6-cleft, or 6-parted, tubular, reflexed at the extremity. *Stamens* inserted upon the segments, included.—Named from the youth *Hyacinthus*, who, being killed by Apollo, was changed by him into a plant, whose foliage bore the initials of his name. Our only British species, having no such mark or figure, was hence called *non-scriptus.*

**Hexandria. Monogynia.**


Woods, copses, and groves, frequent. *Fl. May.* 2.—*Flowers* blue, varying with white or more rarely rose-coloured flowers. *Leaves* long, linear, channelled, acuminate. *Scape* one foot high, with two bracteas at the base of each short pedicel. The habit of this plant, as Dr. Hooker remarks, is surely more the habit of the *H. orientalis* than of any true *Scilla.*

Ord. 85. **SMILACEÆ.** Br. Smilax Family.

Flowers perfect or dioecious. Perianth free, petaloid, 6-parted. *Stamens* six, inserted near the base upon the *laciniae*, rarely hypogynous. *Ovary* 3-celled, with the cells 1- or many-seeded: *style* mostly trifid: *stigmas* as many as there are *styles*, or divisions of the *styles*. *(The parts of the flower are quaternary in
Paris.) Berry globose. Seed with a membranaceous (not black nor crustaceous) testa. Albumen between fleshy and cartilaginous. Embryo frequently remote from the hilum.—Herbaceous plants or under-shrubs, often with a tendency to climb. Leaves with parallel veins.

1. CONVALLARIA. Linn. Lily of the Valley.
Perianth inferior, petaloid, deciduous, 6-cleft, globose or cylindrical. Berry 3-celled. Seeds 1—2 in each cell.—Name; convallis, a valley, from the locality of the species.

Hexandria. Monogynia.


2. PARIS. Linn. Herb Paris.
Calyx of four sepals. Petals four. Cells of the anthers fixed one on each side the middle of a subulate filament. Berry 4-celled; each cell with several seeds in two rows.—Named, it is said, from par, paris, equal, on account of the regularity of its leaves and flowers.

Octandria. Tetracygia.


Moist and wet shady woods. Ross Island, Killarney, ("Smith's Kerry.") Fl. May, June. 2.—Stem one foot high, with four, rarely five, whorled, large, ovate, acute leaves at its summit, the rest leafless. Flower single, terminal, on a foot-stalk about two inches long. Calyx of six linear-lanceolate, green leaflets: petals similar to these, but narrower and more yellow. Roots purgative. Berry esteemed poisonous, but it has been employed in curing inflammation in the eyes.

Ord. 86. BUTOMEÆ. Rich. Flowering-rush Family.

Perianth of six divisions, in two rows; outer sometimes herbaceous, inner petaloid. Stamens definite or indefinite. Ovaries three to six, or more, more or less free or united: styles and stigmas of the same number. Follicles many-seeded, distinct and rostrate, or united into a single mass. Seeds very
minute, attached to the whole of the inner surface of the pericarp. Albumen none. Embryo straight or curved; its radicle next the hilum.—Aquatic plants. Leaves very vascular, often yielding a milky juice, with parallel veins. Flowers in umbels, conspicuous, purple or yellow.

1. **Butomus.** Linn. Flowering-rush.

Perianth single, coloured, 6-parted, inferior. Capsules six, many-seeded. Seeds fixed to the inner lining of the capsule.
—Named from βοῦς, an ox, and τεῦνε, to cut, because the sharp leaves injure the mouths of cattle that browse upon them.


Ditches, and by the sides of rivers. Banks of the Shannon at Castle-Cunnel, and other places near Limerick; abundant in ditches near Corrofin, and other places in the County of Clare; in a ditch near Lord Cloncurry’s demesne, County of Kildare. It has also been observed by Doctor H. Hineks and the late Mr. Thomas Drummond, near Fermoy-bridge, County of Cork. *Fl.* June, July. 2.—Root white, tuberous. Leaves all radical, two to three feet long; linear, acuminate, acutely trigonous, more or less spirally twisted at the extremity. Scape longer than the leaves, rounded. Umbel of many rose-coloured flowers, on pedicles about four inches long, with scarioses sheathing bracteas at the base; and these having a triphyllous membranous spatha or involucre beneath them. Germens ovate, compressed. Style about as long as the germin, with a recurved cleft stigma. Seeds parietal, or fixed to the inner surface of the pericarp, extremely small.—A highly ornamental plant.

Ord. 87. RESTIACEAE. Br. Pipe-wort Family.

Perianth free, two to six-partite, rarely wanting. Stamens definite, one to six, with from two to three inserted upon the four to six-partite perianth, and opposite the inner segments; anthers usually 1-celled. Ovary 1-celled, the cells 1-seeded; ovules pendulous. Pericarp capsular, or nut-like. Seed inverted. Albumen of the same shape with the seed. Embryo lentiform, on the outside of the albumen, in the lower extremity of the seed, remote from the hilum.—Herbaceous or somewhat shrubby plants. Leaves simple, narrow or none. Culms naked or often sheathing; the sheaths cleft on one side, with equitant margins. Flowers usually aggregated, spiked or capitate, separated with bracteas, and generally monocious.

Flowers collected into a compact, scaly head. Barren fl. in the centre. Perianth single, four to six-cleft, the inner segments united to their summit. Stamens four to six. Fertile fl. in the circumference. Perianth single, deeply 4-parted. Style one. Stigmas two to three, Capsules two to three-lobed, two to three-celled. Cells 1-seeded. Name; εριος, wool, and κυκλος, the stem; in allusion to the downy stems of the species first known. Monoeia. Hexandria.


Lakes in Cunnamara, where it was first observed by Doctor Wade, abundant. Fl. Aug. 4.—Roots creeping, and throwing out innumerable, white, curiously articulated fibres, which penetrate deep into the mud. Leaves pellucid, beautifully cellular, as is the scape. Head of numerous, compact, minute flowers; each with an obovate, membra nous, concave scale, nearly as long as itself.

Ord. 88. JUNCEÆ. Juss. (in part.) Rush Family.

Flowers perfect or separated. Perianth free, of six divisions, somewhat glumaceous. Stamens six, inserted at the base of the segments of the perianth; sometimes three, and opposite the exterior segments: anthers 2-celled. Ovary 1—3-celled, 1- or many-seeded, or 1-celled and 3-seeded: stigmas generally three, sometimes one. Pericarp capsular, 3-valved, with the valves bearing the dissepiments in the middle, sometimes without valves, and by imperfection, 1-seeded. Seed with a testa, which is neither black nor crustaceous. Albumen dense and fleshy or cartilaginous. Embryo included.—Herbaceous plants, very generally distributed, with fascicled or fibrous roots. Leaves flat, with parallel veins, or fistular and harsh. Flowers generally brown or greenish; yellow in Nartheceum.


Perianth inferior, of six leaves, glumaceous. Capsules 3-celled, 3-valved, valves with the seed-bearing dissepiments in their middle. (Leaves rigid, mostly rounded, rarely plane, glabrous.)—Name from junco, to join, the leaves and stems of this genus having been employed as cordage. Hexandria. Monogynia.


Wet pastures and low meadows. Fl. July. 4.—Root creeping. Scapes about two feet high, glaucous, rigid, at the base covered with deep purple-brown, membranaceous, shining sheaths. Panicle lax, erect. Flowers slender, pale brown, with a broad green line down the middle of each leaflet of the perianth. Bracteas also small and acuminated.


Wet marshy grounds, common. Fl. July. 4.—Distinguishable from the last by its soft, pliable, almost smooth (scarcelly striated) scapes, and spreading, denser, and shorter panicles.


Wet and marshy ground, frequent. Fl. July. 4.—Panicle very dense. Scapes resembling the last. Wicks of candles are made of the pith of this as well as of the last species.


Sandy salt marshes about Kingstown, Bullock, and various other places. Near Cork; Mr. J. Drummond. Fl. Aug. 4.—Scapes two to three feet high, stiff, and very tough. Outer bracteas, or portion that rises above the panicle, broad and membranous at the base. Calyx leaves acute, with a membranous wavy border, often jagged towards the point.

5. J. acutus, Linn. Great sharp Sea Rush. Barren scapes and outer bracteas pungent; panicles very compound, mostly
compact; clusters 2—4-flowered; leaflets of the perianth equal; interior ones with a broad membranous margin at the apex, shorter than the broadly ovate, suddenly acuminated capsule. 


Sandy sea-shore near Arklow, where it was first observed by Mr. Hodgens of Dunganstown Nursery. Fl. July. 2.—Nearly double the size of the last, rooting deeply into the sand. Scapes erect, straight, simple, round, smooth, leafless, stiff, and very strong, with a sharp rigid point, turned a little aside by the panicle, and rising a little above it.

**Stems leafy. Leaves rounded or subcompressed, and distinctly jointed internally. Panicle terminal. Flowers aggregated or fascicled.**


Boggy ground and watery places, frequent. Fl. July, Aug. 2.—Very similar to the last; but with large flowers, and deep brown shining capsules. The var. β. of Hooker, (J. nigritellus, E. Bot. Suppl. t. 3643,) has more numerous flowers in each cluster or head, sharper leaflets to the perianth, pale capsules, and it seems also to unite J. acutiflorus with J. lampocarpus. Hooker.


Boggy grounds, less frequent than the two last. Fl. July. 2.—Larger than the preceding. Leaves rigid; heads small. Leaves of the calyx pale-brown. Capsule obovate, light brown. Smith.

9. J. uliginosus, Sibth. Lesser Bog-jointed Rush. Stem erect, and often swollen at the base, or decumbent and rooting;

Boggy and swampy places, and often partly floating in small pools. *Fl. Aug. 2.*—A very variable plant, depending much for its appearance on soil and situation. When growing in water, often viviparous.

* * * * * Stems leafy. Leaves plane or grooved above, not distinctly jointed.


Wet marshy places. β. in salt marshes, frequent. *Fl. Aug. 2.*—I concur with Doctor Hooker in uniting *J. caenosus* of Bicheno with *J. compressus*.


Frequent in moist, or watery places, especially such as have been over-flowed with water in winter. *Fl. Aug. 6.*—From four to six inches high. Leaves few, slender, only one on the stem, generally near the middle. Whole plant very pale-coloured. Flowers green, with white membranous margins to the leaflets of the perianth.

* * * * * Leaves all radical. Flowers terminal.


Moory and heathy ground, abundant. *Fl. June, July.* 2.—Whole plant exceedingly rigid, six inches to a foot high. Leaves subsecund, about half as long as the scape. Bracteas subsecund, membranaceous. Leaflets of the perianth ovato-lanceolate, glossy-brown, with a pale line down the middle, scariosc at the edges.
2. **Luzula. De Cand.** Wood-rush.

Perianth inferior, of six leaves, glumaceous. **Capsules** 1-celled, 3-valved; valves without dissepiments. **Seeds** three, at the bottom of the cell. (Leaves soft, plane, generally hairy.)—Name; the Gramen Luzulae of Bauhin. Luzula, Smith tells us, is altered from lucciola or luzziola, a glow-worm; because the heads of flowers, wet with dew, and sparkling by moon-light, gave the elegant Italians an idea of those brilliant insects.

**Hexandria. Monogyinia.**


Woods, lilly places, and on mountains, frequent. *Fl.* May, June. 2.—One to a foot and a half high. Leaves broad, shining, striated. **Floral-bracteas** ciliated. **Capsules** with a very sharp point, deep brown. **Seeds** elliptic-ovate, with scarcely any crested appendage on the top.


Woods and shady places, frequent. *Fl.* April, May. 2.—Much smaller than the last, with the flowers standing singly on the panicle. **Seeds** with a curved appendage at the top.


Dry barren pastures. β on Feather-bed mountain, County of Wicklow. *Fl.* April, May. 3.—From four to eight inches, or even a foot high. **Flowers** collected into ovate or oblong, nearly erect **spikes,** of a reddish brown colour, sometimes very pale. In β, the **spikes** are nearly all sessile.


Perianth inferior, petaloid, of six linear-lanceolate, spreading pieces. **Stamens** woolly. **Germen** pyramidal. **Capsules** 3-celled, 3-valved. **Seeds** with an appendage at each extre-
mity.—Name from ναπόης, a rod, probably from the elongated straight raceme of flowers.

**Hexandria. Monogyinia.**


Wet places in moors and on mountains, frequent. *Fl.* July, Aug. 2.—Six to eight inches high, decumbent at the base. Roots creeping. *Leaves* all radical, uniform, equitant, striated, about half as long as the *scape*, which has many scales or bracteas. *Seeds* with a very long arillus, forming an appendage to each extremity, attached to a longitudinal receptacle on each valve; the receptacles form the disseminations.

**Subclass II. GLUMACEÆ. Lindl.**

Flowers without any perianth (unless the bristles in some *Cyperaceae*, or the curious urceolate covering to the ovary in *Carex*, can be considered such); but enclosed within imbricated, membranous, or chaffy scales or bracteas.

**Ord. 89. GRAMINEÆ. Juss. Grass Family.**

Flowers perfect, sometimes monœcious or polygamous. Glume (*calyx*, *L.*) generally 2-valved, 1—2-flowered, or many-flowered in a distichous manner, upon a common rachis. *Paleæ* (Perianth, *Br. Corolla*, *L.*) resembling the glume, generally 2, rarely 1-valved; the valves dissimilar, the outer often keeled, 1—3 or many-nerved, awned or awnless, the inner one generally 2-nerved and awnless, rarely with two awns; sometimes wanting. Scales two, (or one,) hypogynous, succulent, minute, generally collateral, and situated between the exterior valve of the *paleae* and the stamens, sometimes opposite, and alternating with the valves; sometimes wanting. Stamens hypogynous, definite (*Pariana* excepted), generally 3, sometimes 1—2, or 6, rarely 4; anthers 3-celled, forked at each extremity. Ovary 1, 1-seeded. Styles generally 2, distinct or combined below, sometimes 1—3. Stigmas feathery or hispid. Pericarp adnate with the seed (*caryopsis*, Rich.), membranaceous. Albumen farinaceous. Embryo in the base of the outside of the albumen, monocotyledonous; the cotyledon scutelliform, fleshy. Plumule naked, included in a peculiar sheath, its primary leaflets gradually changing into perfect leaves.—*Plants of every part of*
Phalaris.]

GRamineæ.

the world where there is any phænogamous vegetation, with fibrous roots. Culms cylindrical, fistulose, articulated; often simple and herbaceous, occasionally branched, rarely frutescent. Leaves alternate, from each joint, sheathing, the sheath cleft on one side. Flowers small, panicked or spiked.

A highly important group, perhaps the most valuable of all the Natural Orders: none renders such numerous services to mankind. Bread-corn is the “staff of life.” The foliage of grasses is the chief food for our cattle. The Bamboo (Arundo Bambos, L.), the giant of the Family, whose stems or culms attain to a height of one hundred feet in the short space of a few months, furnishes materials for houses and various utensils: the Sugar Cane (Saccharum officinarum) gives us sugar.

* Flowers panicked. (Panicle often very compact, so as to appear spiked.)

† Calyx single-flowered.


Calyx 2-valved; valves nearly equal, mostly connate at the base. Corolla of one valve, with an awn rising from the base.—Name from αλωπɛξ, a fox, and ουπα, a tail.

Triandria. Digynia.


Meadows and pastures, common. Fl. May, June. 2.—One and a half to two feet high; an excellent early grass, deservedly in great repute. Panicle of a yellowish green colour, with silvery hairs.

2. A. geniculatus, Linn. Floating Fox-tail-grass. Culm ascending, bent at the joints; panicle spiked, cylindrical, obtuse; calyx-glumes united at the base, obtuse, slightly hairy and fringed; awn twice as long as the corolla. Br. Fl. ed. 3. p. 33. E. Fl. v. i. p. 89. E. Bot. t. 1250.

In pools and wet marshy places, sometimes on dry ground. Fl. July, Aug. 2.


Calyx of two erect, carinated valves, larger than the two-valved, at length, indurated corolla, which is accompanied at the base by one or two valves of other imperfect florets.
**Fruit** invested with the hardened corolla.—Named from ϕαλός, shining, Canary-seed being very glossy.

**Triandria. Digynia.**


Naturalized in some places, where the seeds have been introduced with manure. *Fl. July.* —One to two feet high, glaucous. *Leaves* broad. *Spikes* handsome, composed of large, pale yellow-green *calyx-glumes*, marked with deeper lines, and singularly keeled at the back.


Ditches, sides of lakes and rivers, common. *Fl. July. Aug.* —Very different from the last in general habit, but not in essential character. *Panicle* large, six to eight inches long, often brownish or purplish-green. Excellent for securing river-banks; its roots are creeping, and here and there tufted.

3. **Ammophila. Host. Sea-reed.**

Panicle spiked. *Calyx* of two, nearly equal, keeled valves, longer than the *corolla*, surrounded at the base by a tuft of hairs.—Named from ἀμμός, sand, and ϕαλός, a lover.

**Triandria. Digynia.**


Sandy sea-shores, frequent. *Fl. July.* —Root much creeping. *Leaves* long, narrow, rigid, involute, glaucous. *Culm* two to three feet high. *Corolla* far more rigid than the *calyx*, the larger *valves* with a small sinus below the point. Extensively employed by Lord Palmerston, on the coast near Ballyshannon, for preventing the inroads of the sea.

4. **Phleum. Linn. Cat’s-tail-grass.**

Panicle compact. *Calyx* of two valves, nearly equal, acuminate, or mucronato-aristate, including the *corolla* of two awnless valves. *Seed* free.—Named from ϕηλός, or ϕηλευς, formerly applied, as is supposed, to the *Reed-mace (Typha)*, to which our grass bears some distant resemblance.

**Triandria. Digynia.**

Low meadows and pastures, common. Fl. June. 2.—Root sometimes tuberous, when it is the P. nodosum, Willd.—Calyx-glumes compressed, keeled, with a dorsal green nerve running into a spreading awn, scarcely half so long as the valve.


On loose sand near the sea. Fl. May, June. 0.—Culms five to six inches high, many from the same root. Corolla twice as short as the calyx, membranous, truncated.


Panicle spreading. Calyx 2-valved, flattish, herbaceous, rather acute, longer than the corolla. Fruit invested with the permanent hardened corolla.—Named either from mille, a thousand, on account of its fertility; or, according to Theis, from the Celtic mil, a stone, from the hardness of its fruit.

Triandria. Digynia.


Moist shady woods. Plentiful at the Dargle and near Powerscourt Waterfall, &c. Fl. June. 2.—Culms three to four feet high. Panicle much spreading.


Panicle loose. Calyx of two valves, longer than the two valves of the corolla, which is surrounded by hairs at the base, and has the outer valve awned.—Named from καλαμός, one of the Palms, and αἰροστίς, a genus of grasses; a barbarous denomination, and only admissible on the ground of its being now generally adopted.

Triandria. Digynia.

1. C. Epigejos, Roth. Wood Small-reed. Calyx-glumes subulate, their keel rough; panicle erect, close; flowers crowded, unilateral; corolla with a dorsal awn nearly as long as the calyx. Br. Fl. ed. 3. p. 36.—Arundo Epigejos, Linn. E. Bot. t. 403. E. Fl. v. i. p. 169.

In shady moist places. Formoy-hill, parish of Dunboe, County of Derry; Mr. D. Moore. Fl. July. 2.—Culm about four feet high,
less stout and with narrower leaves and more compact panicles than Arundo Phragmites, to which it bears some resemblance.


Panicle loose. Calyx of two unequal glumes, longer than the corolla. Corolla of two unequal valves; the inner sometimes wanting, the outer with or without an awn. Seed free.

—Name given by the Greeks to Grasses, from αγρόσ, a field, because they are so abundant in open places.

Triandria. Digynia.


Moist heaths and moory places, abundant. Fl. June, July. 2. Very variable in the size and colour of its flowers, purple or green, and in the length of the dorsal awn, which is sometimes included within the calyx, at other times considerably exerted.


Meadows, pastures, and banks, common everywhere. Fl. June, July. 2.—Root tufted, somewhat creeping. Stem twelve to twenty-four inches high, unless in γ. Panicle purplish, very delicate, slender, uniformly divericatafied, with elastic, finely capillary branches, their lower part smooth; upper more or less rough, but the ultimate stalks are smooth. Calyx-glumes lanceolate, smooth, shining, rough on the back. Corolla-glume of two thin, delicate, membranous, unequal valves.


Pastures, road-sides, and near the sea on a clay soil, and even on the gravelly and sandy shore. Fl. July, Aug. 2.—Plant stouter than the last, and generally taller. Culms ascending, often throwing out runners to a great length, which root at each joint, and produce new plants. Calyx-glumes as in A. vulgaris, as are those of the corolla; but the outer valve has five nerves and as many teeth, and the inner one is only faintly two to three-nerved at the base, nearly entire, and obtuse at the extremity.—This is the famous Fiorin of Doctor Richardson, of which I saw in Cunnamara, many years ago, excellent crops of hay on reclaimed bog, where it had been introduced three years previously, along with sand from the shore, used there as a manure for potatoes as the first crop, and barley or oats the year following.
† † Calyx two- or rarely three-flowered.


Panicle spreading. Calyx of two valves, membranaceous, very obtuse, much shorter than the spikelets, two or three-flowered, often with a fourth imperfect floret. Calyx two-valved, coriaceous, membranous only at the extremity, ribbed, truncated, awnless, crose, nearly equal.—Named from καταβρο̱ω, a gnawing, from the crose extremity of the glumes.

Triandria. Digynia.


Muddy ditches and watery places. Fl. May, June. 2.—This, as Doctor Hooker remarks, is very different in habit and generic character from Aira. Mertens unites it to the long spikeleted Poas, which now, according to Smith, form the genus Glyceria; but it does not naturally combine with them. Culm or rather caudex of the root very long, branched, floating, jointed, sending from the joints fibrous radicles below, and culms above, a foot or more long, stout, with short broad leaves. Calyx scarcely nerved, thin and membranous, broadly oval, obtuse. Corolla of a thick texture, brownish-green, white and diaphanous at the blunted extremity.


Calyx of two valves, unequal, containing two perfect flowers. Corolla 2-valved, membranaceous and thin; the outer one awned (rarely awnless) near the base. Fruit free.—Named from απε, to destroy. This name was anciently applied to Lolium temulentum, (bearded Darnel,) on account of its injurious effects: and now to the present genus, though having little in common with it. Triandria. Digynia.


Dry pastures, especially near the sea, frequent. Fl. June, July. 2.—Six to eight inches high. Leaves linear, short, glaucous. Spike shining, ovato-lanceolate. Glumes of the calyx acute, lanceolate, compressed, glabrous, and downy and a little rough at the keel. Inner valves of the corolla rough, white, delicate, reticulated, bifid, with two longitudinal folds.
* * Corolla awned. Panicle lax.

2. A. cespitosa, Linn. Turfy Hair-grass. Panicle diffuse; branches scabrous; florets hairy at the base, rather longer than the calyx; awn straight, inserted near the base of, and not exceeding in length, the corolla. Br. Fl. ed. 3. p. 40. E. Fl. v. i. p. 102. E. Bot. t. 1432.—Deschampsia, Beauv.

Moist meadows and borders of fields, common. Fl. June—Aug. 2. — Much tufted. Calms two to four feet high. Leaves linear, acuminate, rough at the margin. Panicle large, silvery-grey or greenish, much branched. Spikelets acute. Calyx-valves unequal, lanceolate, subglabrous, rather acute, erose. Florets with a few longish hairs at the base, upper ones pedunculated; their valves ovate, obtuse, erose, the outer ones with five short teeth, the inner bifid. A coarse grass, seldom eaten by cattle, sometimes viviparous.

3. A. flexuosa, Linn. Waved Hair-grass. Panicle (when flowering) diffuse; florets villous at the base, as long as the calyx; awn jointed, inserted near the base of, but much longer than the calyx; leaves setaceous. Br. Fl. ed. 3. p. 40. E. Fl. v. i. p. 104. E. Bot. t. 1519.

Heaths and hilly places, abundant. Fl. July. 2. — One to two feet high. Panicle loose, shining, capillary. Florets protruded considerably beyond the calyx. Valves of the corolla lanceolate, acute.


Gravelly hills and pastures, frequent. Fl. June, July. 2. — Two to eight inches high. Leaves short, few. Panicle trichotomous. Florets silvery-grey. Calyx-valves nearly equal, lanceolate, the upper part pellucid and white. Valves of the corolla scabrous at the back, unequal, apex bifid.

5. A. precox, Linn. Early Hair-grass. Panicle somewhat spiked; florets scarcely villous at the base, about as long as the calyx; awn twisted, inserted below the middle, longer than the calyx; leaves setaceous. Br. Fl. ed. 3. p. 41. E. Fl. v. i. p. 105. E. Bot. t. 1296.

Sandy hills and pastures. Fl. May, June. 2. — One to three inches high. Panicle few-flowered, pale silvery-green. Valves of the calyx lanceolate, scabrous, when seen under a good glass; those of the corolla narrow, acuminate, scabrous, the point bifid.

10. MELICA. Linn. Melic-grass.

Panicle lax. Calyx of two valves, about 2-flowered, with the rudiment of a third floret. Corolla 2-valved, awnless. Fruit
free, covered by the cartilaginous corolla.—Name, *Melica*, or *Melliga*, given in Italy to the *Sorghum vulgare*, on account of the sweet flavour of its stem (*mel, honey*); applied by Linnaeus to this somewhat allied genus.

**Triandria. Digynia.**


Shady woods, frequent. *Fl.* May, June. 2.—Imperfect floret on rather a long foot-stalk. Leaves broader than *M. nutans*, which has not yet been found in Ireland, and whole plant larger. Scale of one piece, orange-coloured, thick, "covered by the outer glume of the corolla." (Wilson.) Hook.


Wet heathy places and moors, frequent.—β. Cunnamara. *Fl.* Aug. 2.—Habit very different from the last, but scarcely distinguishable in generic character. Culms one to two feet high or more. All the leaves, which are long and linear, acuminate, springing from the base, or from a single joint immediately above it. Panicle two to eight inches in length, bluish-purple, rarely green. Calyx-valves lanceolate, nearly equal. Florets generally two perfect and one sterile. Anthers large, purple. The culms are very tough, and Lightfoot says, the fishermen in Skye twist them into excellent ropes for their nets.


Panicle lax. Calyx of two valves, nearly equal, 2-flowered. Corolla 2-valved; upper floret with stamens only and awned, lower perfect and awnless. Fruit covered by the indurated corolla.—Name, ὀλκός, from ἕλκω, to extract; because it was supposed to have the property of drawing out thorns from the flesh.

**Triandria. Digynia.**


Pastures and hedges, common. *Fl.* July. 2.—Mr. Wilson well observes, that this species is best distinguished by the acute (or almost acuminate) calyx-glumes and downy joints of the culm.

2. *H. lanatus*, Linn. Meadow Soft-grass. Calyx-valves rather obtuse, mucronate; imperfect flower with a curved awn included within the calyx, no tuft of hairs at the joints; root

Meadows, pastures, and woods, common. *Fl. June, July.* 2.—Much resembling the last in general appearance, but clothed with a softer and more abundant pubescence. This is the White Hay-seed of the shops, much in demand for sowing in low meadows.


*Panicle lax. Calyx of two valves, 2-flowered; lowermost floret with stamens only and a long twisted awn above the base, upper one perfect with a short straight bristle below the point.*—Named from αρρην, male, and άων, an awn.—This genus has altogether the habit of *Avena*, from which it differs in the number and structure of its florets. *Triandria. Digynia.*


Hedges and pastures, frequent. *Fl. June, July.* 2.—Roots more or less knotty. *Stem* two to three feet high. *Panicle* long, loose. *Spikelets* greenish-brown. A stout grass, yielding a large crop, but unpalatable to cattle, especially to horses.

13. **Sesleria. Linn. Moor-grass.**

*Panicle* spiked. *Calyx* of two valves, nearly equal, somewhat awned. *Corolla* of two valves, the outer jagged and awned, the inner bidentate. *Fruit* free.—Named from Leonard Sesler, an Italian Physician and Botanist. *Triandria. Digynia.*


† † † *Calyx* three- or, mostly, many-flowered.

14. **Poa. Linn. Meadow-grass.**

*Panicle lax. Calyx* 2-valved, shorter than the florets. *Corolla* 2-valved, valves subovate, bluntish, awnless. *Fruit* free.—
Name, που, grass or pasturage, from παιω, to feed; the whole Genus affording an abundant pasturage for cattle.

_Triandra_. _Digynia._

* Spikelets linear or subcylindrical. (Glyceria, Sm. and, in part, Br.)

1. _P. aquatica_, Linn. _Reed Meadow-grass_. Panicle erect, very much branched; spikelets linear, with about six obtuse florets, which have seven ribs. _Br. Fl. ed. 3._ p. 43. _E. Bot. t. 1315._—_Glyceria aquatica_. _E. Fl._ v. i. p. 116.—_Hydrochloa_, Hartman, Lindl.

Sides of rivers, pools and ditches. _Fl._ July, Aug. 2. —Four to six feet high, erect. _Leaves_ linear-lanceolate, rough. _Ligule_ short, obtuse. _Calyx-valves_ small, ovate, obtuse, membranous, smoothish. _Exterior valves_ of the corolla twice as long as the calyx; _interior_ narrower and bifid at the point. A useful grass to sow on the banks of rivers or brooks, horses, cows, and goats being exceedingly fond of it.

2. _P. fluitans_, Scop. _Floating Meadow-grass_. Panicle nearly erect, slightly branched; spikelets linear, appressed, of from seven to eleven obtuse florets, which have seven ribs with short intermediate ones at the base; root creeping. _Br. Fl. ed. 3._ p. 43. _E. Bot. t. 1520._—_Glyceria fluitans_, Br. _E. Fl._ v. i. p. 116.—_Festuca_, Linn.

Ditches and stagnant waters, abundant. _Fl._ July, Aug. 2. —_Culms_ one to three feet high, thick and succulent. _Leaves_ linear-lanceolate, acute. _Ligule_ oblong, pointed. _Panicle_ subsecund, very long, slender; _calyx-valves_ unequal, small, ovate, membranous, obtuse. _Corolla-valves_ ovato-oblong, thrice as long as the calyx; _outer_ ones scabrous. The scale is of one thick fleshy piece, which is the principal character of Mr. Brown’s genus _Glyceria_. “It yields the Manna-seeds of our shops, which are gathered abundantly in Holland, where, as in Poland and Germany, they are used for food.” _Hooker_. This, like the last, is a sweet juicy grass, and cows are very fond of it.

3. _P. maritima_, Huds. _Creeping Sea Meadow-grass_. Panicle erect, subcoarctate, (rigid); spikelets linear, of about five obtuse florets, which are absolutely 5-nerved; leaves convolute; root creeping. _Br. Fl. ed. 3._ p. 44. _E. Bot. t. 1140._—_Glyceria marit._, _E. Fl._ v. i. p. 118.—_Sclerochloa_, Lindl.

Sea-coast, frequent. _Fl._ July, Aug. 2. —Eight to twelve inches high, rigid, glaucous. _Leaves_ involute, somewhat pungent. _Ligule_ ovate, bluntish. _Glumes_ all firm, cartilaginous, purplish. _Calyx-valves_ nearly as large as the corolla, with mostly three ribs. _Florets_ hairy at the base, sometimes purplish.

4. _P. distans_, Linn. _Refl exed Meadow-grass_. Panicle spreading; branches at length deflexed; spikelets linear, of about five obtuse florets, which are absolutely 5-nerved; leaves plane; root fibrous. _Br. Fl. ed. 3._ p. 44. _E. Bot. t._ 986.—_Glyceria distans_, _E. Fl._ v. i. p. 118.


Salt marsh below Cork; *Mr. J. Drummond*. *Fl.* June—Aug. (C)—*Culms* procumbent, six to eight inches long, glaucous. *Leaves* linear, obtuse. *Ligule* short, very blunt. *Panicle* about two inches long; branches patent, distichous, their *spikelets* secund. *Calyx-valves* smaller than the floret, obtuse, strongly ribbed. *Florets* oblong, distant upon the *rachis*. Inner valve of the *corolla* membranous, bifid at the point.


On walls and dry ground. Walls of Derry; *Mr. D. Moore*. Between Galway and Tuam; *Mr. J. White*. *Fl.* June, July. 2.—One foot or more high, rather glaucous. *Culms* compressed, procumbent at the base. *Leaves* short, linear, acute. *Ligule* very short, blunt; *panicle* not much branched. *Calyx-valves* ribbed, acute. *Valves* of the *corolla* obtuse, outer one very closely ribbed; the lower florets webbed at the base.

** Spikelets ovate. (Poa, Sm.)


Near the summit of Brandon, County of Kerry; Croagh Patrick, County of Mayo; and Ben-Bulben, County of Sligo. Slieve Gallion,
County of Derry; Mr. D. Moore. Fl. July, Aug. 24.—Six to twelve inches high, nearly erect. Leaves short, linear, obtuse, with a very small mucro or point. Spikelets rather large, close. Calyx-values ovato-lanceolate, much compressed; dorsal rib scabrous; in a very short point or awn, with a short lateral rib or nerve at the base. Ext. values of the corolla ovato-lanceolate, acute; dorsal rib scabrous, no lateral ones: lower part villous, upper part glabrous, purple, margin diaphanous: int. values notched or bifid at the extremity.


Meadows and pastures, common. Fl. June, July. 2.—One to two feet high. Leaves linear, acute. Ligule oblong, with an acute point. Panicle much branched. An excellent grass, well adapted to low rich meadows.

10. P. pratensis, Linn. Smooth-stalked Meadow-grass. Panicle diffuse; spikelets oblongo-ovate, of about four flowers, which are acute, 5-nerved, webbed; culm and sheath smooth; ligule short; root creeping. Br. Fl. ed. 3. p. 46. E. Fl. v. i. p. 125. E. Bot. t. 1073.—β. angustifolia; smaller and with narrower leaves. P. angustifolia, Linn.—γ. subcereulea; smaller and glaucous.—P. subcereulea. E. Bot. t. 1004.

Meadows and pastures, frequent.—β. "In woods,"—γ. On rocks at Powerscourt Waterfall, and Lough Bray. Fl. June, July. 2.—Al lied to the last, but readily distinguished by its smooth culms and short truncated ligule. This is also a good meadow-grass, and better adapted than the last for a dry soil, though yielding a less abundant crop.


Meadows, pastures, paved courts and road-sides, common. Fl. all spring and summer. —Culms six to ten inches long, below prostrate and throwing out roots. Leaves distichous, linear, rather blunt, flaccid, often waved, bright green. Ligule oblong, acute. Calyx-values very unequal, ovato-lanceolate, rough at the back, nerved. Ext. value of the corolla ovato-lanceolate, acute, white, and diaphanous at the margin, keel and base hairy.


Woods and thickets, common. Fl. June, July. 2.—One to three

P P
feet high, slender and delicate in all its parts. *Leaves* narrow, linear, acute. *Panicle* with the branches almost erecto-patent. *Spikelets* scattered. *Calyx-values* unequal, ovato lanceolate, acute, rather obscurely ribbed, pubescent at the keel and hairy at the base, very slightly webbed. *P. glauca*, *E. Bot.* t. 1720, is now considered by Doctor Hooker and Mr. Wilson to be only a variety of this species. I have not found it on any of our mountains; but the late Mr. Templeton, in a note in one of my Catalogues, states that he found it near Belfast, and thought it not confined to high mountains.

15. **Triodia**. *Br.* Heath-grass.

*Panicle* racemied. *Calyx* 2-valved, many-flowered, nearly equal. *Corolla* 2-valved, exterior one with three nearly equal teeth, the middle one straight.—Named from ῥεις, three, and ὦς, a tooth. **Triandria.** *Digynia.*


Abundant in dry mountainous pastures and heaths. *Fl.* July. 4.—A foot long, procumbent; *flowering culms* only erect. *Leaves* linear, acuminate, hairy as well as the sheaths. *Calyx-values* nearly equal, lanceolate, acute, nervetd, with broad, thin margins, scabrous on the keels. *Ext. valve* of the *corolla* ovate, nervetd or ribbed, having a small tuft of hairs on each side at the base; apex with three teeth. *Int. valve* obtuse, entire at the point, ciliated at the angles of the fold.—In habit very distinct from *Poa*.

16. **Briza.** *Linn.* Quaking-grass.

*Panicle* lax. *Calyx* 2-valved. *Corolla* 2-valved, awnless; *ext.* one ventricose, *int.* very small and flat. *Fruit* adnate with the *corolla*.—Named from βριω, to balance, the spikelets being most delicately suspended.

**Triandria.** *Digynia.*


Meadows and pastures, frequent. *Fl.* June. 4.—A graceful plant. *Culms* slender, one foot or more high. *Leaves* short, linear-acuminate. *Stipules* short, obtuse. *Panicle* considerably branched; *branches* thread-shaped, divaricating, purple. *Spikelets* tremulous with the slightest breeze, very smooth, shining purple, more or less green or greenish-white at the edges. *Calyx-values* very concave, subcompressed. *Exterior valve* of the *corolla* much like the *calyx*, but rather smaller; *interior* one minute, resembling a flat scale within the outer one.

Panicle with the secondary branches short and very dense, subsecund. Calyx of two unequal valves, the larger one keeled. Corolla of two lanceolate, scarcely awned valves, enclosing the fruit.—Named from ἕκτυλος, a finger.

Triandria. Digynia.


Way-sides, meadows and woods, abundant. Fl. July. 2. — One to two feet high. Leaves rather broadly linear, acuminate, scabrous. Panicles secund. Spikelets of three to four florets, thickly clustered on the branches; clusters ovate. Valves of the calyx membranous, smaller than the corolla, lanceolate, acuminate, unequal, glabrous, scabrous at the back of the valves, which are more or less obliquely keeled. Ext. valve of the corolla subcartilaginous, lanceolate, much compressed, scabrous, ribbed, ciliated at the keel, with a short awn at the point; int. valve bifid at the extremity.—An excellent grass for cattle in dry open pastures. The late Duke of Bedford considered it one of the best for a sheep-walk. Mr. Moore finds it sometimes viviparous in the County of Derry.


Panicle spiked. Calyx 2-valved, equal, awned, having a pectinated involucr. Corolla 2-valved; valves linear-lanceolate; interior awned below the extremity or awnless.—Named from κυνος, a dog, and ουπα, a tail, from the shape of its spike.

Triandria. Digynia.


Dry pastures, frequent. Fl. July. 2. — One to one and a half foot high, slender. Leaves narrow, linear, acuminate. Raceme secund. Involucres beautifully pectinated, one at the base of each spikelet, their divisions linear, acute, greenish, subglumaceous, a little curved, rough. Spikelets three to five-flowered. Calyx-valves lanceolate, nearly equal, membranous, rough at the keel, as long as the floret. Ext. valve of the corolla lanceolate, obscurely nerved, green, scabrous, especially at the keel, terminating in a short rough awn; interior white, bifid, pubescent at the angles of the fold.—A good grass for sheep, and the culms are used advantageously for the manufacture of fine straw bonnets.


Panicle lax, or coarctate, or spiked. Calyx of two unequal valves. Corolla of two lanceolate valves; exterior acumi-
nate, or awned at the summit.—Named from the Celtic word fest, according to Theis, which signifies food, pasturage.

**Triandria. Digynia.**


Abundant on dry elevated pastures. δ. On the tops of our highest mountains. *Fl.* June, July. 2.—Leaves mostly short, often curved, smooth or slightly scabrous, much tufted, and affording excellent food for sheep. Culm four to eight inches or a foot high, in the upper part more or less distinctly four-sided. *Calyx-valves* much shorter than the corolla, acute, subglabrous. *Corolla, ext. valve* more or less glabrous, sometimes pubescent upward. Whole plant more or less glaucous, and having a purple tint in the spikelets.


Pastures, waste ground, and tops of walls, frequent. *Fl.* June, July. 2.—The leaves on the stem are sometimes convolute, and then they appear setaceous. One to one and a half foot high, by which size and its stouter habit it may be readily distinguished from *F. ovina*.


Light sandy pastures near the sea, common. *Fl.* July. 2.—Root creeping, often extending many feet in the sand.


Dry pastures and on walls. Plentiful on Killiney-hill, and fields near Enniskerry and other places in the County of Wicklow. *Fl.* June. 2.—Six to eight inches high. Leaves linear, setaceous, complicate; calyx-valves very unequal, lanceolate, acuminate, nerved, rough at the keel. Florets about six in each spikelet. Ext. valve of corolla linear-lanceolate, scabrous, tapering into a straight awn, thrice the length of the valve.

5. *F. Myurus*, Linn. *Wall Fescue-grass.* Panicle secund,

Walls and barren places. Near Cork; Mr. J. Drummond. County of Derry; Mr. D. Moore. Near Belfast; Mr. Templeton. Fl. June. — Much resembling the last, but taller. One foot or more high. Leaves rather shorter, their sheaths longer. Panicle often four to five inches long. Calyx-valves and florets narrow, rather more scabrous than in F. bromoides; awns longer.


Portmarnock sand-hills. Fl. June. — Varying in size from three to four inches high in my Portmarnock specimens. This plant is remarkable for the suppression of one of the valves of its calyx, by which the species is at once known.


Mountain glens and woods. Dargle, Powerscourt Waterfall; Woodstock, County of Kilkenny. Colin-Glen near Belfast, and Ness-Glen, County of Derry; Mr. Templeton and Mr. D. Moore. Fl. July. 2.—Two to three feet high, with large and broad leaves. Calyx-valves narrow, linear-lanceolate, very unequal, smaller one single-nerved, larger with three nerves. Florets rather distant upon the rachis. Ext. valve of corolla scabrous, lanceolate-acumin.ate.


Moist meadows and pastures, not unfrequent. Fl. June, July. 2.—Two feet high. Leaves few, short, linear, acute. Racemes two to five inches long; rachis flexuose. Spikelets nearly sessile, especially the upper ones, five to six-flowered. Calyx-valves unequal, lanceolate, acute, 7-ribbed. Outer valves of the corolla ovato-lanceolate, nerved, diaphanous at the apex and obtuse, slightly scabrous only on the nerves.


Moist meadows and pastures, common. Fl. June, July. 2.—One to two feet high. Distinguished at first sight from the preceding by its panicled (not spiked) raceme; also by the florets, which, though
much resembling the last, have their outer valve more acute.—An excellent meadow-grass.

10. F. elatior, Linn. **Tall Fescue-grass.** Panicle patent, very much branched; spikelets ovato-lanceolate, many-flowered; florets cylindrical, subaristate; leaves linear-lanceolate; root creeping. _Br. Fl. ed. 3. p. 50._ *E. Fl. v. i. p. 148._ *E. Bot. t. 1593._—Schedonorus, Lindl.

Moist banks and meadows, not uncommon. _Fl. June, July._ 2.—Three to five feet high. Leaves twice the size of _F. pratensis_; from which it further differs in having a much more branched and drooping panicle, which spreads nearly in every direction, with ovate, acute, less compressed spikelets.

20. **Bromus.** Linn. Brome-grass.

Panicle lax. Calyx of two valves, many-flowered. Corolla of two lanceolate values; exterior one awned below the bifid extremity. (Inner valve generally fringed at the folds. _Sm._)—Named from βρωμος, given by the Greeks to a kind of oat, and that again from βρωμα, food.

**Triandria.** Digynia.

1. B. giganteus, Vill. **Tall Brome-grass.** Panicle branched, drooping towards one side; spikelets lanceolate, compressed; florets shorter than the awn; leaves linear-lanceolate, ribbed. _Br. Fl. ed. 3. p. 50.—Festuca gigantea, E. Bot. t. 1820._ *E. Fl. v. i. p. 144._

Shady woods and moist hedges, frequent. _Fl. July—Aug._ 2.—Three to four feet high, with broad leaves, having the habit and essential character of _Bromus_, but sometimes arranged by authors with _Festuca_. Panicle large. Spikelets with three to six florets. Calyx-valves very unequal, larger ones with three ribs. Outer valve of corolla lanceolate, obscurely ribbed, nearly glabrous, membranous at the edge upward. Awn very long, inserted a little below the bifid point.

2. B. asper, Linn. **Hairy Wood Brome-grass.** Panicle branched, drooping; spikelets linear-lanceolate, compressed; florets remote, subcylindrical, hairy, longer than the straight awn; leaves uniform, the lower ones hairy. _Br. Fl. ed. 3. p. 51._ *E. Fl. v. i. p. 158._ *E. Bot. t. 1172._

Moist woods and hedges, frequent. _Fl. June, July._ © or 3.—Four to six feet high. Leaves broad. Panicle large, spreading.

3. B. sterilis, Linn. **Barren Brome-grass.** Panicle drooping, slightly branched; spikelets linear-lanceolate; florets remote, subcylindrical, seaborus, shorter than the straight awn; leaves pubescent. _Br. Fl. ed. 3. p. 51._ *E. Fl. v. i. p. 159._ *E. Bot. t. 1030._

Waste ground, fields, and hedges, common. _Fl. June, July._ ©.—Two feet high. Remarkable for its long, narrow, much awned and drooping spikelets.

Corn-fields, &c.; occasionally. *Fl. July, Aug.* ©.—Two to three feet high. *Leaves* somewhat hairy. *Calyx* and *ext. valve* of the *corolla* broadly ovate; *int. valve* bifid at the point, the margin strongly ciliated. When the seeds are ripe, the upper spikelets are pendulous, and the florets exhibit more evidently their distast mode of insertion.


Gravel-pit in the Dublin Society’s Garden, and fields in its vicinity; *Mr. Underwood.* Near Belfast; *Mr. Templeton.* *Fl. June, July.* ©. (© Schrad.)—More slender in habit than the last, and much less downy. The *panicle* is generally simple, its branches longer and less divided, rough with minute bristles, not downy. Spikelets more turgid, rough to the touch, but naked and shining. I am, however, inclined to think with Dr. Hooker, that it is only a variety of the last.


Moist meadows, near Cullenagh, Queen’s County, and fields near Sandymount. *Fl. June, July.* ©.—About three feet high. *Leaves* spreading, many-ribbed, hairy, rough edged, either nearly smooth or thickly covered with short deflexed pubescence. *Panicle* large and conspicuous, with numerous half-whorled, partly compound, harsh, spreading branches. *Spikelets* drooping and finally pendulous, ovato-lanceolate, variegated with purple and green.

Lands of Santry and Coolock, on a calcareous soil; Mr. J. White.

Fl. July. 2.—Two to three feet high. Panicle erect and close, purplish, with yellow saffron-coloured anthers.


Panicle lax. Calyx 2-valved, 2-, or more, flowered. Corolla of two lanceolate valves, firmly enclosing the seed, exterior one bearing a twisted dorsal awn, upper florets often imperfect.—Name of doubtful origin: the ancients applied it to the Brome-grass. Oat, Theis tells us, comes from the Celtic word atan, the Oat; and that again from etan, to eat. Triandria. Digynia.


Corn-fields, occasionally. Fl. June—Aug. O.—Two to three feet high. Leaves linear-lanceolate. Calyx-valves large, membranous, ovato-lanceolate, shining at the margins, keeled, acuminate, ribbed. Ext. valve of corolla with long fulvous hairs at its base, bifid at the point. Awn of each floret long and twisted, and forming an excellent Hygrometer.

2. A. strigosa, Schrad. Bristle-pointed Oat. Panicle erect; branches all secund; spikelets of perfect florets, each awned, as long as the calyx, and terminated by two bristles. Br. Fl. ed. 3. p. 53. E. Fl. v. i. p. 163. E. Bot. t. 1266.

"Corn-fields near Cork; Mr. J. Drummond. Fl. June, July. O.—Resembling the common oat in general habit and size; but the panicle is strikingly different, being oblong, somewhat crowded, its branches all leaning to one side. The essential difference resides in the two outer glumes of each floret being tipped with two straight, prominent, reddish, rough bristles, over and above the great awn at the back; which circumstance gives the whole plant a remarkably bristly or strigose appearance." Hook.


Dry pastures over limestone, in mountainous districts. Fl. July. 2.—Leaves short, finely serrated with minute cartilaginous teeth at the margins, the lower ones involute.

Dry pastures. On the common near Kingstown, and many other places near Dublin. On the side of Slemish Mountain, County of Antrim; Mr. Templeton. County of Derry; Mr. D. Moore. Fl. June, July. 2.—Corolla with a purple stain. Glumes all shining and pellucid at the summit. Annu brown, rough, from the middle of the valve, twice as long as the calyx. Style very short.

5. A. flarescens, Linn. Yellow Oat-grass. Panicle much branched, lax; spikelets of about three florets, equal in length to the longer of the very unequal calyx valves; outer valve of the corolla with two terminal bristles. Br. Fl. ed. 3. p. 54. E. Fl. v. i. p. 163. E. Bot. t. 952.

Dry meadows, and pastures, frequent. Fl. July. 2.—This has the smallest flowers of any of the Oat-grasses, and may readily be distinguished by that circumstance, by the two terminal bristles on the outer valve of the corolla, and by the unequal calyx-valves.

22. ARUNDO. Linn. Reed.

Panicle loose. Calyx 2-valved, unequal, many-flowered. Corolla of two very unequal valves; all, except the lower and imperfect one, surrounded by a tuft of hairs. Fruit free, covered by the corolla. Name; Arundo, the Latin for a Reed; "ab arendo, quod cito arescat." De Theis says it comes from arn, the Celtic word for water.

Triandria. Digynia.


Abundant in ditches, margins of lakes and rivers. Fl. July. 2.—Six feet or more high, the tallest of our Grasses. Panicle large, purple-brown, at length drooping, very handsome. Valves of the calyx very unequal: exterior ovato-lanceolate, many-ribbed; int. twice its length, thin, membranous, obsolescently ribbed. As the flowers advance, the tufts of hair increase, at length becoming very silky. An extensive use is made of the culms, for thatching, garden-screens, for walls and floors which are afterwards covered with clay. The tops of the culms, with the adhering hairs or down, are sometimes tied to a pole, and used for brushing cobwebs from the ceilings of rooms.

** Flowers spiked. (Solitary flowers, or spikelets, sessile upon a common stalk or rachis.)

† Flowers or spikelets distichous or inserted on all sides.

23. ELYMUS. Linn. Lyme-grass.

Spikelets two or three from the same point. Calyx 2-valved,
lateral (both the valves being on one side of the spikelet),
2—3-flowered, all perfect. Corolla 2-valved.—Name, ελυμον, given by the Greeks to the Panic-grasses, perhaps because they grew abundantly about Elyma in Greece. (Theis.)
Triandria. Digynia.


Sandy sea-shores. Sand-bank at the western extremity of Bear, County of Cork; Mr. J. Drummond. Donegal coast, near Dunfanaghy, and coast between Ballyshannon and Sligo; Mr. E. Murphy. Fl. July. 2.—Root much creeping in the loose sand; hence it becomes of great value, like the Ammophila arenaria, for preserving a considerable part of our coasts and those of Holland from the encroachments of the sea. Culms three to four feet high, glabrous. Leaves glaucous, pungent. Spike four to six inches long. Spikelets of about three flowers, on the rachis. Calyx-valves two, lanceolate, acuminate. Valves of the corolla resembling them, but the ext. one broader; int. bifid at the point, angles of the folds ciliated.


Calyx lateral, 2-valved, single-flowered, ternate; central floret perfect, lateral ones mostly imperfect (having often at the back of the inner valve a bristle or abortive floret.) Outer valve of corolla awned. Fruit incorporated with the corolla. —Name of dubious origin. Triandria. Digynia.


Waste ground and by road-sides: very common near Dublin. Fl. June, July. 0.


Moist meadows, about Dublin, Cork, and Belfast, &c. Fl. July. 0.—Culm erect, two feet high. Leaves scabrous.


Light dry pastures near the sea. On the shore between Swords and Rush; Mr. J. White. Fl. July. 0.—Smaller than H. murinum. Leaves glaucous; awns rough.—I have not seen Irish specimens of this plant, and have some doubts of its being indigenous.
25. **Triticum. Linn.** Wheat or Wheat-grass.

*Calyx* 2-valved, many-flowered; its valves opposite, transverse, the sides (not the back of one of them) directed to the rachis, nearly equal. *Corolla* 2-valved, valves lanceolate; *exterior* one acuminate or awned at the extremity, *interior* bifid at the point.—There are two natural groups in this genus: first, the large annual species, exotic to our country, which are cultivated so extensively as Bread-corn; and, secondly, the smaller perennial species, several of which are natives with us. These, some authors look upon as two distinct genera; *Triticum* and *Agropyrum* (Beauv., Lindl.). We have only to consider the latter genus, or group.—Name, *Triticum*, "quod tritum est e spicis:" because it is thrashed or beaten from the spikes.

**Triandria. Digynia.**


Woods and hedges. Plentiful at Woodlands, County of Dublin. *Fl. July.* 2.—Best distinguished from the following by its fibrous root.


Fields and waste places, abundant. *Fl. throughout the summer months.* 2.—In habit between the preceding and the following, having a glaucous tint when growing near the sea. *Leaves* plane, or nearly so. *Spikelets* smaller and less compressed than in *T. junceum.*—This pest of the corn-fields is difficult to be extirpated, on account of its long creeping roots.


* * Spikelets second.

4. *T. loliaceum*, Sm. *Dwarf Sea Wheat-grass*. Valves of

Sandy sea-shores. Sandymount, Howth, &c. and on the northern and southern coasts. *Fl. June, July.* ☐.—Stiff and wiry, branching from the very base, three to four inches high. Leaves linear, rigid, plane. Spikelets more or less distant, secund; lower ones sometimes compound. Ext. valve of the corolla broadly ovate, concave.


Spikelets alternate, remote, cylindrical-compressed. Calyx 2-valved, many-flowered; valves opposite, transverse, unequal. Corolla 2-valved, the valves lanceolate; ext. one generally awned at the extremity, int. retuse. —Named from βραχύς, short, and ποις, a foot; from the sessile or nearly sessile spikelets.—These sessile spikelets and the terminal awn distinguish this genus from Bromus, where the British plants of this genus had been placed.

Triandria. Digynia.


Found in open fields and heathy places, on chalk, in England. *Fl. July.* ☐.—Mr. J. Drummond states that he found it in hedges near Kinsale, and Mr. Bradbury is said to have found it in similar situations in the Queen’s County. I have now, however, reason to think that the latter mistook *B. sylvaticum* for it, and I have no specimen from the former station.


Calyx of one valve, solitary, many-flowered. Corolla of two valves; ext. awnless or with an awn below the extremity.—Name, "quasi dolium, colnov, quod dolosum sit vel adulterinum. Fit enim e corruptis Tritici ae Hordei seminibus."
The ancients, as well as the moderns, attributed poisonous qualities to the *L. temulentum*; and even now it is believed in some countries that the Wheat changes into Darnel.

**Triandria. Digynia.**


Waste places, way-sides and pastures, frequent. *Fl. June, July.*


Corn-fields, too common, in several parts of the country. *Fl. July.*


Corn-fields, too common, in several parts of the country. *Fl. July.*

—The seeds mixed with wheat and made into bread, have proved highly injurious to those who have eaten it.


*Calyx* of two valves; *valves* unilateral, sometimes combined into one. 1—2-flowered. *Corolla* 2-valved, awnless, imbedded, as it were, in a thick *rachis*.—Named from Rotböl, a Professor of Botany at Copenhagen.

**Triandria. Digynia.**


—From two to six or eight inches high, more or less curved, especially in the curious spike.

The two following Genera were left out by mistake in their proper places. Anthoxanthum should have been placed before Alopecurus, and Nardus after Lolium.

29. **Anthoxanthum.** Linn. Vernal-grass.

*Calyx* of two valves, glumaceous, 1-flowered. *Corolla* double,
each of two valves; the exterior awned, the interior small, awnless.—Name, *avdōs*, a flower, and *ξavdōs*, yellow, from the yellowish hue of the spikes, especially in age.

**Dianandria. Digynia.**


Meadows, pastures, and woods, abundant, often very alpine. *Fl. May, June.* 2.—A foot high, affording an agreeable smell in the act of drying, like that of Woodruff (*Asperula odorata*), and giving the well known scent to new mown hay. *Leaves short.* Panicle compact, spiked, yellowish in age. *Stamens* only two, in which respect it differs from all our other grasses.


*Calyx* none. *Corolla* of two valves.—Named from *vapōs*, formerly given to an odoriferous substance, but not applicable in this case. **Triandria. Monogynia.**


Moors and heaths, most abundant. *Fl. June.* 2.—A grass of simple structure, growing in short tufts, so coarse and rigid that cattle will not eat it. *Culms and leaves setaceous.* Spike long, erect, grooved, and toothed at short distances for the insertion of the florets. *Valves of the corolla lanceolate*; outer one coriaceous, purplish-green, tapering gradually into an awn; inner smaller, awnless, membranous. *Stamens* three. *Style and stigma* single.

**Ord. 90. CYPERACEÆ. Juss. Sedge Family.**

Flowers perfect or separated, each with a glume or chaffy scale. Perianth none or resembling bristles, rarely membranaceous, 1—3-valved. Stamens hypogynous, definite, generally 3, (sometimes 1—2, or 4—6, scarcely ever 12;) anthers inserted by the base, entire, 2-celled. Ovary 1-seeded, with the ovule fixed to the bottom of the cell: style one, trifid, rarely bifid. Stigmas undivided, sometimes bifid. Fruit a crustaceous or bony nut. Albumen of the same form as the nucleus. Embryo lenticular, homogeneous, placed at the base of the seed, on the outside of the albumen. Plumule inconspicuous. —**Herbaceous plants, as extensively distributed as the grasses. Stems (Culms, Br.) rounded or triquetrous, sometimes manyangled, generally without joints, occasionally jointed and branched.**
Leaves sheathing, the sheath entire, sometimes cleft in age: the floral ones often sessile. Glumes spicate, the lower sometimes empty.


Spikelets few-flowered, the glumes of one valve, imbricated on all sides, the lower one smaller, empty. Bristles several, included, inversely toothed. Style subulate, bifid, spreading at the base. Nut crowned with the persistent more or less articulated style.—Name from πτυχος, a beak, and σπόρα, a seed. (Very different in habit from Eleocharis, but too near in generic character.) (Hook.)

Triandria. Monogynia.


Turfy bogs in the southern, western, and northern counties. Fl. June—Aug. 2.—Whole plant smooth and slender, from six to twelve inches high. Spikelets of flowers white or whitish, collected so as to form a level surface at the top.


Bogs near the upper lake of Killarney, and in Cunnamara. Fl. July, Aug. 2.—Heads of flowers oval, rich brown; spikelets larger than in the last, and the stigmas more protruded.


Spikelets bracteated, arranged on a zigzag rachis into a distichous compressed spike. Glumes of one valve, imbricated on all sides, the outermost gradually the largest, empty. Bristles several or none. Fruit compressed, oval, gradually tapering into the persistent style.—Name from βλυμος, source or spring, near which the species usually grow.

Triandria. Monogynia.


Marshes near the sea. Plentiful between Baldoyle and Howth. Near Donaghadace; Mr. Templeton. By the side of the Foyle, near Derry; Mr. D. Moore. Fl. July. 2.—Root creeping, with downy fibres. Stem four to six inches high, round, quite smooth and even.

Spikelets two ranked, 1—3-flowered, outer glumes smaller, empty. Bristles small or none. Style deciduous.—Name from κωνος, or σκωνος, a cord, because a kind of cordage was anciently made from plants of this tribe.

Triandria. Monogynia.


Turfy bogs in mountainous districts, and sandy marshy places near the sea. Plentiful at Portmarnock. In Cunnamara, where it is very abundant, it is well known by the name of black Keib. Fl. June, July. 2.—Well distinguished by its rigid habit, nearly setaceous leaves, and the dark brown, almost black heads of flowers.


Glumes of one valve, imbricated on all sides, uniform, scarcely any empty. Bristles (4—12) toothed, rarely none. Style bifid or trifid, its dilated base jointed upon the germen. Nut mostly lenticular, crowned with the broad base of the indurated style.—Marsh plants. Stems simple, leafless, sheathed at the base. Spike solitary, terminal, erect, not leafy. Br.—Name from ἐλος, ἐλεος, a marsh, and χαίρε, to delight, from its place of growth.—This genus, if it ought to be kept distinct from Scirpus, is better distinguished by the solitary spike than by any character taken from the jointed or dilated base of the style. It is again divided by some Botanists, and the genera Isolepis Br. and Eleogiton Link, constituted.

Triandria. Monogynia.

1. E. palustris, Br. Creeping Spike-rush. Stem rounded; root much creeping; stigmas two; fruit lenticular, plano-convex, shorter than the four bristles; outer glume smaller than the rest. Br. Fl. 1. p. 23. E. Fl. v. i. p. 63. (Scirpus palustris, Linn.) E. Bot. t. 131.

Ditches and wet marshy places, frequent. Fl. June, July. 2.—Root creeping, black and shining as well as the external sheaths of the stem. Bristles in the flower longer than the ripe fruit.

2. E. multicaulis, Sm. Many-stalked Spike-rush. Stem rounded; root scarcely creeping; stigmas three; fruit obovate, triquetrous, longer than the six bristles; outer glumes smaller than the rest. Br. Fl. 1. p. 23. E. Fl. v. i. p. 64.—Scirpus multicaulis, E. Bot. t. 1187.

Turfy bogs. First observed in Ballygowan Bog, County of Down,
by Mr. Templeton, in 1809. County of Derry; Mr. D. Moore. Fl. July. 2.—Root tufted, with many long fibres. Whole plant rather smaller than the preceding. Stems very numerous, eight or ten inches high, sometimes more, spreading loosely, with one or two tight purplish sheaths at the base. Leaves none. Spike smaller, more acute and slender, than in the last, and rather darker coloured. One or two of the lower flowers are often viviparous. Glumes obtuse.

3. E. pauciflora, Link. Chocolate-headed Spike-rush. Stem rounded, its sheaths leafless; spike ovate, naked, the two outer glumes the largest, obtuse, shorter than the spike; stigmas three; style scarcely deciduous, not jointed. Br. Fl. 1. p. 23. —Scirpus pauciflorus, E. Bot. t. 1029. E. Fl. v. i. p. 55.

Moory ground, not unfrequent. Fl. July. 2.—Much smaller than the last. Fruit pale, obovate, triquetrous, terminated by the withered rigid style, not swollen at the base nor jointed, gradually tapering from the obtuse point of the fruit. Roots fibrous, sending out jointed runners.

4. E. caespitosa, Link. Scaly-stalked Spike-rush. Stem rounded, or slightly compressed (Wilson); sheaths with subulate leaves, their two outer glumes (fertile) longer than the very small spikes, and terminating in long rigid points; stigmas three; style deciduous; fruit mucronated with the narrow persistent base of the style. Br. Fl. 1. p. 24.—Scirpus caespitosus, E. Bot. t. 1029. E. Fl. v. i. p. 55.

Moors and moist heathy places, common. Fl. June, July. 2.—Stems numerous, from three to twelve inches high, in dense tufts, erect, naked, except at the base, where they bear two or three very short leaves, with long sheaths, besides numerous tumid, furrowed, polished, permanent, radical, external scales. Spikes solitary, small, reddish-brown.


Sides of lakes and rivers. Banks of the Shannon near Portumna. Bann-river near Portglenone; Mr. Templeton and Mr. D. Moore. Lough Erne; Dr. Scott. Fl. July, Aug. 2.—The most delicate of the Spike-rushes. Root fibrous, with filiform runners. Fruit obovate oblong, pale yellow, beautifully impressed with dotted lines, tipped with the almost globose base of the style.


Ditches, still lakes, and pools of water that are sometimes dried up. Marsh on Howth, Cunnamara, &c. Fl. June, July. 2.—Stem zigzag, most slender in the lower part. Spike small, pale green.
5. **Scirpus.** *Linn.* Club-rush.

*Glumes* of one valve, imbricated on all sides, equal, one or two of the outer ones sometimes sterile. *Bristles* sometimes wanting. *Style* continuous, deciduous, leaving only a small mucro.—*Name, according to Theis, from Cirs, in Celtic, which makes *Cors* in the plural, whence *chorda* in Latin, and *cord* in English; the stems having been formerly employed for the same purpose as those of *Scheerus.*

**Triandria.** Monogynia.


Margins of lakes and rivers. *Fl.* July, Aug. 2.—*Root* thick, creeping. *Stems* six to eight feet high, soft, spongy, smooth. *Leaves* at the base, one or two, short, with long sheaths. *Panicle* various in luxuriance, or number of *spikes,* which are brown and fringed. *Stigmas* three, rarely but two. *Fruit* obovate, triquetrous, having six rough bristles at the base. The *stems* are used for mats and chair-bottoms, and coopers use them for filling the spaces between the seams of casks.


Salt-water ditches and pools. On the strand between Clontarf and Kilbarrick, and lake near Sandymount. *Fl.* Aug. 2.—From three to four feet high, of a glaucous hue. *Panicle* less compound, than in the last. *Spikes* more crowded, darker, with broader *glumes* dotted with purple. I have cultivated this plant, along with the last, in the pond at the College Botanic Garden, for the last ten years, where it has never attained above half the height of the other, and still retains its glaucous hue.


filiformis, Savi.—β. monostachys; spikelet solitary, with a shorter involucral bractea. **Hook. l. c.**

First observed in Ireland by Mr. Shuttleworth, in wet bogs near Rynvile, Cunnamara, where it has since been found by Mr. Babington of St. John's College, Cambridge, who also pointed it out to me on the Hill of Howth, in August 1835, where it had been mistaken for *S. sectaceus*. β. was found near Cork by the late Doctor Sealy. **Fl. July.**

Mr. Moore finds it more abundant in the County of Derry than the other species, and it appears to be the most common of the two in Ireland. In habit much resembling the last, but readily distinguished by its peculiar fruit.

5. *S. maritimus*, Linn. **Salt-marsh Club-rush.** Stem leafy, triangular; spikelets terminal, clustered, stalked and sessile; involucre of many foliaceous leaflets; glumes with a mucro between the acute segments of the notch. **Br. Fl. l. p. 21. E. Fl. v. i. p. 61. E. Bot. t. 542.**

Salt marshes, frequent. **Fl. July, Aug.** Ζ.—Root creeping, sometimes swelling into knots or tubers. **Leaves** frequently longer than the stem, flat, acuminate. **Stigmas** three. **Bristles** three to four, accompanying the smooth obovato-triangular fruit.


Banks of the Black-water, and other places in the County of Down; Mr. Templeton. Banks of Lough Erne, near Enniskillen; Rev. Dr. O'Beirne. Plentiful in the County of Derry; Mr. D. Moore. **Fl. July.** Ζ.—A handsome species, bearing innumerable small greenish ovate spikelets. **Stems** two to three feet high. **Leaves** broadly linear. **Fruit** with rather short bristles.

6. **ERIOPHORUM. Linn. Cotton-grass.**

Glumes of one valve, imbricated on all sides, nearly equal. **Fruit** accompanied by very long silky hairs.—Name from ωφων, wool, and φέρω, to bear.

**Triandria. Monogynia.**

* Spike solitary.

1. *E. vaginatum*, Linn. **Hare's-tail Cotton-grass.** Stem above triangular; sheaths below with long setaceous leaves, above leafless, obtuse, inflated; spike ovate. **Br. Fl. l. p. 25. E. Fl. v. i. p. 66. E. Bot. t. 873.**

Turf-bogs and barren moors, frequent; especially in mountainous districts. **Fl. March.** Ζ.

Bog-holes on Feather-bed Mountain, County of Dublin. Fl. April—June. 2. —Readily distinguished from E. angustifolium by its smooth, broad and flat leaves, which have a narrow acute keel; in other characters it very much resembles it.


Marsh near Enniskerry, and other places in the County of Wicklow. Fl. April—June. 2. —This may be readily distinguished from the following species by its flat, broader, and shorter leaves, and pubescent or rather scabrous peduncles. Mr. Winch of Newcastle first drew my attention to it, at the marsh near Enniskerry, as being the true E. pubescens. I had previously supposed it to be E. polystachion of E. Bot.


Turf-bogs and muddy places, common. Fl. April. 2. —Varying in size, and in the length and breadth of its leaves. When growing in bog-holes, it assumes the appearance of E. polystachion of E. Bot., and is probably only a variety of that species.


Perianth single, glumaceous. Glumes of one piece or valve, one-flowered, imbricated; outer ones sterile. Fruit, a nut with a loose external coat, destitute of bristles at the base.—

Name from καθένας, a branch; so called, perhaps, from the many branches bearing spikelets.

Diandria. Monogynia.


By the sides of small lakes in Cunnamara, abundant. County of Fermanagh; Doctor Scott. Bog near Lough Allan, County of Cork; Mr. J. Drummond. Fl. July, Aug. 2. —In habit very different from
Schænus, as is the fruit. Plant three to five feet high, leafy. Leaves rough, almost prickly at the margin and keel. Glumes ovate, brown, six to seven in an ovate spikelet; inner ones the longest, generally the two or sometimes three innermost ones floriferous. Stigmas generally two.

8. *Carex.* Linn. Carex or Sedge.

Flowers collected into an imbricated spike. Calyx (as it is usually called), a scale.—Barren fl. Corolla none.—Fertile fl. Corolla of one piece, urceolate, swollen. Stigmas 2—3. Nut triquetrous, included within the persistent corolla, (which is thus considered to form part of the fruit.)—Name; supposed to be derived from *cope*, to shear or cut, in allusion to its sharp leaves and stems. 

* * Spikes simple, solitary.


Spongy bogs, not unfrequent. Fl. May, June. 2.—A span high. Stigmas two.


Subalpine bogs? rare. County of Down; Mr. Templeton. Fl. June. 2.—A span to a foot high, much resembling the last, which, as Doctor Hooker states, is probably sometimes mistaken for it.


Bogs, frequent. Fl. May, June. 2.—A span high. Stems smooth. Leaves, as in all this division, setaceous or filiform. Fruit dark brown, shining, smooth.

* * Spikelets aggregated, their uppermost flowers mostly sterile. Stigmas two.

4. *C. arenaria,* Linn. Sea Carex. Lower spikelets fertile, upper ones sterile, all crowded into an oblong interrupted head; fruit with a membranous margin, shorter than the calyx; bracteas membranaceous, lower ones somewhat leafy; stem trian-

Sandy sea-shores, frequent. *Fl. June.* 2.—Root excessively long and creeping. *Stems* rough, eight inches to a foot high. *Fruit* with a green membranous wing. It is of great service in binding the sand.

5. *C. intermedia,* Gooden. *Soft brown* Carex. Inferior and terminal spikelets fertile, all crowded into an oblong interrupted head, the intermediate ones sterile; fruit acutely margined, longer than the calyx; bracteas membranaceous, the lower ones somewhat leafy; stem triangular; leaves plane. *Br. Fl. ed. 3.* p. 393. *E. Fl. v.* iv. p. 86. *E. Bot. t.* 2042.

Marshy ground and wet meadows. *Fl. June.* 2.—Root creeping. *Stem* one to one and a half foot high. *Spikes,* or heads of spikelets, similar in general appearance to the last. *Fruit* large, not so distinctly winged as gradually flattened towards the margin, more striated on its flat or inner side, the beak broader at its summit. *Stem* much taller, and the *leaves* confined to the lower part of it.

6. *C. divisa,* Huds. *Bracteated Marsh* Carex. Spikelets sterile at their extremity, crowded into a somewhat ovate head, the lower ones simple or compound, with a leafy erect bractea at their base; fruit roundish-ovate, convex on one side, slightly concave on the other, acutely angular, cloven at the point. *Br. Fl. ed. 3.* p. 393. *E. Fl. v.* iv. p. 87. *E. Bot. t.* 1096.

Marshy places, especially near the sea. Salt marsh at Aghris, Cunnamara; *Doctor Wade.* County of Cork; *Mr. J. Drummond.* *Fl. May,* June. 4.—*Stem* about a foot high: lower *bracteas* with a long leafy point.


Marshy and especially gravelly pastures, and ditch-banks in various parts of the country. *Fl. May,* June. 4.—One to two feet high, slender. *Bracteas* small, lanceolate, subsectaceous. *Fruit* yellow-brown, broad, rather large.


Grassy hedges near Killiney-bay. *Fl. May,* June. 4.—Very much resembling the last. The colour is paler, the *spikes* more elongated and slender, with more distant *spikelets.* Probably, as *Dr. Hooker* thinks, only a variety of the last.

9. *C. vulpina,* Linn. *Great* Carex. Spikelets sterile at their extremities, compound, collected into a cylindrical crowded

Wet shady places and ditches. Fl. June. 2.—Two feet or more high. Stem stout, rough, as well as the broad leaves at their margin. Bracteas small, setaceous. Spike large, greenish. Fruit pale, rough at the margin of the lengthened beak, and bifid at the point.


Boggy, watery meadows. In the marble-hole, Cranmore, near Belfast; Mr. Templeton. Fl. May, June. 2.—Resembling the following species, but does not, like it, grow in clumps. It is also much smaller, with far narrower leaves, blunter stems, with browser, more acuminated fruit, which is less broad, less gibbous beneath, less flat on the upper side, destitute of margin and of raised lines at the base.


Swampy and spongy bogs, frequent. Fl. June. 2.—Roots densely tufted. Stem much stouter than the last, two to three feet high, and essentially distinguished by having three acute rough angles, whose intermediate spaces are flat, striated, without any central rib.

*** Spikelets aggregated, their lowermost flowers sessile. Stigmas two.


Marshes and heathy places, common. Fl. May, June. 2.—A span to a foot high. Leaves nearly as long as the stem. Distinguished by its few, much-beaked capsules, placed in small rounded spikelets, and which spread, when ripe, in every direction.

13. C. curta, Gooden. White Carex. Spikelets sterile at their base, about five, rather distant, elliptical; bracteas very minute (except the lower one); fruit broadly ovate, acute, plane above, slightly convex beneath, subobtusangular, faintly

Boggy ground on Slieve Gallion, County of Derry; *Mr. D. Moore.* Bogs in several places in the County of Down; *Mr. Campbell.* *Fl. June.* 4.—Distinguished by its pale elliptical spikelets, and imbricated, compressed, almost elliptical fruit.

14. C. Buxbaumii, Wahl. *Buxbaum’s Carex.* “Spikelets about four, rather distant, erect; nearly sessile, elliptical; the upper one sterile at the base; stigmas three, which are short; fruit elliptical, substipitate, slightly downy, bicuspidate; scales ovate-lanceolate, longer than the fruit, in the male having a short, in the female a long awn; stem triangular, much longer than the leaves, the edges roughish upwards; bracteas leafy, little exceeding the stem; sheath none.” *Hook.* in litt.

Found by Mr. D. Moore, in July 1835, on a small island in Lough Neagh, near Toom-bridge. 4.—Mr. Moore having sent Dr. Hooker specimens of the above interesting addition to our *Flora,* for his opinion, he has determined it to be *C. Buxbaumii* of *Wahlenberg,* and has favoured us with the above correct description of it. In some respects it approaches *C. tomentosa,* but that has fewer spikes, a terminal spike wholly male, differently formed and more downy fruit, and very different scales.


Woods and moist shady places. *Fl. June.* 4.—Whole plant very slender, pale green, one to one foot and a half high, leafy, smooth and roundish below, triangular and rough-edged in the upper part. *Leaves* narrow.

17. C. axillaris, Gooden. *Axillary clustered Carex.* Spikelets several, sterile at their base, very distant; fruit longer than the calyx, oblongo-ovate, shortly acuminate, plano-convex, acute, angular, the beak deeply bifid; bracteas setaceous, lower one long, the rest scarcely so long as the spike. *Br. Fl. ed. 3.* p. 396. *E. Fl.* v. iv. p. 84. *E. Bot. t.* 993.
Ballyphhehane-bog, near Cork; Mr. J. Drummond. Wet bank at Luggelaw, County of Wicklow; Doctor McCreight. Fl. June. 2. —Stouter and taller than the last; spikelets with more numerous flowers, lower one compound. Cal.-scales with two, close, green, generally tough nerves, reaching to the summit.

** ** Barren and fertile flowers in separate spikes: the barren mostly solitary. Bracteas leafy, often sheathing.

† Stigmas three.


Moist woods and ditches. Ditch-bank on the east side of the Royal Canal between the north road and Glassnecvin, in Powerscourt-woods and other places in the County of Wicklow. Near Belfast; Mr. Templeton. Fl. May, June. 2.—Well distinguished by its long, pendulous, cylindrical spikes.


Moist woods and shady places. Plentiful at the Dargle, and Woodlands. Fl. May, June. 2.—One to two feet high. Cal.-scales a little shorter than the fruit. Readily distinguished from the following species by its erect and longer fertile spikes.


Moist woods, frequent. Fl. May, June. 2.—Similar to the last; but the spikes are shorter and broader; the fruit very different, glabrous, and so acuminate as to terminate in a long beak. Cal.-scales longer in proportion.


Mourne Mountains, County of Down; Doctor McCreight, from whom I received specimens. Fl. July, Aug. 2.— Stem from nine to fifteen inches high, erect, firm, triangular, smooth, leafy at the base. Leaves chiefly radical, upright, firm, flat, taper-pointed, for the most part smooth, except a slight and marginal roughness, their height scarcely half that of the stem.

Bogs and marshes. Ballygowan bog, and near Donaghadee; Mr. Templeton. Bog near Saintheld, County of Down; Mr. J. Campbell. Fl. June. 2.—Root ascending obliquely. Stems eight to ten inches high. Leaves very narrow. Fertile spikes two; cal.-scales dark brown, subapiculate. Fruit greenish-brown.


Moist places, and by the sides of lakes and ponds. Marsh in Dunmore Woods, Queen's County. Marsh by the river Lee; Mr. Drummond. Drains at Cranmore; Mr. Templeton. Fl. June. 2.—Stems two or three feet high, acutely angular. Leaves half an inch broad.—One of the most beautiful of the genus.


Marshy places, frequent. Fl. June. 2.—A foot or more high. Leaves slightly downy. Spikes obtuse, pale green. Fruit very obtuse.


Turfy bogs, frequent. Fl. May, June. 2.—Six to eight inches or a foot high. Bracteas very foliaceous, the lower one resembling the broad acuminate leaves. Spikes, and the whole plant, of a yellowish hue.


Bogs and moist heaths, frequent. Fl. May, June. 2.—Resembling the last, but of more stunted growth, the spikes also are more compact, and almost clustered.

Elevated boggy meadows. On many of the Cork and Kerry mountains. *Mr. Templeton.* Derry mountains; *Mr. D. Moore.* *Fl.* June. 2. — One foot high; somewhat resembling *C. distans,* but is smaller, with shorter, more lax, paler-coloured and fewer-flowered *spikes*; and acute, not mucronate, *calyx-scales.*


Salt marshes. Near Ballylickey, Bantry, and at Portmarnock. Near Donaghadee; *Mr. Templeton.* Side of the Foyle, and near the mouth of the river Roe, County of Derry; *Mr. D. Moore.* *Fl.* June. 2. — Well distinguished by its channelled, narrow, long *leaves* and *bracteas.*


Salt marshes near Sandymount, Baldoyle, and Portmarnock, and other places on the coast, abundant. *Fl.* June. 2. — Eight inches to two feet high, slender. *Spikes* very distantly placed, their rather long *peduncles* entirely concealed by the sheathing bases of the *bracteas.* *Scales* of the *calyx* rather pale brown.

30. C. binervis, Sm. *Green-ribbed Carex.* Sheaths elongated, about equal to the flower-stalks, with leafy bracteas; fertile spikes remote, cylindrical, the lower ones partly compound, erect; scales mucronate; fruit ovate, scarcely inflated, rather acutely triqutrous, with two principal (green) nerves near the margin at the back, and a rather short beak, bifid at the point. *Br. Fl. ed. 3.* p. 401. *E. Fl.* v. iv. p. 110. *E. Bot.* t. 1099.

Dry heaths, frequent. *Fl.* June. 2. — A much stouter and taller plant than the last. Three, or even four feet high, when growing among furze bushes on Howth and other similar situations. *Calyx-scales,* and especially the *fruit,* more highly coloured, the latter more acutely triqutrous, with two nerves near the margin at the back, which are always green.

31. C. praecox, Jacq. *Vernal Carex.* Sheaths short (scarcey

Dry pastures and heaths, frequent. Fl. April, May. 4.—Root creeping. Stem three inches to a foot high. Leaves short, rather broad. Lower bracteas small, but leafy; upper ones very minute.


Heaths and moory ground, frequent. Fl. June. 4.—Stems varying very much in height, from six to twelve inches, slender. Readily distinguished by the pubescent, almost spherical fruit, which gives name to the species.


Marshy places and bogs, common. Fl. June. 4.—Stems one to one foot and a half high. Leaves rather broad, glaucons, rough at the edges. Calyx-scales dark brown, the keel green. Fruit greenish-brown.


Moist meadows and barren heathy grounds. Fl. June. 4.—Leaves mostly radical, very glaucous. Stems about a foot high. Fertile spikes two, barren ones two or three. Fruit closely placed, brownish when ripe.

† † Stigmas two.


Marshes and wet places, frequent. Fl. May, June. 4.—Eight inches to a foot high. "Root creeping, but not tufted. I suspect it has been, in this respect, confounded with C. stricta or C. rigida.—Stem with blunter angles than C. rigida or C. stricta.—Stigmas
nearly sessile on the corolla, spreading and flexuose, with coarse pubescence, similar to the following, but larger and more loose. *Corolla* sessile. Fruit without ribs (in a young state at least), also sessile. *Beak* like that of *C. rigida*, except that it is not cloven at the notch.”—Mr. W. Wilson.


On Galtymore and Curan-Tuhol, the highest of Magillicuddy’s Reeks, and other mountains in Kerry. *Fl. June, July.* 2.—Roots creeping. Four to six inches high. “*Bracteas* often erect, not frequently recurved. *Stigmas* nearly or quite sessile, erect, not spreading, minutely papillose. *Corolla* with a short stalk. Nearly allied to *C. cespitosa*; nor is it distinguishable by any other marks than the broad *leaves*, stalked *corolla*, and neatly formed erect *stigmas*, which if constant, may perhaps serve to keep it in the rank of a species.”—Mr. W. Wilson. (Hooker.)

37. *C. stricta*, Gooden. *Straight-leaved Carex*. Sheaths none; bracteas with small auricles at the base, short, subfoliaceous; fertile spikes nearly sessile, cylindrical, elongated, closely imbricated, often acuminated, with barren flowers at the extremity; fruit ovate, somewhat acute, plane above on each side, on a very short stalk; stem acutely angular, straight; leaves long, straight, narrow-linear, their bases often reticulated. *Br. Fl. ed. 3. p. 403. E. Fl. v. iv. p. 118. E. Bot. t. 914.*

Marshes and sides of lakes, in various parts of the country. *Fl. April, May.* 2.—Two feet or more high. *Leaves* rough, filamentous at their sheathing bases. *Spike* long, erect. *Calyx-scales* lanceolate, dark brown. The *roots* are fibrous and tufted, and the plant is much taller than *C. cespitosa*. “The *fruit* comes gradually to a point, and Mr. Wilson observes this point or mouth to be beset with very minute spinules. The *fertile spikes*, he finds, has very constantly eight rows of fruit.”—Hooker.

* * * * * *Barren and fertile flowers in separate spikes. Barren spikes two or more. *Stigmas* three, (except in *C. acuta.*)


*Moist meadows and watery places in various parts of the country.*

Boggy meadows, and by the sides of rivers and ditches. Fl. May. 2. Two feet or more high. Leaves very broad, keeled, rough.


Sides of ditches and rivers, common. Fl. May. 2. Longer than the last, with much broader leaves and spikes; and distinguished by the acuminate scales of its sterile spikes.

41. *C. laevigata*, Sm. Smooth-stalked beaked Carex. Sheaths elongated, shorter than the flower-stalks; bracteas foliaceous; fertile spikes drooping, cylindrical; all the scales acuminate or mucronate; fruit ovate, triangular, striated, with rather a long acuminate beak, bilabiate at the point. Br. Fl. ed. 3. p. 404. E. Fl. v. iv. p. 122. E. Bot. t. 1387.

Marshes and boggy thickets. Near Ballylickey, Bantry; Miss Hutchins. Banks of the Laggan, near Belfast; Mr. Templeton and Mr. Campbell. Fl. June. 2. Two to three feet high. Leaves broad, but rather short. It has rarely more than one sterile spike, which is always triquetrous; but its similarity to the following species authorises its being placed in this division. If arranged in the section with "1 sterile spike," its station would be near *C. distans*, from which Mr. Wilson does not think it different. Hooker.


Bogs and marshes, frequent. Fl. May. June. 2. One and a half to two feet high. Leaves rather broad. Stems acute, angular. Fruit tawny, very large, shining, much inflated.


Bogs and marshes, frequent, all over the country. Fl. June. 2. Differs from the last by the smooth and nearly round stem, by the channelled glaucous leaves, and by the fruit, which is brownish and not half so large, with a narrower beak and different shape.

Wet pastures and woods, frequent. *Fl. May, June. 2.*—One to two feet high, more or less hairy in every part.


Boggy marshes, rare. Ballyphehane bog, and Lough Carra, County of Kerry; *Mr. J. Drummond. Fl. May. 2.*—One to two feet high. *Leaves* slender, their margins involute, filamentous at their bases near the roots.
CELLULARES,

or

FLOWERLESS PLANTS.

Plants without flowers and spiral vessels, composed chiefly of cellular tissue.—Acotyledones, Juss.—Cryptogamous or Ætheogamous Plants of Authors.

Division 1. FILICOIDEÆ, or FERN-LIKE PLANTS.

Flowerless plants, with a stem having a vascular system and distinct leaves; their sporules having a proper integument, and contained in distinct axillary or dorsal thecae.

Ord. 91. FILICES. Juss. Fern Family.

Fructification or organs of reproduction only of one kind. Capsules spiked or racemed, or generally collected into clusters of various shapes (sori), mostly upon the back or margin of the frond, naked or covered with an involucre, with or without an elastic ring. Seeds or sporules minute.—Perennial plants, most abundant in moist and mountainous countries within the tropics, gradually diminishing towards the poles. Fronds leafy, with a circinate vernation; in perfection during a great part of the year, especially in the summer months.

Some species are used for food, others in medicine; but their virtues do not appear to be very powerful.
* Capsules 1-celled, with an articulated, elastic, more or less complete ring, opening transversely and irregularly. (Polypo-
diaceæ. Kautz.)


Sori oblong, or linear, straight, scattered. Involucre none.—
Name; ῥωμυ, a line; from the lines of fructifications.


Rocks and walls in limestone districts. On the ruins of the old Church near the Devil's Glen; abundant at the Marble-quarries near Kilkenny, and in the barony of Banren, County of Clare. Cave-hill; Mr. Templeton. Mr. W. Wilson finds evident traces of an involucre on the lower side of the sori, viz. "a narrow membrane fringed with the chaffy scales, which cover the back of the frond." Hook.


Sori roundish. Involucre none.—Named from πολυ, many, and πονς, ποδος, a foot, from the numerous roots, or segments of the fronds.


Rocks, walls, trunks of trees, and banks, frequent. A beautiful variety, the 3. of Smith, I first found in the south isles of Arran in 1806, and it was found the same year in the Dargle by Miss Fitton, where it still continues to grow. In it the fronds are doubly pinnatifid, as well as variously toothed, and serrated, the segments either obtuse or taper-pointed, the whole frond, as Sir J. E. Smith remarks, elegantly imitating an ostrich feather. Our Irish plant is somewhat different from P. cambricum, Linn., and produces copious fructifications.


Shaded rocky places, in mountainous countries. At Powerscourt Waterfall, sparingly; Waterfall above Lough Eske, County of Donegal and other places in the northern counties.—Sir J. E. Smith observes that the name Phegopteris, or Beech Fern, is by no means suitable to this species, which does not grow in Beech-woods, but in stony moun-
tainous places, or in clefts of rocks. The two lowest branches, or leaflets, being more or less bent downward, sometimes as it were pendulous, are peculiarly characteristic.


Dry stony places in mountainous countries. On the Mountains of Mourne; Turk Mountain; Killarney; Mam-turk, Cunnamara, &c. Frond from 4—6 inches to a foot high, bright green, smooth, delicate and flaccid. Stalk slender, brittle, two or three times as tall as the leafy part, pale, very smooth, except a few scales at the bottom.


Sori roundish, scattered. Involucre orbicular, fixed by the centre, or orbiculari-reniform and fixed at the sinus.—Name, ἀσπίς, ἀσπιδος, a shield, which its involucres resemble, especially in the species of the first division.

* Involucre orbicular, fixed by the centre, hence peltate. (Aspidium, Br.)

1. A. Lonchitis, Sw. Rough alpine Shield-fern. Fronds linear-lanceolate, pinnate; pinnæ lanceolato-falcate, acute, ciliato-serrate, the upper base acutely auricled, the lower one cuneate; superior pinnæ bearing the fructifications; stipes chaffy. Br. Fl. ed. 3. p. 448. E. Fl. v. iv. p. 284.—Polypod. Lonch., Linn.—E. Bot. t. 797.

Shady clefts of limestone rocks on Ben Bulben and other mountains in the County of Sligo in 1833, where it had previously been observed by Mr. E. Murphy. Fronds a span or more high, tufted, linear-lanceolate, firm, rigid and harsh, deep green. Stalk short, clothed below the leafy part with large, broad, taper-pointed scales; with smaller ones above.

2. A. lobatum, Sw. Close-leaved prickly Shield-fern. Fronds oblong-lanceolate, bipinnate; pinnules rigid, convex, ovate, sublunate, acuminate, ari-tate, oblique and cuneated at the base and decurrent, the margins faintly serrated, spinulose, with a distinct tooth at the base on the upper side, the one next the main rachis longer than the rest; stipes and rachis more or less chaffy; fructifications confined to the upper half of the fronds. Br. Fl. ed. 3. p. 449. E. Fl. v. iv. p. 290. E. Bot. t. 1563.

Moist woods, shady banks, and rocky places, generally in rather elevated situations; most plentiful in the northern counties. At the upper end of Colin Glen, where it was first pointed out to me by Mr.
Templeton. County of Derry; Mr. D. Moore. Hedge-banks in a lane on the north side of the Circular-road; Mr. F. Whitla. Distinguished from the following by its more convex pinnules, which are decurrent, and by the upper one next the rachis being much longer than the rest.

3. A. aculeatum, Sw. Prickly Shield-fern. Fronds broadly lanceolate, bipinnate; pinnules rigid, somewhat convex, slightly petioled, ovato-sublunate, acuminate or acute, aristate, obliquely truncate and auricled at the base on the upper side, the one next the main rachis somewhat larger than the rest, the margins distinctly serrated and spinulose; stipes and rachis chaffy. Br. Fl. ed. 3. p. 449. E. Fl. v. iv. p. 290. E. Bot. t. 1562, (bad.)

In the lower wooded part of Colin Glen, Belfast. Hedge-banks near Carrickfergus; Mr. F. Whitla. County of Derry; Mr. D. Moore. Nearly allied to the last, and perhaps only a variety of it. It may however be readily distinguished by the shortly petioled, not decurrent, generally longer, and more acute pinnules.

4. A. angulare, Sm. and Wildl. Angular-leaved Shield-fern. Fronds broadly lanceolate, bipinnate; pinnules thin and membranaceous, plane, petioled, ovate, sublunate, obtuse, aristate, obliquely truncate at the base, with a large auricle on the upper side, the margins deeply serrated, spinulose, the lowermost ones often deeply pinnatifid, that next the main rachis scarcely larger than the rest, (excepting in var. β.); stipes and rachis very chaffy; fructifications copious. Br. Fl. ed. 3. p. 449. E. Fl. v. iv. p. 291. E. Bot. Suppl. t. 2776.—A. aculeatum, β. Fl. Br. p. 1122.—A. lobatum, Wildl.?—Hook. Br. Fl. ed. 1. p. 443.—β. subtripinnate; pinnules, especially the lower ones, and the somewhat larger one next the main rachis, distinctly pinnate.

Woods and hedge-banks. Very common in the Counties of Wicklow, Down, Antrim, and Derry, and other parts of the country, where it had long been known as A. aculeatum, until Sir J. E. Smith described it under the above name.—Softer and more delicate in texture, as well as more shaggy than the last, and of a lighter green. The leaflets are smaller, more numerous, blunter and rounded at the extremity, tipped with a soft bristly point. In β. the pinnules are longer and more pointed, with about three pairs next the rachis distinctly pinnate. Another var. that I have been long acquainted with, of which also Mr. G. S. Gough collected specimens near Clonmel, has the pinnules narrow and lanceolate, with one terminal and several lateral, long, distant, rather rigid points.—Intermediate states between this species and A. aculeatum are found near Belfast by Mr. F. Whitla.

** Involute orbiculi-reniform, fixed by the sinus. (Nephrodium, Rich. Br.)

5. A. Oreopteris, Sw. Heath Shield-fern. Fronds pinnate; pinnæ lanceolate, pinnatifid, glabrous, resinoso-glandulose beneath, the segments lanceolate, obtuse, entire, lowermost ones

Mountainous countries, in heaths and dry pastures; plentiful in the County of Wicklow, and in the southern, western, and northern counties. Readily distinguished by its marginal sori, and, when rubbed between the hands, by its agreeable scent.


Marshy and boggy places. In the demesne of Mucruss, Killarney.—Root creeping.


Boggy heaths, rare. Found in the demesne of Sir Hugh Gough, at Rathronan near Clonmel; by Mr. G. S. Gough in 1835.


Woods, dry ditches, and shady banks, &c. frequent. A beautiful robust Fern; three to four feet high; its fronds growing in a circle. I have seen it in the County of Wicklow with a caudex eight inches above the ground. β. Found on Mangerton by Doctor Taylor, growing among Luzula sylvatica, where I have also observed it.


α. fronds triangulari-ovate; lower primary pinnae only once pinnate. A. spinulosum, E. Bot. t. 1460.

β. fronds triangulari-ovate; lower primary pinnae bipinnate; pinnules often convex. A. dilatatum, Willd.—E. Bot. t. 1461. E. Fl. v. iv. p. 293.—Polypodium dilatatum, Hoffm.

Moist woods, and shady and rocky places in subalpine situations.—β. generally in moist woods. I perfectly agree with Doctor Hooker in uniting A. spinulosum and A. dilatatum of authors. Plants of the former brought from Spike Island, where I gathered the specimen figured in E. Bot. after two years cultivation having assumed all the characters of the latter.

Bushy and dry stony places. Near Powerscourt Waterfall and side of Djouce Mountain, abundant.—Much smaller than A. dilatatum of Sm. both in the wild and cultivated state, although perhaps only a variety of it.

4. CISTOPTERIS. Bernhardt. Bladder-fern. (Cystea, Sm.)

Sori roundish. Involutre 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.
—Name compounded of κιστη, a little box, and πτερη, a fern.


Rocks and walls, in the mountainous parts of the southern, northern, and western counties.

5. ASPLENIUM. Linn. Spleen-wort.

Sori oblong or linear. Involutures of the same shape, superficial, arising from the lateral veins, and opening on one side longitudinally towards the central nerve or midrib.—Name, a, not, and σπλαγνυ, the spleen, the plant having been supposed useful in removing obstruction of the viscera.


Rocks and walls, common.


Moist rocks on mountain cliffs. Turk Mountain, Killarney; Ben Bulben, County of Sligo, and on the Donegal Mountains near Lough Eske.

3. A. marinum, Linn. Sea Spleen-wort. Fronds pinnate;

In clefts and caves of rocks near the sea. Howth, Killiney-hill, and abundant on the southern and western coasts.


Walls and fissures of rocks, frequent. Three to four inches high, somewhat glaucous. *Fruit* about the middle of the pinnules, afterwards covering the whole of their surface.


Banks and fissures of rocks, common. *Stipes* purplish-black. I found in 1805, on the limestone rocks at Mucruss, a beautiful and delicate variety, with fronds tripinnate throughout, or with pinnules deeply and finely laciniate; it was subsequently found by Miss Hutchins and Doctor Taylor; and Mr. W. Andrews lately gave me a specimen, collected by him in 1835, on a mountain called Cahircourree, six miles from Tralee.


Moist shady places, abundant. β. found by the sides of large stones in a marsh at Mucruss, along with *Aspid. Thelypteris*.

6. **Scolopendrium.** *Sm.* Hart's-tongue.

*Sori* linear, transverse, on lateral nerves. *Involucre* double, occupying both sides of the sorus, superficial, opening, as it were, by a longitudinal suture.—Named from the lines of fructification resembling the feet of a Scolopendra.


Shady banks, moist rocks, the insides of wells, and in caverns where
there is a current of damp air. *Fronds* numerous, tufted, erect, twelve to eighteen inches or more high, sometimes forked at the summit, or variously crisped or cut at the edges.

7. **Pteris. Linn. Brake.**

*Sori* continuous, linear, marginal. *Involucres* formed of the inflexed margins of the frond, frequently dilated into a membrane, opening internally.—Name, \( \pi \tau \epsilon \rho \iota \sigma s \), in Greek, a Fern: from \( \pi \tau \epsilon \rho \sigma \gamma \), a plume or feather.


Woods, heaths, and stony or sandy soils, abundant.—Employed as litter for cattle. The ashes are useful in the manufacture of soap and glass. The main stalk, when cut across, exhibits in the pith a branched appearance, resembling a *spread-eagle*, whence the Latin name (*aqui-lina*.)

8. **Cryptogramma. Br. Rock-brake.**

*Sori* linear or roundish, oblique, inserted upon the lateral nerves of the pinnule, at length confluent, and thus appearing marginal. Common *Involucre* formed by the revolute margins of the pinnules, which in a young state meet at the back: *partial* none.—Name; \( \kappa \rho \upsilon \tau \pi \tau \sigma s \), concealed, and \( \gamma \rho \alpha \mu \mu \gamma \), a line; from the concealed lines of the capsules.


Among loose stones in mountainous countries in the north. Abundant on the Mourne Mountains.

9. **Blechnum. Linn. Hard-fern.**

*Sori* linear, longitudinal, contiguous, parallel, one on each side of the rib. *Involucre* superficial, continuous, opening interiorly.—Name, \( \beta \lambda \gamma \kappa \nu \omicron \nu \), another Greek name for a fern.


Woods and heaths abundant, especially in a poor light soil.
10. Adiantum. Linn. Maidenhair.

Sori oblong or roundish. Involucres membranaceous, arising from distinct portions of the margins of the frond, turned in, opening interiorly.—Name, aedas— that which is of a dry nature.


In the fissures of limestone rocks, south isles of Arran, abundant. It has also been found sparingly near Roundstone, Cunnama, by Mr. J. M'Calla, and on Cahir Couree Mountain, near Tralee, by Mr. Wm. Andrews.—A most delicate and beautiful Fern, varying in height from three inches to one foot and a half, according to the depths of the fissures in which it grows. In our Gardens it requires the protection of the green-house.


Sori marginal. Capsules upon an elongated receptacle, within a cylindrical, or suburecolate, monophyllous involucre, which is of the same texture as the frond, opening above.—Name; ζηρξ, τριχος, a hair, and μανια, excess, from the numerous hair-like, exserted receptacles of the sori.


Wet rocks and shady banks in warm sheltered situations, rare.—I was fortunate in finding this beautiful Fern, with fructifications and in considerable quantity, near Turk Waterfall, Killarney, in Oct. 1805. It has since been found sparingly in one or two other places in that neighbourhood. A single plant was found about the same time at Powerscourt Waterfall, by Miss Fitton and Doctor Whitley Stokes, where I have since seen it. A few plants were also found soon after, by Mr. Nuttall, in Hermitage Glen, County of Wicklow, where I have seen a single plant in a weak state. I have specimens of this Fern from Madeira, collected by my late friend Doctor James Suter, along with T. canariensis and several other beautiful species. I have succeeded in cultivating it to perfection, by placing the pots in which it is planted in the Green-house under a hand-glass.

*Sori* marginal. *Capsules* upon a narrow receptacle, within a two-valved *involucre*, which is of the same texture as the frond, opening above.—Named from *φυλλον*, a *membrane*, and *φυλλον*, a *leaf*; an admirably characteristic appellation.


Moist rocks in mountainous situations. Powerscourt Waterfall, Glencree and other places in the County of Wicklow, and many other parts of the country. Habit tender and delicate, spreading widely over the rocks on which it grows. *Pinnae* pointing in two opposite directions, flat and vertical, on the same plane with the winged *rachis*. *Involucres* nearly orbicular, slightly swollen at the base, where the cluster of *capsules* is lodged, the rest compressed, especially at the margin of the valves. When dry there is a kind of elasticity in the plant.

2. *H. Wilsoni*, Hook. Scottish Filmy-fern. Fronds rigid, pinnate; *pinnae* recurved, subunilaterial, pinnatifid, the segments linear, undivided or bifid, spinuloso-serrate; *involucres* axillary, solitary, ovate, inflated, entire; rachis only slightly margined towards the extremity. *Br. Fl. ed. 3.* p. 456.—Wilson *in E. Bot. Suppl. t. 2686.*

On wet shaded rocks, generally in elevated situations in many parts of the country. On the Kerry mountains, Cunnamara, and Glencree, County of Wicklow. On Sugar-loaf Mountain; *Mr. Nuttall*. First distinguished as a species distinct from *H. Tunbrigense* by Mr. W. Wilson, who found it near Killarney. "More rigid, and with larger reticulations than the last; quite distinct in its mode of growth, for all the *pinnae* are strongly curved backwards, in a direction contrary to that of the fructification: the *involucre* is totally different, larger, browner, of a more rigid texture, truly ovate, each valve remarkably convex for its whole length, the edges only of the valves being applied to each other, and they are quite entire." *Hook.*

**Capsules spiked or clustered, regularly 2-valved, without an elastic jointed ring.** (*Osmundaceae* and *Ophioglossae*, *Br.*)


*Capsules* subglobose, pedicellate, clustered, striated, half two-valved. *Involucre* none.—Name, probably given, as Sir J. E. Smith suggests, in honour of some person. *Osmund*, in Saxon, is said to mean *domestic peace*.

1. *O. regalis*, *Linn.* Common Osmund-royal. Fronds bi-
pinnate; pinnules oblong, nearly entire, the lower base somewhat auricled, the inferior ones opposite; fertile panicle bipinnate, occupying the extremity of the frond. *Br. Fl. ed. 3. p. 456. E. Fl. v. iv. p. 327. E. Bot. t. 209. Hook. in Fl. Lond. N. S. t. 150.*

Boggy places, sides of woods, watery meadows near the sides of lakes in many places. Very abundant near Killarney; near the lake at the Seven Churches; upper end of Kelly's Glen in meadows. It is also found in various places in the County of Down, and at Newtownbarry, County of Waterford. The noblest and most striking of our native ferns.


*Capsules* subglobose, sessile, clustered at the margin and on one side of a pinnated rachis, 1-celled, 2-valved, compressed, opening transversely. *Involucre* none.—*Name; βότρυς, a bunch of grapes;* from the appearance of the branched clusters of capsules.


Dry mountain pastures. I have specimens from Mr. D. Moore, collected on Magilligan, with three distinct stalks of fructifications.


*Capsules* 1-celled, 2-valved, opening transversely, connate, so as to form a compact 2-ranked spike. *Involucre* none.—*Name, oφίς, oφως, a serpent, and γλάκωσσα, a tongue, which the spike of fructification somewhat resembles.*


Moist pastures and boggy mountains, not unfrequent.

Ord. 92. LYCOPODIACEÆ. *Sw.* Wolf's-foot Family.

Fructification sessile in the axils of the leaves or branches. Capsules without a ring, some 2-valved, filled with a powder; others 2—3-valved, containing larger globular bodies.—*Leafy plants common to very different climates, and with very varied aspects.*

Capsules 1-celled; some 2-valved, including a fine powdery substance, others 3-valved, containing a few large grains or seeds.—Named from λυκός, a wolf, and πούς, πώς, a foot, which the branches of some species are supposed to resemble.


Heathy pastures in mountainous countries. Plentiful on the Dublin Mountains, &c.—The seeds being inflammable, are used to produce artificial lightning on the stage. Stems many feet long.


Boggy places by the sides of mountains in various parts of the country, and sandy low grounds at Portmarnock. Two to three inches high. Stems much branched, spreading, weak and slender below; the branches erect, leafy, cylindrical, obtuse; those which bear the fructification longer and stouter than the others. The smallest of our species.


On the more elevated mountains, more abundant in the north. Donegal, Derry, and Mourne Mountains, Mangerton and other mountains in Kerry.—“It is used in many countries to dye woollen cloth of a yellow colour.” Hook.


Heathy and stony soils, most abundant all over the country. It is known in Kerry as the (Virgin Mary's Furze).—“Used in the Highlands, instead of alum, to fix colours in dyeing, and as an emetic and cathartic, but it operates violently. The Swedes use it to destroy lice on swine and other animals.” Hook.

Fructification of two kinds, enclosed in a one- or more-celled involucres near the root.—Aquatic plants of various regions.

1. Isoetes. Linn. Quill-wort.

Involucres formed of the swollen base of the leaves, 1-celled. Seeds angular, inserted upon many filiform receptacles.—Named from ὁσο, equal or alike, and ὁσο, the year; or evergreen.


Bottoms of lakes. Upper Lough Bray, and in several lakes in Cunnamara. A very singular aquatic; its fructification being entirely concealed at the base of the cellular, subulate leaves. "Mr. W. Wilson considers the fructifications to be of two kinds:—in one the contained granules are oval, pellucid, and with sutures: in the other they are spherical, and splitting at the sutures into four portions (one portion hemispherical, the other three triangular) and they are rough on the surface." (Hook.)


Involucres solitary, nearly sessile, globose, coriaceous, 4-celled: each cell containing two different kinds of bodies; (anthers? and pistils?)—Name; pilula, a little pill, which its fructifications resemble.


Margins of lakes and pools, and in places that are partially overflowed. Abundant in marshy ground about two miles from the mouth of the Blackwater, near Lough Neagh; Mr. J. Campbell. In a ditch by the river Bann, a little below Jackson’s Hall, Coleraine; Mr. David Moore.—Stems creeping, long, and entangled. Leaves setaceous, erect, two or three from one point, four to five inches long. Involucres at the base of the leaves, about the size of small peas, brown, downy on the outside.


Fructification terminal, in spikes or catkins, consisting of
peltate, polygonous scales, on the under side of which are from 4—7 involucres, which open longitudinally, and contain nu-
merous globose bodies, (capsule?) enfolded by four elastic
filaments, clavate at their extremities, (which some take for
stamens.)—Widely dispersed plants, growing in dry or in wet
places, sometimes aquatic. Stems rigid, leafless, jointed, striated,
the articulations sheathed at the base; the cuticle abounding in
silex; branches, if any, mostly whorled, and as many will be
found as there are striae upon the stem and teeth to the sheath, if
the teeth do not continue more or less combined.


Character of the Genus the same as that of the Order.—Named
from Equus, a horse, and seta, a hair, or bristle; meaning
horse-tail.

* Fertile stems simple, succulent, brownish, appearing before
the sterile ones and soon dying away, when the latter alone re-
 mains through the summer, with whorled branches.

1. E. fluviatile, Linn. Great Water Horse-tail. Sterile
stems with very numerous (about thirty) stria, and nearly erect
simple branches; stem cylindrical, smoothish; sheaths with
close small subulate teeth; fertile stems (short) without
branches, clothed with ample loose sheaths, having many sub-
v. iv. p. 337.

Muddy lakes, sides of rivers and pools, frequent. Fl. April.—The
largest of all our species, its sterile stems or fronds being three to four
feet high.

very obtuse at the extremity; sterile stem, especially upwards,
seabrous, with prominent points and about twenty striae; teeth
of the sheath appressed; branches simple, patent; fertile stem
without branches, its sheaths approximate, appressed, with sub-
t. 2777.

First found by Mr. T. Drummond at Wolf-hill, the seat of William
Thompson, Esq. near Belfast, where I have collected specimens. Fl.
April.—" Allied to the following, but its colour is greener and less
glaucous, its stems rougher, with closely set, raised points, its angles
and branches much more numerous, and the whole barren-frond is
singularly blunt (in its outline) at the extremity, by which it may be
at once distinguished from E. arvense. The sheaths, though paler at
the base, have blacker and more prominent ribs upwards, and they are
so close as to imbricate each other; their teeth also are more numerous
when they separate into the proper number." (Hook.)

3. E. arvense, Linn. Corn Horse-tail. Frond attenuated

Corn-fields and road sides, frequent. Fl. April; afterwards the sterile stems appear.

** Fertile stems at length throwing out whorled branches, or bearing the fructifications at the same time with the whorled branches.


Moist woods and hedge-banks, chiefly in mountainous situations. Near Roundwood and other places in the County of Wicklow; abundant in the north. Fl. April, May.—A very elegant species, twelve or eighteen inches high. Sterile plants pyramidal in their catkin; fertile ones abrupt at the top, especially after the fructification has passed away.


Watery places and ditches, frequent. Fl. June, July.—Next in size to E. fluviatile; agreeing, too, somewhat in habit; but with fewer angles and teeth, and fewer branches in a whorl, and these latter often short and imperfect, or wanting; and differing, by the catkin being upon stems that are similar to the barren ones.


Boggy soils, frequent. β. (γ. Smith). Spikes terminating the upper branches as well as the stem. Fl. June, July.

** ** Stems simple, or irregularly branched; fructifications terminal.

7. **E. hyemale**, Linn. Rough Horse-tail. Stem throwing up simple branches only from the base, scabrous, furrowed, rough; sheaths with about fourteen very small, obtuse, often deci-

Moist woods. Powerscourt Demesne. Woodlands and other places in the County of Dublin, and many other parts of the country. *Fl.* July, Aug.—Most of the *Horse-tails* are more or less rough to the touch, and their cuticle abounds in *silex*, or flinty earth; so that they are admirably suited for the polishing of hard woods, ivory, brass, &c. This species, *E. hyemate*, is by far the best kind for such purposes, and is imported from Holland in considerable quantity, under the name of *Dutch Rushes*. In Northumberland, Lightfoot tells us that the dairy-maids employ it to scour and clean their milk-pails.


Sandy sea-shores, &c. Portmarnock-sands, where it was first observed by Doctor Taylor. Moist banks near a waterfall at the upper end of Colin Glen, Belfast, where I found it in company with Mr. F. Whitla, in August, 1833. Ballyharrigan Glen, near Dungiven; *Mr. D. Moore. Fl.* July, Aug.—The smallest of our species; when growing in dry shady places decumbent or ascending, 6—8 inches long; in moist ground, erecto-flexuose, or decline, often two feet, as in my specimen from Colin Glen; many of which have three or four alternate branches inserted a little below the upper joints.—Doctor Hooker states that Mr. Wilson finds it at Mucruss, Killarney, of an equally large size, growing in water.

**ORD. 95. CHARACEÆ. Rich. Chara Family.**

Organs of fructification of two kinds, on the same or on different plants; in the latter case approximate or remote from each other, always produced on, or at the base of, the lesser ramuli or bracteas:—1. Globules of a reddish or orange colour (stamens of many authors), in maturity formed of triangular scales, each of which, in *Chara vulgaris*, "has a vacant portion in its centre, but the margin (which has a fluted appearance under a small magnifier,) consists of a number of parallel, linear-oblong, hyaline, hollow tubes, placed at small intervals from each other, those forming the angles of the scale being branched. Within these tubes are a profusion of globular, minute, orange bodies, (exactly similar to the sporules of other cryptogamic plants,) arranged in no order, and escaping on the least injury of the tubes. It is these little bodies which give the orange colour to the globule." (Grev.) The globule is filled with a mucilage and extremely delicate convoluted filaments, arising from minute campanulate bodies and often arti-
culated.—2. Nucules, which are ovate, consisting of a hard, spirally twisted, crustaceous integument, often crowned with five projecting points, filled with minute granules, which, however, perhaps, in maturity constitute one body.—Aquatic plants, always submerged, formed of simple or compound, membranaceous, sometimes brittle tubes, smooth or spirally striated, often invested with a calcareous covering, jointed at the insertion of the branches, which are dichotomous and whorled.

The genus Chara has been variously placed by different Botanists. The organs of fructification being of two kinds, sometimes near each other, at other times apart, the greater number of Botanists of the Linnaean School have placed it either in Monandria Monogynia, or in Monoeia Monandria.—Linnaeus himself at first placed it in Cryptogamia, and such seems to be the prevalent opinion with the followers of the Natural System. Richard first proposed that it should constitute a separate order, widely removed as it is from every other; so much so, that it would be difficult to say to which it is most allied. Dubis and De Candolle have placed it (as I have done) next to the Equisetaceæ, but with a note of doubt as to the propriety of doing so.—For a more detailed description of this genus, see Hooker's Br. Fl. v. ii. p. 242, where it is placed next to the Algae.


(Character the same as that of the Order.) Name; its origin unknown.

* More or less pellucid and flexible, not striated. (Nitella. Ag.)


Old Aquarium of Cork Botanic Garden; Mr. W. H. Harvey. In one of the small lakes above Kilrea, County of Derry; Mr. D. Moore. Lake near Slieve Croob; Mr. Templeton.—This is the largest, the brightest coloured, and most glossy of any of our species. Vaillant and Sir J. E. Smith describe the branches as jointed; but this appearance Doctor Hooker thinks is wholly owing to a fold in the membrane of the tube, which is sometimes transverse and sometimes oblique.

Ditches, lakes, and still waters, frequent. I have a specimen from Mr. W. H. Harvey of a variety found by him in the lower lake of Killarney, with the branches of the whorls more elongated than usual, and the fertile ramuli nestled among them, as described by Dr. Hooker.


Lough Neagh; Mr. Templeton.

* * Opaque and very brittle, striated, often spirally. (Chara Ag.)

4. C. vulgaris, Linn. Common Chara. Smooth, opaque, brittle (but not incrusted); very obscurely striated; branches of the whorls slender, subulate; fertile ones with many short ramuli or bracteae, three or four of which are much longer than the globule and nucule that they accompany. Br. Fl. v. ii. p. 246.—E. Bot. t. 336. E. Fl. v. i. p. 6. Ag. Syst. Alg. p. 128.

Ditches and slow streams, frequent.

5. C. Hedwigii, Ag. Hedwigian Chara. Elongated, smooth, opaque, brittle, (sometimes partially incrusted,) obscurely striated; branches of the whorls subulate, the sterile ones with many short ramuli or bracteae, three or four of which are shorter than the nucule and globule that they accompany. Br. Fl. v. ii. p. 246.—Ag. Syst. Alg. p. 129.

In a fresh-water pool near Portrush; Mr. D. Moore.—Larger than the preceding, with more numerous fertile branches and shorter bracteae. The branches are jointed in both at the setting on of the ramuli or bracteae, which, being numerous, the joints are consequently numerous.

6. C. aspera, Willd. Rough Chara. Slender, opaque, brittle, obscurely striated, everywhere beset with patent, scattered spinules; branches of the whorls subulate, the fertile ones with many short ramuli or bracteae, of which three or four accompany the nucule or globule (on different plants), uncertain in length. Br. Fl. v. ii. p. 246.—Ag. Syst. Alg. p. 130. Grev. Scot. Cr. Fl. t. 339.

By the side of the Bann river, below Coleraine; Mr. D. Moore.

7. C. hispida, Linn. Hispid Chara. Opaque, brittle, striated, covered more or less thickly by a calcareous crust; branches of the whorls subulate; fertile ones with many short ramuli or bracteae, of which three or four are longer than the nucule and globule that they accompany.—z. major; larger; stems spinulose. Br. Fl. v. ii. p. 246.—C. hispida, Linn.—

Ditches and bog-pits, frequent, β. Pond at Ballyrenna, near Ma- gilligan; Mr. D. Moore. In a ditch inside of the Murrough of Wick- low many varieties of this plant may be gathered, some so hispid that they resemble C. crinita, and others as naked as C. vulgaris; Mr. W. H. Harvey.
FLORA HIBERNICA.

PART SECOND,

COMPRISING

THE MUSCI, HEPATICÆ,

AND

LICHENES.
ORDER II.

Musci. Linn. Mosses.

Plants small, evergreen, or rapidly reviving by moisture, simply attached by their roots, nourished by their leaves, which are membranous, simple, sessile; renovating above, decaying beneath and depositing soil; growing on earth, trees, stones, and even in fresh water; preferring temperate climates, exposure to the north and moist situations. The mosses are furnished with roundish stalked vesicles intermixed with jointed filaments in the axils of the leaves or in star-like clusters, called the male organs by Hedwig; but the fecundation has never been observed. They are supplied besides with capsules containing grains which Hedwig, and more lately Mr. James Drummond, have proved to be seeds by their successful experiments of germination. The capsules in a young state numerous, clustered, cylindrical, have with good reason been denominated pistils; usually only one of the cluster swells into a capsule. The swelling of the capsule causes its covering or calyptra to separate at its base; it retains its situation, however, until the maturity of the seeds, which escape sometimes by the rupture of the capsule, but more commonly by the separation of the suture by which the lid or superior portion of the young capsule was fixed. The capsule is furnished with an interior membrane to the inner surface of which the seeds are attached. The appearance of young fruit usually overtakes the maturity of the old. The lid falling, displays the mouth of the capsule either naked, or with a single or double peristome or fringe, dividing into 4, 8, 16, 32 or 64 teeth.
TABLE OF THE GENERA.

I. Lid adnate, not separating.

1. *Andrea*. Capsule 4-valved.

II. Lid deciduous at the maturity of the seeds.

1. Mouth of the capsule naked.

   In all the remaining Genera the capsule is supported on a *seta* or stalk, which, however, is sometimes minute.


2. Mouth of the Capsule with a Peristome.

   a. Seta terminal; (except in a few species of *Dicranum,*)
   
   Peristome single.

   (Entosthodon and some Orthotricha occasionally or altogether want the inner Peristome).


10. *Splachnum*. Peristome of 8 or 16 pairs of teeth. Capsule with an *apophysis*.


15. Trichostomum. Peristome of 16 or 32 teeth, in pairs. Calyptra campanulate, shorter than the mature capsule.


18. Tortula. Peristome of 32 teeth, spirally twisted above, united more or less below into a tubiform membrane.


21. Polytrichium. Peristome of 32 or 64 equidistant teeth united at their tops by a horizontal membrane. Calyptra dimidiate, minute.

† †

Peristome double.

A.

Inner peristome composed of distinct teeth or cilia.

(Sometimes wanting in Entosthodon and Orthotrichum.)

22. Entosthodon. Peristome oblique; outer of 16 horizontal teeth from the inner membrane of the capsule; inner obsolete or wanting. Capsule with an apophysis.

23. Funaria. Peristome oblique; outer of 16 teeth; inner of as many cilia opposite to the teeth. Capsule pyriform, its mouth oblique.


25. Orthotrichum. Outer peristome of 16 teeth in pairs; inner of 8 or 16 cilia. Calyptra campanulate, sulcate.

B.

Inner peristome, a membrane divided above into laciniae or segments.


27. Bartramia. Outer peristome of 16 teeth; inner of 16 equal bifid laciniae. Calyptra dimidiate (capsule mostly globose.)
b. *Seta lateral.*

*Peristome single.*


* * *

*Peristome double.*

A. *Inner peristome composed of free cilia.*


31. *Anomodon.* Outer peristome of 16 teeth; inner of 16 cilia from between the teeth. *Calyptra* dimidiate.

32. *Daltonia.* Outer peristome of 16 teeth; inner of 16 cilia from between the teeth. *Calyptra* campanulate.

B. *Inner peristome of cilia united below by a membrane or by transverse processes.*

33. *Fontinalis.* Outer peristome of 16 teeth; inner of 16 cilia connected by transverse processes into a cone. *Calyptra* campanulate.

34. *Hookeria.* Outer peristome of 16 teeth; inner of 16 cilia united below into a membrane. *Calyptra* campanulate.

1. **Andrea. Ehrhart.**

Capsule with an apophysis, 4-valved, the valves cohering by their summits to the persistent **lid. Calyptra** horizontally torn.


On mountain rocks at an elevation of 2000 feet. From 1—2 inches high; of a purplish brown; glossy.


Mountain rocks.


Common on mountain rocks, yet it descends to the level of the sea. It is often very black.

2. **Phascum. Linn.**

*Seta* terminal. **Lid** persistent. **Calyptra** dimidiate.

The species are all minute annuals. Dissemination takes place by rupture of the capsule.


On shaded, moist banks, not uncommon. Mr. James Drummond found the seeds of several species of *Musc* i to germinate with shoots resembling *confervæ*. In the present species I have sometimes seen the branched shoots without any jointed appearance whatever.


Near Bantry, Miss Hutchins. Dunkerron, County Kerry. Seeds large; perichostial leaves very long: sides of the capsule pellucid.


Banks near Belfast, Templeton. Seeds minute; capsule with pellucid sides, of the same colour as the leaves.


Fallow fields and banks. Common.

On banks near Belfast. Templeton; rare in Ireland. The leaves are neither so scatheous or so rigid and shining as in the preceding.


On banks near Belfast. Templeton; rare in Ireland. In a dry state the leaves are no longer patent, but appear much waved; they are reticulated with very large cells.


On moist banks not uncommon. It varies in size, yet some of the minutest growing near the sea at Dunkerron have one or two serratures near the summit of the leaves. It grows scattered and solitary. The calyptra remains adhering closely round the lid, and consequently not one fourth as broad as the full grown capsule. The German P. Florkeanum differs by its acuminate entire leaves, which too are reflexed at the margins; the capsule is smaller, and not entirely concealed in the leaves.


On banks, common. The nerve of the leaf continued and becoming diaphanous, constitutes the P. piliferum of Schreber, and when the seta is curved to one side the P. curvisetum of Dickson.


On banks and hedges, common.


On banks near Dublin; more rare than the last.


Plants of very wet situations, pale; the leaves with large cells, which are reticulated, soft and flaccid. The lid flat. The seeds large, obtusely angular.

Bogs and wet places. The stems are loosely or closely tufted, abbreviated, or when growing in water sometimes lengthened to 2 or 3 feet, when the leaves are remotely set.


This is probably a variety of the preceding, it grows in similar situations, but is not quite so common.


In and under water: rarely bearing fruit.

4. CEdipodium. Schwaeg.

Seta terminal, elongated, thick, fleshy, pellucid. Capsule without a peristome, its mouth closed with a thin fugacious membrane. Calyptra campanulate splitting at the side.


On the summit of Brandon, County of Kerry. I have given this plant as Irish upon a distinct recollection of having seen it in a barren state in the above locality in 1812: in 1815, I recognised it on the summit of Snowdon.

5. Gymnostomum. Hedw.


As the lid drops in a few species, a horizontal membrane may be seen across the mouth of the capsule, and in fewer still, broken portions of it remain attached.


On elms and other trees at Dunkerron, County of Kerry, in fruit in the early spring. There is an irregular annular membrane within the mouth of the capsule: the young fruit is almost globose. Leaves dark green, shining and recurved.


Rocks at Fairhead, County of Antrim; Mr. Templeton. Mangerton.

On wet rocks at the Dargle River, County of Wicklow. Similar to the preceding. Its leaves are somewhat of a verdigris green, their nerve pale, their consistence soft, not so rigid as in *G. curvirostrum*.


On cliffs of mountain rocks, especially of banks of rivers, very common in the South of Ireland. The fruit rare. The tufts sometimes reach 3 inches in height and 8 or 9 inches in diameter. The leaves, even when wet, are twisted to one side; when dry, the close involution of their margins gives them a shining and solid appearance; their nerve issues, as a slightly recurved point, beyond the membranous expansion at each side; the lid is not rostrate or subulate, as in the two preceding species, but in figure a lengthened cone. The ragged remains of an annular membrane are observable within the mouth of the capsule, but they can never be taken for the teeth of a peristome. Schwagriechen's figure, in his Supplement, gives the leaves too suddenly narrowed above; in all other respects it, as well as Dr. Kunze's German specimens, entirely accord with our plant.


On dry banks near Dublin; also near Cork. The secondary expansion of the nerve of the leaf is often reddish-brown and opaque, while the piliferous points are always colourless and transparent: the mature capsule has a few opaque ridges running up its surface from the base. It has the habit of *Weissa lanceolata*.


On clay banks and fields, common. This plant varies much in size; in its smallest form it has been denominated *G. refescens* by Schultze, and *G. minutulum* by Funke: it varies, too, in the length of the capsule compared to its breadth, from the commonest case when the capsule is turbinate or top-shaped, to when it becomes ovate or oblong, the *G. intermedium* of Turner, and even to having capsules quite cylindrical, as in a variety found near Cove. In all the columella is apt to adhere to the lid when this has first separated from the capsule.

On clay banks and moist pastures, common. The nerve of the leaf is excurrent; the capsule with an apophysis.


On banks near Cork. Mr. James Drummond: near Dublin, and at Dunkerron, County Kerry.


On wet banks. common.


On moist banks.


On old red sandstone in a stream on Brandon hill, county Kerry. The mouth of the capsule is furnished with an annulus.


Maritime dry banks. Very nearly allied in appearance to Weissia controversa, of which Mr. W. Wilson is inclined to make it a variety. I have not yet been able to find any vestige of a peristome in our plant, as it grows in maritime situations.


Seta lateral. Mouth of the capsule naked. Calyptra dimidiate.


Near Bantry. Miss Hutchins. Exterior leaves of the perichaetium short, broadly ovate acuminate, the interior longer, with longer squarrose acuminations, all of them clasping; paler than the cauline leaves, which too are twisted in different sets about the stem.


Seta terminal. Mouth of the capsule naked. Calyptra campa-

nulate.

On mountain rocks, near Dunkerron, County Kerry. Mr. W. Wilson, whose authority is so justly great in muscology, is satisfied of the distinctions between the A. ciliatum and A. striatum of the English Flora. I have never seen the capsule entirely sessile; the seta appeared to me to vary in length, as also the length of the beak of the lid, and opacity of the leaves. I find apparently both states, and even intermediate ones, in our mountains, but I have never seen Mr. Wilson’s specimens: the plate in Bryologia Germ. is very instructive.

Seta terminal; capsule gibbous; peristome single, forming a membranous plicate irregularly truncated cone. Calyptra campanulate.


On moist banks in the mountains near Dunkerron, county Kerry. Stems tufted: leaves green, compact, from a broad base, ligulate; their nerve broad, often colourless at the base, semitransparent and reddish throughout, percurrent. The leaves are papillose, their apices incurved by drying. Columella a sac about half the size and nearly of the shape of the capsule, hence larger in proportion than in any other genus; it consists of a thin membrane, darker than the capsule. The perichaetial leaves have a rigid strong nerve, on each side of which, at the top, the pagina of the leaf is as it were torn down into shreds, but the fissures or deep laciniations are by no means accidental.


On dry banks at Lough Bray, near Dublin; by no means common in Ireland.


On dry shaded rocks at Lough Bray, near Dublin.

10. Splachnum. Linn.
Seta terminal. Peristome single, of 8 double or 16 teeth, approached in pairs, (generally reflexed when dry.) Capsule with an apophysis; calyptra campanulate, often split on one side, smooth.

On cowdung and the dung of other animals in the mountains. A very common species, varying in the size of all its parts.


On the mountains near Belfast, Mr. Templeton. Near Bantry, Miss Hutchins. Brandon Hill. In most specimens the teeth of the peristome are by no means reflexed, in some erect, in others arched across the mouth of the capsule. It varies in the size of the stem, of the seta, and length of the capsule and apophysis taken together.


Common in the mountains on cowdung.


Seta terminal. Peristome single, of 16 teeth. Calyptra campanulate, smooth, entirely enclosing the mature capsule.


On stones at Dunkerron, county Kerry; and elsewhere; but without fruit in Ireland. The lid is by no means so remarkably spirally striated as the capsule. The teeth of the peristome half as long as the lid, are sometimes divided, and usually united at the base. The nerve of the leaf is incurved at the summit. It has much the appearance of Tortula subulata.


On limestone rocks, near Dublin and Cork. In specimens from Cloghbra, near Dublin, the lid had a setaceous rostrum; moisture having been carefully and long applied, the lid separated without being torn from the mouth of the capsule, which exhibited, in the place of a peristome, merely some irregular very short reddish processes, scarcely to be distinguished from the mouth of the capsule.

On Ben Bulben, near Sligo, Mr. J. T. Mackay. The peristome, though exceedingly short, consists of 16 equidistant, triangular, acute teeth, and is therefore very different from that of E. streptocarpa, exhibiting filiform processes, or of the last species, where it would seem to be almost wanting, and hence has been termed fugacious by several botanists.


Grimmia apocarpa and Grimmia maritima come under the above definition, yet it would scarcely be justifiable to remove them to the present genus. W. striata shows some appearance of an apophysis.


On dry banks near Dublin.


Near Dublin, on banks near the sea.


Powerscourt Waterfall near Dublin. The capsule is furnished with a narrow apophysis. This plant varies much in size.


On granite rock, moistened with the spray of a rivulet near Lough Bray; very rare. It is allied in habit to Weissia pusilla. It is doubtful if the processes of an annular membrane within the mouth of the capsule can properly be said to be of the nature of the peristome of a Weissia.


On rocks in the mountains; not uncommon. It varies in the length of the leaves and of degree of reflexion of their margins, but these are never incurved, as in W. crispsula, Hedw. hitherto unknown to Ireland.

At Powerscourt Waterfall, 1812. The fruit I found at Campsie, near Glasgow, in Nov. 1822. Barren plants not uncommon on wet rocks in Ireland. Stems loosely tufted. Leaves loose, flexuose, spreading, entire; the nerve seen by transmitted light is less opaque than the pagina of the leaf. The tuft usually half an inch in height, sometimes even two inches. Seta scarcely an inch long. Calyptra dimidiate. In the plate of Muse. Brit. the teeth of the peristome are represented too broad at the base, and, perhaps, they are not exactly equi-distant, but somewhat approached in pairs, which makes the analogy with a Didymodon, viz. D. tortuosum MSS. from Nepal, very strong; and were it not that the latter has decidedly the peristome of Didymodon, I could not distinguish them. It reminds one of Tortuia tortuosa, but this is far more closely tufted, and of a pale yellowish-green, while our plant is much greener, marks, independent of generic difference.


On walls and banks, common. Teeth of the peristome connected at the base. A reddish hue of the stems and leaves of the former season, while the annual shoots remain green, is very characteristic of this species. It is usually tufted.


On dry banks, common.


On old red sandstone on Brandon Hill: very rare.


Near Belfast. Mr. Templeton. Very rare:


On the perpendicular faces of dripping rocks. Dargle river. Of a light pea-green colour. The lower portions of the stems and their leaves are frequently loaded with incrustation, which, by chemical tests, I find to be carbonate of lime, and this occurs where no limestone is found in the district.

On wet rocks at Kelly's Glen, near Dublin. Bantry, Miss Hutchins; near Belfast, Mr. Templeton. The dry plant, as Mr. Turner observed, is of a shining lustre.

13. **Grimmia**. Ehrh.

Seta terminal. Peristome single, of 16 teeth entire or perforated, rarely cleft, equidistant. Calyptra campanulate.

In the two first of the species following the calyptra is dimidiate, exhibiting the imperfection of our artificial divisions.


Common in different situations from the level of the sea to very considerable elevations. Varies in the breadth, and colour of the leaves, and elongation of the stem: sometimes the summits of the leaves are colourless and diaphanous. The capsule varies in length. The calyptra is small in proportion to the full grown capsule, and truly dimidiate. At the Dargle is a variety, whose capsules are higher than the perichaetia.


On maritime rocks, common. The characters above given are not very decisive of the difference of this species from the preceding, with which the accurate Wahlenberg would join it. The calyptra here, too, is small in proportion to the size of the capsule, and quite dimidiate.


On granite rocks near Lough Bray, County of Wicklow: very rare. Calyptra multifid at the base, closely investing the capsule. It is an extremely minute plant, and may easily be confounded with *Weissa trichodes*, which is found in similar situations.


On rocks in the mountains, common. Although the teeth of the peristome are sometimes cleft, and often perforated, yet the general habit
of the plant, and its compaunulate calyptra, cause it properly to rank under Grimmia, and it is nearly allied to the following.


Near Dublin, Dr. Scott and Dr. Stokes. A barren plant occurs at the Aooreagh river, County of Kerry, on rocks, that, for the present, I must consider only a variety of this species. It is more closely tufted; all the shoots are black except their conspicuous hair points, that cause it to appear very hoary; by drying it is more harsh and brittle than the plant described, which has the younger shoots of a pale yellowish-green colour. The calyptra is split, particularly on the side to which the lid inclines.


On Slemish mountain, County of Antrim, Mr. Templeton.


Cliffs on Mangerton, county Kerry.


Seta terminal. Peristome single of 16 or 32 teeth, approached in pairs, or united at the base. Calyptra dimidiate.


On banks and walls, very common. This is not much allied in habit with the other species of Didymodon, and perhaps the union of the approximated pairs of teeth by transverse processes would justify its separation.


On the mountains of Cunnamara, Mr. J. T. Mackay, very rare.

On the cliffs of Killiney Bay, near Dublin: very rare. The capsule at length appears inclined from the bending of the top of the seta. This is a gregarious, very minute species.


Rocks at Powerscourt Waterfall. I submit to the authority of the above-quoted able botanists in arranging this plant under Didymodon. Yet the peristome consists of 16 teeth, united at the base, split into unequal segments, the section not continued down to the bottom of each tooth, but only marked there with a dark line; sometimes they are entire or perforated. The peristome is very short, and when the lid is first removed lying across the mouth of the capsule. In the first edition of Musc. Brit. it is justly remarked, "the teeth of the peristome will be found to be irregularly divided."


On large stones and walls. The variety with cylindrical capsules, observed by Mr. Wilson, near Beaumaris, likewise is found at Dunkerron. Upon removing the lids carefully, the teeth of the peristome are found slightly twisted at the top, which supports Mr. Turner's observation of an analogy with the genus Tortula.


On wet banks. The peristome of at least the small variety, first found by Mr. James Drummond, near Cork, has 16 equidistant teeth, united at the base, each marked with a longitudinal dark line, sometimes split or perforate, sometimes entire. It is probably distinct.


On Dunkerron castle, County of Kerry, and on limestone near the sea. The generic character is obscure. The leaves twisted when dry.


Maritime banks, at the Sound, near Kenmare: barren. There is an apophysis at the base of capsule.

9. D. capillaceus, Schrad. Stems elongated; loosely coas-

On Ben Bulben, near Sligo. The largest native species of the genus when growing in moist and shaded situations.


Wet banks, very common.


Near Belfast. Mr. Templeton: afterwards Mr. Drummond.


Ditch Bank, near Orange Grove, Belfast, Mr. Drummond. I have not yet seen native specimens; the above is on the authority of Dr. Hooker.

15. TRICHOSTOMUM. Hedw.

Seta terminal. Peristome single, of 16 teeth divided to the base or 32, approached in pairs. Calyptra campanulate.


On mountains; common.


On mountains and heaths; common.


On stones on the mountains; common. The teeth of the peristome are connected at the base, very short and by no means erect. The capsule swells above, yet has a contracted mouth.

On rocks on the mountains; not uncommon.

β. *oblongum*. Stems erect, tufted; leaves ovato-lanceolate, entire; capsule oblong; teeth of the peristome divided to the base.

On Secawn mountain, near Dublin. Our β may turn out to be a distinct species. The stems are black, except at the very summits; but little branched; *setae* on terminal shoots; leaves without any diaphanous points, quite entire, wider than in the common variety. The teeth of the peristome are split down to their bases, whereas in the other not only is the fissure terminated above the base, but the teeth are united below around the mouth of the capsule. The *Trich. microcarpon* of Funcke is a paler plant with diaphanous points to the leaves.


On wet stones; common. On limestone at Dunkerron it is of a pale yellowish-green throughout; on sandstone at Carig mountain it is perfectly black all over, and the serrulations of the leaves no longer visible.


On mountain rocks; not uncommon. Besides the plant of Dilleni us above quoted, with fascicled short branches, and of a dark dusky green, a variety occurs on stones at Carig mountain, County of Kerry, of a light tawny yellow, without any fascicled branches; the peristome very short, almost that of a *Dicranum*, the leaves more acuminated, their points sometimes diaphanous: it will probably prove to be distinct.


On rocks and walls; common.


On rocks at Fairhead, County Antrim. Near Bantry, *Miss Hutchins.*

Seta terminal. Peristome single, of 16 teeth approached in pairs, reflexed when dry. Calyptra covering the entire mature capsule, campanulate, split at the base, furrowed.


On rocks at Fairhead, County of Antrim, near Bantry, Miss Hutchins. In both instances accompanied by Trich. ellipticum.

2. G. cylindraceum. Stems fastigiate; leaves ovato-lanceolate, carinate, their margins recurved; capsule ovato-cylindrical.

In the crevices of siliceous sandstone rocks on Blackwater Hill, County of Kerry. Stems \( \frac{1}{3} \) an inch high, branching in a fastigiate manner. Leaves incurved and crisped when dry, crowded towards the summit of the branch, very dark green below, of a livelier green on the top, comprising the growth of the preceding season; from a broad or ovate base lanceolate upwards, concave, carinate, the nerve percurrent, thick, the margins recurved. It has a distinct perichaetium much shorter than in the preceding, measuring half the length of the pedicell. Capsule cylindraceous, wider at the base. Lid from a convex base elongato-rostrate inclined. Calyptra covering the mature capsule, campanulate furrowed, split below into 4 or 5 laciniæ. Teeth of the peristome 16, approached in pairs, lanceolate, red, transversely barred. The perichaetium usually appears lateral.


Seta terminal. Peristome single, of 16 bifid, equidistant teeth; Calyptra dimidiate.

D. adiantoides and D. taxifolium have the seta lateral: these belong to the very natural genus Fissidens of Hedw., which to the shame of our artificial methods we know not how to separate from Dicranum.

A. Leaves bifarious. (Fissidens, Hedw.)


On moist banks: common. This species varies by the length of the stem, by its sometimes remaining simple, and by the erect or inclined position of the capsule. It has long been observed, that in all the plants of this section of the Genus Dicranum, there is a duplication of the pagina of the leaf proceeding from the inferior half of the nerve towards the margin next the stem. Such a structure is remarkable among the Musci. I have witnessed it only in another Genus from Nepal, whose capsules, however, are sessile, axillary, in structure like those of a Phascum.

On moist banks; common.


On moist banks, especially in woods; not uncommon.

B. Leaves inserted all round the stem.


On bogs and wet heaths: common. It has the nerveless, highly reticulated leaves of a *Sphagnum*, but is still more destitute of any green colour. It is found very generally scattered over the surface of our globe from the hottest to the coldest climates.


On the road side to Woodlands, near Dublin; rare.


On rocks at Glenmalur, County of Wicklow.


On bogs and moist banks; not common.


On turf bogs and wet rocks; common. It varies in length, in colour of the leaves, which, too, are sometimes piliferous. It is found in hot as well as cold climates.


On sand on the banks of the Dargle River, County of Wicklow; very rare.

On wet sandy spots on the banks of rivers: rather rare.


On wet sides of streams. Mr. Templeton’s specimens of *D. virens* of Mr. Turner’s *Musc. Hib.* prove to be *D. pellucidum*. He pointed it out to me in its locality at Larne, which being nearly on a level with the sea, could scarcely be expected to produce an alpine species. Nor did I meet *D. virens* in the late Dr. Scott’s collection. I suppose, for the present, it is better omitted from the Irish catalogue.


On dry banks: near Belfast, Mr. Templeton; near Killarney, Mr. W. Wilson. The stems and leaves have a light pea-green colour. It appears to be rather rare in Ireland.


On stones in woods, and on dry banks: wood at Blackwater bridge, County of Kerry; banks of Looscaum Lough, County of Kerry. Pedicells waved. In the same tuft some stems have the leaves subsecund, others directed in all ways. The peristome is most remarkable, and keeps it distinct from every other known species. The teeth are short, marked down the middle by a longitudinal dark line, they are rarely perforate, and still more rarely split, and then only at the very summit. It may thus be easily known from *D. flagellare Hedw.* besides by the want of “flagelliform” branches, by the more erect capsule whose mouth too is narrower, by the crispation of the leaves when dry, and by the shorter pedicels as well as the general smaller size of the plant.


In the wood at Glenflesk, County of Kerry: very rare. I have seen no other British specimens than from the locality quoted. It is more likely to be confounded with *D. scoparium* than with the preceding; but may be known by the flagelliform shoots, by the more
erect capsules, and pale calyptra, as well as by the leaves on the lower part of the stems being adpressed not falcate; the leaves are shorter and less evidently serrulate.


Near Bantry, Miss Hutchins. At Dunkerron, and woods at Killarney.


In, and in the vicinity of, woods; common. Sometimes the peristome is very remarkably large, containing from 1 to 4 setae. The calyptra of the yet unformed capsule dusky; the capsules themselves turning dark brown, or quite black. It varies very much in size and length of the leaves and degree of crispation of the leaves when dry. In the variety with black capsules a *struma* may be observed at their bases.


On moist banks and fallow fields; common. This varies by the colour of its leaves, which are sometimes reddish and even lurid, their direction, which is sometimes secund, and the degree of inclination or position of the capsule on the setae.


On moist banks; common. At Aooreagh River, near Sneem, I have observed a considerable extent of the bank covered with this species having the pedicells so flexuose and bent, that I know not how that state is to be distinguished from *D. cygneum* of Hedwig.


Sides of Maryburn rivulet: Mr. Templeton.


On Macgillicuddy's Reeks. This is altogether an alpine species, and has the strongest analogy with *Weissia acuta*, the teeth of the peristome being often simply perforate, more rarely entire.
18. Tortula, Hedw.

Seta terminal. Peristome single of 32 teeth spirally twisted above, united more or less below into a tubular membrane. Calyptra dimidiate.

1. T. rigida, Turner. Stems very short; leaves few linear more or less broad, incurved, their nerve more or less broad, concave, rigid; their margins involute; capsule oblong; lid rostrate. Turner Musc. Hib. p. 43. Musc. Brit. ed. 2, p. 53, t. 12.

On walls and ditches; very common. This is so variable in the breadth of the leaves, the breadth of their nerves which are sometimes concealed by the involute edges of the leaves, and by the length of the rostrum of the lids that I find the greatest difficulty in comprehending the T. enervis and T. brevirostris of authors. The former from Stiblington, in Kent I find has a real nerve, the outer leaves to be much shorter and wider than the inner, and the lid not to exceed in some instances half the length of the capsule. Again, Funcke’s specimens of T. brevirostris are furnished with lids at least as long, and have the leaves of the shape of the outer of the Stiblington plant. T. brevirostris of Musci Americani, as well as specimens sent to me by Mr. Drummond under that name from North America, are properly our Irish T. rigida.


On ditches near Bantry, Miss Hutchins. Dunkerron, not uncommon. The leaves are smaller than in the other Irish Tortula. The capsule is slightly curved at the top to one side. The leaves of the past season are brownish; of the present, of a lively green, which also is the hue of the perichaetium: upon examination we find this to be truly lateral or radicular. The Tort. pilfera of Hook. Musc. exot. t. 12, is similarly circumstanced.


On ditches near Cork, Mr. James Drummond. Rare.


On walls and ditches; very common. The nerve is incrassated above; the diaphanous point without any serrulations; the teeth of the peristome are not united till they reach downwards to the mouth of the capsule.

On the ground, on walls, and on trees; common.


On banks and walls; not uncommon.


On banks and hedges; common.


On ditches near Bantry, Miss Hutchins; rare.


On limestone; common.


In fields, on ditches and walls; common.


Near Cork, Mr. James Drummond; very rare.


1. Z. cylindrica. Stems erect, branched; leaves lanceolato-
subulate, entire, their margins recurved; capsule cylindraceous, somewhat narrower at the mouth; lid elongato-conical.

On wet sand on the banks of the Dargle river, County Wicklow. Stems 1—2 inches high; branched, loosely tufted. Leaves long, acuminate, but without any excurrent point, of a light yellowish green, much crisped and twisted when dry. Seta one inch or more high, very slender, flexuose, reddish below, of a light yellowish-green while the capsule is yet young. Capsule slightly ovato-cylindraceous, very smooth, erect, its mouth narrow. Lid near the mouth of the capsule contracts and rises up as an acuminate cone. Calyptra dimidiate. Peristome of 32 filiform teeth united in pairs (more rarely three together) by transverse processes; at their summits they are slightly spirally twisted. The lid, as in Tortula, exhibits spiral striæ externally. The peristome is short and very pale, as observed in the Z. leucostoma described by Mr. Brown under the name of Barbula leucostoma. I have another species from Madeira.

20. CINCLUDOTUS, Beauvois.

Seta terminal. Peristome single, of 32 filiform spirally twisted teeth, anastomosing at the base, and fixed by their tops to the summit of the columella. Calyptra campanulate.

The lid may be observed to be spirally striated externally, which is an excellent indication of the twisting of the teeth, although this is by no means so remarkable as in most of the Tortulae.


On stones or stems of trees, occasionally inundated by running water. Several capsules occurring along a principal stem, the fructification might be supposed to be lateral; but it appears really to be fixed on the tops of very short branches. The lid is conico-acuminate.

21. POLYTRICHUM, Linn.

Seta terminal. Peristome single of 32 or 64 short equidistant teeth, their summits united by a flat membrane. Calyptra dimidiate, small.

The teeth are not transversely striated as in other genera.


On banks and in woods; frequent. The leaves are less rigid than in the congeners. A most remarkable variety occurs at the Dargle river, with the leaves much crisped when dry, the seta not exserted out of the perichaetial leaves, the capsule very short, nearly erect and turbinate; the calyptra remaining fixed below the capsule after the falling of the lid, as sometimes occurs in Timmia.

On banks, especially in the mountains; common. The young calyptra, of a light lake red, render tufts of this species very conspicuous. The stems sometimes exceed an inch in length; the lid has a very short beak.


On heaths and banks in the mountains; common. The serratures of the leaves sometimes not to be observed. The young calyptra, of a brownish straw colour, easily distinguish this species from the preceding.

4. P. commune, Linn. Stems elongated; leaves patent lineari-subulate, their margins plane, serrated as well as the points of the keels; capsule oblong, quadrangular, with an evident apophysis. *Linn. sp. pl. 1573. Musc. Brit. ed. 2, p. 46, t. 10.*

On heaths and in woods; very common. The stems are usually simple, varying much in height, from two inches to a foot; the leaves are sometimes short and broad, and present diaphanous margins.


On subalpine mountains; not uncommon. The capsules sometimes turn perfectly black, as do the tops of the setae.


On dripping banks; not uncommon.


On moist banks; common. When the capsule is subglobose, it is the *P. nanum* of Hedwig.

† † Peristome double.

A. Inner peristome of distinct teeth or cilia.

22. Entostodon, Schwaegr.

*Seta* terminal. Peristome double, outer of 16 oblique teeth, lying across the mouth of the capsule; the inner a membrane, barred with dark lines (corresponding to the inter-
stices of the teeth) and sometimes splitting. Capsule pyriform, with an apophysis. Calyptra dimidiate, inflated below.


On moist banks, especially of rivers; common.

23. Funaria, Schreber.

Seta terminal. Peristome double, oblique: the outer of 16 teeth; the inner of as many cilia, each under a tooth of the outer. Capsule pyriform, its mouth oblique. Calyptra dimidiate inflated below.

It will be seen by the above characters that Entosthodon very nearly coincides with the present genus, and that it is not impossible but that at a future time the name of Eng. Bot. Funaria Templetoni may be restored.


Extremely common in a variety of situations, not only in Ireland, but in every visited part of the globe. Hence we should be prepared to expect some variations. Mr. James Drummond sowed the seeds of F. Muhlenbergii, Turn. in a garden pot placed in a frame, using precautions: there came up a few plants resembling this species among more that were intermediate; but the most of all turned out to be F. hygrometrica. I therefore suppose F. Muhlenbergii is a variety that takes its character from the limestone soil, on which alone it is found. Mr. Drummond was satisfied that F. hibernica, Hook. was nothing more.


Seta terminal. Peristome double, the outer of 16 teeth approached in pairs; the inner of 8 or 16 cilia. Calyptra dimidiate, smooth.


On trees; Orange Grove, near Belfast, Mr. Templeton. Woods at Killarney. The capsule is narrow and striated; the lid obliquely rostrate. The nerve does not always reach the point of the leaf. An old capsule I observed under the lens in a drop of water, when pressed, poured out cylindrical, jointed, pellucid bodies, tipped at one end with a brown ball greater in diameter than the cylinder. These were probably seeds in a state of germination.


Seta terminal. Peristome mostly double; the outer of 16 teeth approached in pairs; the inner of 8 or 16 cilia. Calyptra campanulate, sulcate, more or less hirsute.

1. O. cupulatum, Hoffman. Leaves ovato-lanceolate erecto-

On rocks, especially limestone; not uncommon.


On rocks, especially limestone; not uncommon. The ridges on the capsule are most evident near its mouth, where they are reddish and prominent; in some varieties the capsule is not evidently tuberculated.


On trees; not uncommon: varies in size.


On trees, common; more rare on stones, as at Killiney on granite.


On stones in streams; not uncommon.


On stones and trees.


On large stones, near Bantry, Miss Hutchins; in similar places in the counties of Wicklow and Kerry; not uncommon. The stems are remarkably dark, almost black below, their tops of a brownish-yellow.


On trees, common; sometimes on stones. A variety occurs at Askew wood, near Sneem, County Kerry, ripening on the same trees a month or two earlier than the common kind, and with the calypttra nearly glabrous, the few hairs never overtopping it; the peristome larger; each of the eight geminate teeth split nearly half-way down; the lid short.

On trees in Ballinascorney Glen, near Dublin. A small species. The calyptra plicate and coloured at the base.

B. Inner peristome, a membrane divided above.


Seta terminal. Peristome double; the outer of 16 teeth; the inner of a membrane cut above into 16 equal segments, with filiform processes interposed. Calyptra dimidiate.


In marshy spots; not uncommon, even at low elevations. An annulus is present at the mouth of the capsule.


Mountains in the north of Ireland, Mr. Templeton. This is extremely rare. The above is entered on the verbal authority of the late Mr. Templeton. No locality is given by Mr. Turner in his Muse. Hib. With respect to Br. triquetrum, on examining the late Dr. Scott's collection I found specimens marked by that name, but then they were all Bryum ventricosum.


On sandy spots in rocky banks of rivers; rather rare. The stems are slender, aggregate, of a light yellowish-green, and glossy.


On the higher mountains; not uncommon.


On wet banks; near Dublin, Cork, and Belfast. Of a small size; the capsules nearly round; colour pale.

6. B. argenteum, Linnaeus. Leaves closely imbricated,

On walls and roofs; very common. The upper part of the leaves are thin and colourless, hence the stems assume a silvery appearance.


On Brandon Hill, County Kerry: on the highest of our mountains only.


On walls and banks; very common.


On banks, walls, and roofs; very common. A very variable species.


Bogs, near Dublin; rather rare.


On rocks and stones.


On subalpine mountains: not rare.


On wet rocks in the mountains; common. The purple colour of its shining rigid leaves is characteristic.

On bogs and marshes; common. At Turk waterfall a variety occurs with very wide, serrulate, rigid leaves, of a dark purplish-brown.


In woods. Fruit at Blarney, County Cork, *Mr. James Drummond*. A variety at Blackwater has piliferous leaves.


Banks of streams and in woods; common. *Setae* often many from the same perichaetium.


In wet places, in woods, sometimes in bogs; common. The nerve of the leaf is sometimes, though very rarely, excurrent. The seeds are large: but are they really seeds? Pressed in water, under the lens, a sac appears to burst on one side and discharge numerous dark punctiform bodies that do not in the least cohere: the sac is reticulated.


On the banks of rivers in woods; not uncommon. The outer peristome is paler than the inner, contrary to the general rule.


Banks of the Dargle river, *Dr. Whitley Stokes*. This differs from the preceding, not only by the shape of the leaves, but still more by the structure of the peristome.


In woods and marshes; common. Here, as in *B. rostratum* and
B. cuspidatum, the outer peristome is of a pale yellow, while the inner is reddish-brown.

27. Bartramia, Hedw.

Seta terminal. Capsule subglobose. Peristome double; the outer of 16 teeth; the inner, a membrane divided into 16 bifid segments. Calyptra dimidiate.


On dry banks; not uncommon. It varies in the length of its tufted stems, as also of the leaves.


On dry banks; in the Dargle, County Wicklow, &c.


On rocks in alpine districts.


In wet situations; common. This varies in the height of the stems and breadth of the leaves.


Crevices of rocks in the mountains. At Colin Glen, near Belfast: not common.


In wet spots in the mountains. The fruit at Powerscourt; very rare.

b. Seta lateral.

* Peristome single.

28. Pterogonium, Swartz.


1. P. gracile, Swartz. Branches fascicled, curved; leaves broadly ovate, acute, concave, their margins plane, serrulate,

Rocks, especially those near large bodies of water; not uncommon. The fruit has not been detected in Ireland.


On rather dry rocks in woods and mountains; not uncommon. This, like the preceding, is always barren with us.

29. **Leucodon.** Schwaeg.

*Seta* lateral. **Peristome** single, of 32 *teeth* united in pairs. **Calytra** dimidiate.


On trees; very rare. This species is given entirely on the authority of Mr. Turner’s *Musc. Hib.* in which, however, no locality is stated.

* * **Peristome double.**

A. *Inner peristome of free cilia.*

30. **Neckera.** Hedw.

*Seta* lateral. **Peristome** double; the outer of 16 *teeth*; the inner of 16 free *cilia,* or united by a very short membrane. **Calytra** dimidiate.


On trees at Ardtully, near Kenmare. South west of Ireland, Mr. Wilson. The leaves are nerveless, or with two short ones at the base, almost entire; the branches are flat; the stem pinnate. The leaves of the Ardtully plant are very broad, concave, with long acuminations, their surface undulate when dry; young shoots round and slender.


On calcareous rocks at Dunkerron; on siliceous rocks in the woods at Killarney; fructifying very rarely, as at Colin Glen, near Belfast. Leaves serrulate; their nerve sometimes extending up half of their length.

31. **Anomodon.** Hook. and Taylor.

*Seta* lateral. **Peristome** double; outer of 16 *teeth,* inner of 16 *cilia* alternating with the teeth. **Calytra** dimidiate.

1. *A. curtipendulum,* Hook. et Taylor. Leaves ovato-acuminated, denticulate, their nerve not quite percurrent; *seta*

On stones and trees in the mountains. The fruit at Lough Bray.


On calcareous rocks or trees in their vicinity; not uncommon. This is extremely unlike the preceding species in habit.


Seta lateral. *Peristome double; outer of 16 teeth; inner of 16 cilia* alternating with the teeth. *Calyptra campanulate.*


On trees; common in all parts of Ireland.

B. *Inner peristome of cilia united below by a membrane or by transverse processes.*

33. *Fontinalis. Linn.*

Seta lateral. *Peristome double; the outer of 16 teeth; the inner of 16 cilia* reticulated by transverse processes into a cone.


In rivulets, adhering to wood or stone, the leaves sometimes appear complicato-carinate; on examination this is found to arise from the adherence of the outer edges of adjoining leaves. The habit of this genus is very much of the continental *Gymnostomum aquaticum* of Hoffman. They are more nearly allied than I believe is generally supposed. Upon carefully removing the lid of the Gymnostomum, I find the mouth of the capsule coloured of a reddish-brown, crenate, the crenulations corresponding to an outer peristome; within this is an evident inner peristome of sixteen filiform, reddish, erect cilia lying upon the columella.

34. *Hookeria, Smith.*

Seta lateral. *Peristome double; the outer of 16 teeth; the inner of 16 cilia* united below into a membrane. *Calyptra campanulate.*


Wet banks in woods; common.

On sides of streams; Dunsecombe's wood, near Cork, Mr. James Drummond. At O'Sullivan's Cascade and Turk Waterfall, near Killarney, Mr. W. H. Harvey. Having seen, since the publication of the second edition of Musc. Brit., states of this plant at Turk Waterfall with the colour quite as pale, the texture of the leaves as thin, their reticulations quite as large, as in Jamaica specimens of Hedwig's plant, assured to me by Dr. Schwae grichen; and on the other hand, having seen states of the Jamaica moss fully as green as ours, I apprehend it is time to unite them; a step, however, which, I confess, should be taken with great caution, as it bears so remarkably on the geographical distribution of the mosses.


Secawn mountain, near Dublin. On Turk Mountain, and in Cromaglown, near Killarney, Mr. W. Wilson. Tufts small; stems of the past season procumbent, of the present erect, about half an inch in height; the leaves loosely imbricated. Seta usually numerous, closely set in the tuft. Capsule with an apophysis, reticulated, turbinated, slightly inclined. Peristome nearly as long as the capsule; teeth of the exterior pale, lanceolato-setaceous; the inner united at the base by a membrane scarcely rising above the mouth of the capsule. This species ranges very badly under Hookeria. The fastigiate seta remind one of the Trichostoma. If the circumstance of a calyptra being diminutive or entire be now allowed by all muscologists to be of sufficient importance to separate genera, how much more should the singular calyptra of this moss avail? In other genera the base of the calyptra has a torn appearance, but here it is divided into capillary processes, nearly as long as the calyptra above; all equally long, equally broad, pellucid, and without joints or cells. Another singularity consists in the base of the perichaetium, as in certain of the genus Fissidens of Hedwig, throwing out its own rootlets.

35. Hypnum. Linn.

Seta lateral. Peristome double: the outer of 16 teeth; the inner of a membrane cut into 16 equal segments, with filiform processes frequently interposed.

I. Shoots plane.

A. Capsules erect.


On trees; common.


On trees; common.
B. Capsules inclined, or cernuous.


On stones occasionally inundated.


In woods; not uncommon. The very pale, almost white colour of the shoots, and furrowed capsule, remove this in habit from all the other British species.


In woods; not uncommon.

II. Shoots cylindrical.

1. Leaves pointing in all directions (not secund.)

A. Leaves uniform in their direction, (not squarrose.)

a. Nerve percurrent or excurrent.

* Leaves entire.


On trees, in moist situations; not common. The margins of the leaves are recurved; the seta is smooth.


On limestone, or on mortar; not uncommon.


On rocks in the river at Ballinhassig, near Cork. Stems pro-
cumbent, somewhat cespitose, from two to three inches long, variously branched, at length denuded. Leaves loosely imbricated, concave, at the tops of the shoots sometimes, but never remarkably secund; their nerve not only percurrent, but running out into a mucro, very stout, of a reddish-brown colour; the margins of the leaves can scarcely be said to be reflexed. The *H. fluviatile* of Funcke's *Deutsch. Moose* appears to be *H. serpens*.

* * Leaves serrated.


On stones; common.

b. Nerve shorter than the leaf or none.

* Leaves entire.

† Leaves ovate or elliptical.


In bogs; common. The fruit very rare; on sandy banks of the river at Castle Kelly Glen, near Dublin. Upon comparing Dr. Wahlenberg's specimens of *H. trifarium* of Weber and Mohr, I cannot find in them any precise marks of difference from our plant; the leaves vary in both as to compactness of insertion; the lurid colour of the former I find equally deep in some shoots of the latter, having also leaves not more concave on some of the branches.


On large stones in the wood at Cromaglown, near Killarney, Mr. W. Wilson. In the wood five miles nearer to Kenmare. The tufts of a pale shining yellowish-green; and the slender capsules, with wide mouths, so remarkable in a dried state, render the moss easily recognised. The *setae* are slender, elongated, and smooth.


On walls and stones; not uncommon.

14. *H. purum*, Linn. Leaves closely imbricated, oval, acuminate, very concave, their nerve reaching half way up; cap-

On the ground and on hedges; common.


Sides of hedges and banks; common. The fruit rare; occurs near Belfast, Mr. Templeton.


Woods, and near bushes; not uncommon.


On the ground, Cunnamara mountains, Mr. J. T. Mackay.


On wet rocks in woods, especially near waterfalls; at Powerscourt, at the Dargle, and at Turk Waterfall. The stems are very rigid; shoots of a dusky green; leaves remote; the inner peristome has but a single filiform process between its segments.

† † Leaves lanceolate or subulate.

= Leaves without strich.


On rocks and stones, especially in rivers or streams; common. Tufts shining, yellowish-green; the setae smooth.


In woods; rather rare. Powerscourt, and at Turk Waterfall.

= Leaves striated.

21. *H. sericeum*, LINN. Leaves erecto-patent, lanceolate,
acuminate, entire or scarcely subserrulated, their nerve not per-
current; capsule ovato-cylindraceous; seta rough; lid conical.  

On rocks, walls, and trunks of trees; common.

22. H. salebrosum, Hoffm.  Leaves erecto-patent, lanceolate,  
acuminated into a waved hair-like point, subserrulate, their  
nerve not percurrent; capsule ovate, cernuous; seta smooth;  
ed. 2, p. 166, Supp. t. 5.

On stones, at Lough Bray.  Tufts of a yellowish-green colour; the  
leaves flaccid, tapering to a very long point.

23. H. lutescens, Hudson.  Leaves erecto-patent, lanceolate,  
acuminated, entire, striated, their nerve not quite percurrent;  
capsule ovato-cernuous; seta smooth; lid conico-acuminate.  Huds.  

On trees at Newington, County Kildare; sands of Portmarnock,  
near Dublin.  The inner peristome is allied to that of Hypnum  
dendroides, Climacium of Web. et Mohr.

24. H. albicans, Necker.  Leaves erect, ovato-lanceolate,  
acuminated, faintly striated, concave, entire, revolute at the  
margin, their nerve reaching half way up; capsule ovate, cernuous;  

On the sands at Portmarnock, near Dublin; not rare.

* * Leaves serrated.

† Stems denuded below.  (Tree-like.)

25. H. alopecurum, Linn.  Stems erect, unbranched and  
naked below, branches fascicled above; leaves concave narrow  
ovate, acute, serrated, reflexed at the margin, the nerve not  
quite percurrent; capsule ovate cernuous; lid rostrate.  Linn.  

In woods, and on shady banks; common.

26. H. dendroides, Linn.  Stems erect, unbranched and  
naked below, branches fascicled above; leaves ovate or ovato-  
lanceolate, serrated, their nerve not quite percurrent; capsule  
erect, ovato-cylindraceous; lid rostrate.  Linn. sp. pl. p. 1593.  

On wet banks.

† † Stems leafy below.

+ Capsules erect.

26. H. curvatum, Swartz.  Branches fascicled, curved;  
leaves ovato-elliptical, concave, serrated, the nerve not per-  

On trees and rocks; very common.

On trees and rocks. Usually smaller, yet sometimes fully equalling the former in size.

+ Capsules cernuous.


In woods, on the ground; not uncommon.


In woods, and bushy banks; not uncommon.


On moist shady banks and trunks of trees; common. A variety collected by Miss Hutchins, near Bantry, has the leaves yellowish-green, broadly cordate, nearly acuminate. Another, found on dripping rocks at Blackwater bridge, County of Kerry, has leaves narrow, lanceolate, dark dusky-green, and capsules turbinate, and is not one-tenth of the usual size.


Rocky sides of mountain streams; not uncommon, but rare in fruit, in which state it occurs at Secawn Mountain, near Dublin.


Woods at Glengariff, Miss Hutchins: in the woods at Killarney not uncommon. This appears to me to approach very nearly in habit a slender variety of *H. cupressiforme* found on trees, although when the lens is used the difference of acumption of the leaves is easily recognised. It is much smaller in all its parts; and in woods, of a more golden yellow colour, than *H. demissum*; at the base of Magilli-cuddy's Reeks, it is quite green and looks a doubtful species.

33. *H. abietinum*, LINN. Stems pinnate; leaves papillose on the back, their margins slightly reflexed, their nerve not quite

On the sands at Portmarnock, near Dublin; rare.


On limestone, near Cork, 1820. At Muscruss, near Killarney, in fruit, *Mr. W. Wilson*. Common at Dunkerron. I was induced to give this Hypnum the specific name of crassinervium, from the remarkable thickness of the nerve of the leaf, which, as if it were the union of two nerves, is often disposed to bifurcate even half way up the leaf, which I have not observed in others of the genus.


On banks, stones, and trees; common. A variety occurs on the sands at Portmarnock, near Dublin, with the leaves very broadly cordate and with long acuminated hair-like points, their margins broadly reflexed: perhaps if the fruit were found it might prove a distinct species.


On banks, stones, and trees; common. Very nearly allied to the preceding; but of a smaller size, and with narrower, more erect leaves.


On stones, and occasionally immersed in water; common.


Woods, on the ground; common.

On stones and trees; common. An annulus is present, which Bridel denies, nor does he appear to me more correct in saying of the inner peristome, "ciliis singulis interjectis," for I have found two interposed filiform processes. A variety occurs at Turk Waterfall, and at Blackwater, County of Kerry, with the leaves widely cordate, acuminate.

B. Leaves squarrose.

40. H. cuspidatum, Linn. Leaves loosely set, of the summit closely imbricated into a cuspidate point; ovate, nerveless, entire; the lower squarrose; capsule oblong, curved, cernuous; lid conical. Linn. sp. pl. p. 1595. Musc. Brit. ed. 2, p. 178; t. 26.

On wet banks; not uncommon.


In bogs; rather rare. The purple alpine variety grows on Brandon Hill.


In a bog, at Killiney, near Dublin, remote from any limestone.


In bogs; not uncommon; varying in size.


In woods, on banks; common. The leaves are frequently subsecund. One of the largest of the genus; of a pale yellowish-green.


In woods; common. Still larger than the preceding.

Woods at Killarney; and at Dunkerron, County of Kerry.


Woods and heaths; common.

2. Leaves secund.

A. Leaves with a single nerve.


On moist banks and wet sides of rivulets; common. A variety at Blackwater bridge has the leaves scarcely serrulat.


On wet rocks in streams; common. Varies by the direction and acumination of the leaves, by their colour, by the length of their nerve, by the degree of incurvation of the capsule, by the length of the lid, by a slight roughness of the setæ, and by the length and colour of the shoots.


In pools of clean water; not uncommon; fruit rare.


On bogs; common. The leaves are sometimes ovato-lanceolate, less secund, and somewhat rugose; and again, when of a purplish red colour, very narrow, long and much falcate; this variety has been called H. revolvens by authors.


On stones at the side of Lough Bray, near Dublin; very rare.

53. H. commutatum, Hedw. Stems pinnated; leaves falcato-secund cordate elongato-acuminate, serrated, their margins reflexed, their nerve not quite percurrent capsule oblong, curved,

On dripping sides of banks; common: not peculiar to limestone. It is among the unexplained phenomena of nature by what powers of organization, this plant, as well as Weissia verticillata, *H. ruscifolium*, and others, are capable of covering their stems with an incrustation of carbonate of lime, not observed on other species growing in contact with them, and in situations where the presence of lime in the subjacent or surrounding rocks, soil, or waters, cannot be traced or indeed suspected.

**B. Leaves nerveless, or very shortly 2-nerved.**


On bogs; at Howth, Dunkerron, &c.; not uncommon.


On stones and trees; very common. Varies in size; the fine stemmed var. found on trees, as at Glengariff, by Miss Hutchins, being the most remarkable.


On stones and trees; very common. Equally common with the preceding, bearing greater exposure, often growing intermixed with it, yet never exhibiting intermediate characters. In *H. cupressiforme*, if the procumbent stems be viewed from above, the bases of the leaves seem set in a bifarious manner, while their falcate summits all point downwards; in *H. multiflorum* there is no such flattening of the stem caused by the insertion of the leaves, and their apices, which are never falcate, point upwards. Still surer marks of the latter are found in the narrower and perfectly entire leaves, the rostrate lid, the capsule more erect, and its mouth much narrower.


On the ground and on stones; common. This is at once distinguished from the preceding, or, indeed, from all the preceding, by its *hirsute calyptra*, except *H. sericeum*, in its young state, as observed by Mr. Wilson.
ORDER III.

Hepaticæ. Juss.

The approach of the Musci to phanerogamous plants by the almost woody nature of the setæ, and by the presence of nerves to the leaves, is entirely lost in the Hepaticæ. These are softer and more cellulose in their structure; their seed vessels are more simplified, being destitute of lids, and consequently of peristomes, and their seeds have not yet been observed attached to particular points of the capsules. The Calyptra seems to act a most important part different in function from the organ so called in the preceding order. The Calyptra of the Musci ruptured at its base rises on the summit of the rudiment of the young capsule and retains its position, organically unconnected, until the full growth of the latter and maturity of the seeds, and appears during this entire period no more than a protection. In the Hepaticæ, on the contrary, the Calyptra attains its full size in the form of a globe usually, containing a thick liquid, in the centre of which a minute speck, the future capsule is observable for many months previous to its expansion. During this slow evolution, the capsule seems to increase at the expense of the fluid contents of the Calyptra, so that this at maturity is reduced to a most delicately thin membrane, finally bursting irregularly to give exit to the capsule, or as in the foreign genus Fimbriaria to allow the seeds of the ruptured capsule to escape.
Table of the Genera.

† Seeds accompanied by spiral filaments in the capsule.

A. Common Receptacle of the capsules pedunculated.

1. Marchantia. Male Recept. pedunculated, scaly beneath: Loculi of the Fem. Recept. 2-valved; capsules with calyces; Calyptra remaining within the calyx.


B. Common Female Receptacle none.


† † Seeds unaccompanied by spiral filaments.


8. Riccia. Capsule, with its exterior membrane calyptriform, bearing a style, its interior enclosing numerous sub-angular seeds with pellucid coats. Style protruded above the frond.
I. MARCHANTIA. MARCHANT.

Male Receptacle pedunculated, scaly beneath. Female Receptacle with loculi 1—3-flowered, bivalved; capsules with calyces. Calyptra bursting, at length remaining within the calyx.


In dry as well as wet situations; very common, not only in Ireland but in most parts of the globe. Flowering in summer and autumn. The openings of the pores on the frond are thickened or marginate. There are three distinct series of scales beneath the frond, the one broadly ovate or lanceolate, scariose, whitish, disposed in a pinnate manner at each side of the axis; others alternate with these, but are exterior, oblong, obtuse, exceeding a little the margins of the frond; finally, others of a deep purple colour, oblong, alternate, closely imbricated, their margins only colourless, forming a ridge over the nerve. The capsules, towards maturity, appear yellow, and have been so described by Mohr and Lindenberg, but the colour is that of the seeds, seen through their pellucid coat. The capsule is not toothed, but bursts irregularly. The seeds at length assume a dark olive colour. The Scyphi are toothed, each tooth terminated by a single dark cilium, which at first is introflected, then erect, and finally falls off. At the bottoms of the Scyphi, in a gelatinous substance, are imbedded buds, flattish, lenticular, slightly lobed. The Male Receptacle is rugged above, its margin nearly entire, or more commonly lobed; I have seen it as deeply incised as in M. chenopoda (Dill. t. 77. f. 8.) At the inferior surface the convex rays are scaly, and among the scales are inserted clustered simple fibres, not to be distinguished from the roots below the frond. The scales are ovate, obtuse, purplish at their bases, colourless at their tops. At the summits and back part of the peduncles there remain adhering from ten to twelve cellulose, linear processes which are the interior portions of the indusium. Both male and female receptacles, when they first appear between the terminating lobes of the frond, are covered with indusia; of which, however, contrary to what occurs in certain foreign species, scarcely a trace is to be seen when the peduncles have been fully formed. Each peduncle anteriorly has two grooves, in which are enclosed bundles of fibres not distinguishable from the roots. From the rapid growth of the peduncles we may conclude these bands of fibres existed previous to their exaltation; accordingly, before this event, they are to be found in a canal along the nerve below the frond. These roots probably supply moisture to the receptacle, which increases in size after its elevation, the enclosing grooves of the peduncle preventing evaporation. Such an admirable provision is found in the other Marchantiae.

2. M. androgyna, LINN. Female Receptacle nearly entire, subhemispherical, somewhat quadrangular; the margins of the

On rocky sides of shaded rivers, also in wet spots of the mountains, reaching fifteen hundred feet above the level of the sea. Flowers at Dunkerron, County of Kerry, during spring, spring, and autumn. Frond from one to three inches long, oblong, sinuate, at the top bilobed, (as in all this natural order); the margins crenate, depressed, often purplish and scariose; the openings of the pores thickened or marginate. The scales beneath (observable in young fronds) dark purple, oblong, scymitar, imbricated about the buds. The *indusium* rotundate, depressed, its scales multifid, and their *lacinia* linear, articulate, purplish. *Female Receptacle* pedunculate, often with four indistinct angles, above having four obuse ribs. *Loculi* usually four, yet one or two often abortive and collapsed; of the fertile the margins are at first much plicate, and even after expansion undulate. *Calyces* often two or three, reticulated, rotund, toothed. *Calytra* rotundate, bearing a style. *Capsule* globose, shortly pedicellate. *Seeds* submucrurate, rotundato-tetrahedrons, dark brown; *the filaments* with a double spiral line. The peduncle one to two inches high, reddish below, pale green above, with two grooves containing bundles of fibres as in the preceding. Specimens are not very uncommon in which the peduncle is truly androgynous, i.e. a part of the receptacle bearing capsules below, the rest bearing anthers on its superior surface. The *male receptacle* is pedunculated, its margin elevated, entire, scariose. The *loculi* of the *authors* are disposed in a radiating manner. The *authors* are oblong. This plant, well described by Schmidel and Wahlenberg under another name, seems to have been unknown to Micheli, Dillenius, and Haller.


*Male Receptacle* sessile in a pit of the frond; *Female Receptacle* covering the *loculi*; *Loculi* 4—5, opening with a vertical fissure; *Calyces* none; *Calytra* at length bursting and remaining in the *loculus*.

It may be doubted whether by *Fegatella Cæsalpinus* understood this species or *Marchantia polymorpha*. Scyphs containing gemmæ or buds never occur in this genus. While the *Marchantia* flower throughout the spring, summer, and autumn, the *Fegatelia* exhibit their organs of fructification only early in the spring, and then for a short period in Ireland. The pores of the fronds never have their openings thickened or marginate as in *Marchantia*; and the peduncles have but a single groove, never two, as in the latter.

In wet and shaded situations, at low elevations; common. Flowering at Dunkerron, County of Kerry, in February and March. Fronds sometimes six to eight inches long, especially the barren, their margins crenate, undulate. Aguaba appear in winter, between the terminating lobes, their margins involute, the entire ascending, recurved, at length opening into shining light-green fronds. The scales beneath are sub-rotund, oblique, slightly emarginate. The Male Receptacle is hemispherical and smooth below, nearly flat above, immersed in a cavity of the frond, but not adhering to it except by a central point at the bottom; the upper surface is rough, with conical elevations, the tops of whitish and otheriferous vesicles; the anthers are linear-oblong, coming to maturity the summer previous to the ripening of the seeds. Feces Receptacles fully formed in October remain sessile on the fronds until the following February, when at length the peduncle rises; but I have observed where, during the winter, the seeds were devoured by insects, the elevation of the peduncle never took place. Loculi one to nine; one-flowered, very rarely two-flowered. No calyx is present; a horizontal section of the receptacle may cause the inner membrane of the loculus to be so separated as to assume the appearance of one; but this is deceptive, as the inferior portion of the calyptra remaining about the base of the full-grown capsule. The calyptra is oblong, bursting at the top into laciniae. The capsule also is oblong, its ruptured segments at length revolute. The seeds nearly round, greenish, at length smooth, dark brown; the filaments enclosing two spiral lines. The peduncles subangulate, below thicker, and slightly purplish, above pellucid with the faintest tinge of green, having a single groove containing a bundle of fibres similar to the rootlets; fibres of the same nature are also found at the base of the receptacle, where it is joined to the peduncle. The indusium of the young receptacle is rather flat, consisting of a few round or imbricate scales, folded back upon the margin of the frond, between its terminating lobes; it is not to be recognized after the elongation of the peduncle.


On a calcareous soil chiefly; on banks rather dry. Flowers at Dunkerron, County of Kerry, in March and April. Fronds one or two inches long, slender, broader at the top; their margins crenulate, raised, scariose, brownish-purple; their pores formed of a whitish cuticle raised, with an irregular opening at the top, whose edges are not thickened. Beneath, besides the whitish simple rootlets along the axis, there are purplish, flat, imbricated scales placed in a pinnate manner on each side of the nerve; they are roundish, broader at the base, and terminating in two acuminated teeth. There are no scyphi, yet Micheli figures them; this can only be explained by supposing.
that he delineated from specimens intermixed with Lunularia vulgaris, an association extremely common. The male receptacles are generally on distinct plants, and are of a dusky purple, roundish, marginated, flattish above, sessile, immersed in the frond, and, as in the preceding, not adherent but by a point at their bases. On the upper surface appear dark purple elevations, with a minute aperture on the summit, out of which the milky pollen exudes. The female receptacles at first roundish, then hemispherical, again assume a rounded form, from the swelling of the capsules beneath; they are divided into from four to six lobes, each covering a loculus, which opens with a vertical fissure. The loculi are two-valved, each valve involute at the margin. Capsules solitary, sometimes two in a loculus, whose extremity they never pass, being scarcely furnished with pedicells as in the preceding. The calyptra bearing a style at length bursts, remaining within the loculus. After the most diligent search of numerous specimens I could never find any calyces, organs that form an important part of the character of the genus Grimmaladia of Raddi and Lindenberg, constructed on this plant. The seeds at first appear as globules, surrounded by a pellucid annulus; in ten or fifteen days the globules are divided into three equal parts by pellucid lines; if either of these sub-divisions be forcibly pressed, it bursts into numerous minute dark points, which, perhaps, future observations may prove to be the true seeds. I have found a similar structure in all the Marchantiaæ, in Targionia, and several Jungermanniaæ, especially the frondose. But what at present are termed seeds are at first yellow, afterwards of a dusky olive, triquetro-subrotundate, girt with a pellucid ring. The filaments enclose two dark spiral lines. The exterior scales of the indusium are broad, deeply incised, the interior linear, longer, all of them whitish, reticulated, before the rising of the peduncle enveloping the female receptacle, but after that event the interior are raised with the base of the receptacle, and remain adherent to the points of its junction with the peduncle; hence its pilose appearance. A few of the scales, here and there, stick to the peduncle.


Male Receptacle sessile, with a membranaceous elevated margin. Female Receptacle deeply divided into narrow taper loculi: Loculi opening with a horizontal fissure: Calyces none: Capsule 4-valved, exserted.


On dry banks, principally in limestone districts; common. Flowering at Dunkerron, County of Kerry, in August. Fronds densely gregarious, one to two inches in length; in green-houses, however, from three to four inches; of a light green, shining, oblong, broader at the top, divided into three or four lobes, of which the lateral are the shorter, and at the end of their sinuses the fruit is borne. The margins of the fronds are waved and elevated; the pores are analogous to those of the genus Fegatella, not Marchantia. Besides rootlets,
as in the other Marchantia, on the under surface are found scales whitish, scariose, scymitir-shaped, stretching across from the axis nearly to the margins; such, however, are obsolete in aged fronds. Male receptacle sessile, only immersed in the frond, but not adhering to it, except by a point at the base, situated at the top of the sinuses, oblong, concave above, the margin raised, scariose, undulate; the upper surface has minute elevations open at their tops, out of which a viscid liquor flows, found to be originally contained in ovate immersed anthers. The anthers perform their functions in winter. The female receptacle, which is found only in the summer, is at first covered with the indusium, and is nearly globular, but oblong at the period when the peduncle is about to rise; when risen from its central disc, tubulose processes are elongated—these are the loculi, varying in number, usually four, whence the cruciform appearance long ago noticed. The loculi, contrary to what occurs in Fegatella, open by a horizontal fissure. The young indusia are found at the deepest recess of the lateral sinuses of the frond, and whose margins are so little separated that the fructification appears to be epiphyllous, or seated on the surface of the frond, as Dillenius figured it, and after him Sprengel and other authors have described. This, however, never occurs in the Marchantia. The young indusium is found in a cavity partially covered behind by a projecting portion of the frond. Its exterior scales, six or more, are broadly ovate, very concave, very obtuse, entire, reticulated, whitish; intermediate ones are split at the tops, while the innermost are linear, jointed, many of them adhering to the lower part of the peduncle. The peduncle is succulent, white, pellucid. Fertile loculi from one to six, but four is the commoner number; they are tubulose, whitish, pellucid, one—more rarely two-flowered. Calyx none. Calyptra spherical, bearing a style, at length ruptured, and remaining in the bottom of the loculus. The capsule is oval, blackish, longer than in the other genera of the Marchantia, with a considerable pellucid pedicell as in Jungermannia. The capsule is four-valved, and the valves often bifid. The seeds are numerous, dusty, minute, sub-rotund, mixed with filaments, marked with a double spiral line. The scyphi occur on male, female, or neuter fronds, at all seasons of the year; they are lumulate, whence the generic name. In the bottoms of the scyphi, among gelatinous and cellulose matter, occur lentiform bodies, slightly lobed, from the bottom of the sinus connected to the cellulose portion by a filiform process. These are plainly buds, as their axillary situation would indicate, and their expansion into perfect fronds proves. The peduncle of the female receptacle has a single groove; it is less substantial than in the congener, and decays in a very few days, which, I suppose, is one reason of the fruit being rarely observed. I have succeeded in causing plants, brought from a distance of several miles, to bear perfect fruit under glasses at Dunkerron. This species is constantly dioicous, although Micheli's figure represents it otherwise.

4. Hygrophila.

Male Receptacle pedunculated, hirsute, with short scattered hairs. Female Receptacle pedunculated, hirsute with short scattered hairs. Calyx none. Loculi univalved, carnose, opening at the top with a vertical short fissure. (Frond without pores.)

In warm rocky recesses in the sides of streams in shaded situations at Blackwater Bridge, near Dunkerron, 1820. At Turk cascade near Killarney; Maghanabo Glen, near Brandon Mountain; and at Ballinhasig Glen, near Cork, Mr. W. Wilson, who first published it in the English Flora. At Altadore, County of Wicklow, Mr. G. S. Gough. Fronds from 1 to 5 inches long, nearly an inch wide, procumbent, membranaceous, bilobed, the margins of the lobes raised, slightly undulate, roundish. The frond is of a lively green, pellucid, without pores, (but apparently in their place) there occur on the lower as well as upper surface branches from the great central and longitudinal nerve, which after running for a short space nearly parallel with the nerve, diverge and branch and form anastomoses. This is scarcely to be observed in dried specimens. As pores are wanting, in this genus of the Marchantia, on the upper surface, so likewise no scales are observable on the inferior. Below, the usual whitish simple, jointless rootlets are thickly set along the nerve. There are no scyphi but as in Fegatella the buds issue as flat discs of a lighter green from between the terminating lobes of the frond. The fructification is commonly dioicous, sometimes monoicous and not very rarely androgynous as observed in Marchantia androgynus. In this last case the anthers appear efface and to have discharged their pollen long before the maturity of the seeds. The male Receptacle is flat above, granulated, circular, with a depressed centre, hemispherical beneath, carnose, greenish, at length dusky, near the margins especially beset with short straight, rigid, whitish hairs. On the upper surface the ovate erect anthers open, and if squeezed, exude minute oleaginous globules. At the junction of the peduncle to the receptacle a few linear scales of the indusium remain adhering; the peduncle seldom exceeds a diameter of the receptacle in length; it is succulent, pellucid, greenish below, dusky above with two grooves containing bundles of fibres like the rootlets as in Marchantia. The female Receptacle is at first quite covered by the recurved scales of the indusium, and infertile receptacles may be seen in this state at all seasons. The fertile alone are upraised on peduncles and are far larger, with a convex rugged surface above, their margins elevated, divided beneath into oblong convex, carnose loculi, beset with short, straight, rigid whitish bristles. The loculi open by a short vertical fissure. The capsule which within the calyptra takes 6 or 8 months for its full development, at length globose supported on a short pellucid pedicell protrudes to light, bursts by 4—6 unequal laciniae, leaving the ruptured remains of the calyptra in the loculus; but no calyx exists. The seeds are angulato-rotundate, dark brown. The spiral filaments elongated, slender, but little twisted, marked minutely with a double helix. The peduncle of the female receptacle has two grooves containing rootlets, is succulent, greenish, semipellucid, curved, to its summit remains of the indusium adhere. The odour of this plant is strong and very agreeable, and has adhered to blotting paper for upwards of two years, being emitted by the application of heat, but not quite expelled.

5. Targionia, Micheli.

**Male Receptacle** in a bivalved terminal loculus, sessile: Common


On the Cave Hill, near Belfast, Mr. Templeton. Fronds in imbricated patches, 1 to 1½ inch long, one-tenth broad, lineari-obovate, concave, their margins purplish black, minutely undulate, nearly entire, their substance thicker towards the middle, thin at the edges; of a dull green; the pores are minute flattish-conical white elevations of the cuticle with an irregular but roundish aperture at the top, which is not marginal. Beneath, along the midrib are numerous whitish, simple, filiform rootlets, and as in the other Marchantia, not jointed but marked with numerous closely set minute dark dots. On each side of the midrib are purplish, reticulated lunulate scales which are sometimes acuminate, imbricated towards the top and one or two even on the loculus. Male Receptacles, which perhaps have been hitherto unobserved, are situated at the extremities of very narrow rather short fronds, whose edges are involute, and are altogether similar to the loculus of the capsules but smaller, at the base of this the receptacle is sessile, surrounded by numerous short white filaments and consisting of a carnose disc of a pale colour in which the anthers are imbedded. The anthers are oblong spheroids, a little narrower at one end, closely packed together, consisting of a smooth tegument and containing a pale brown fluid. The loculus of the capsule is globular, dark purple, shining, opening by two marginate valves vertically, opaque, closely reticulated, its pedicell short, succulent, pellucid, bursting irregularly at the top and discharging within the loculus seeds, which are subrotund muricated, rather large and brown, as well as filaments about four diameters of the seeds in length, dark brown, swollen in the middle and marked with a single spiral thread, which, however, is crossed spirally by numerous much finer and more close dark lines. The calyptra becomes ruptured horizontally, the portion remaining fixed to the loculus is thin, reticulated and purplish; the upper portion to which the style is fixed fugacious.

6. Jungermannia, Linn.

Common Female Receptacle none. Capsule 4-valved, exserted on a succulent, somewhat pellucid pedicell, and containing seeds and spirally marked filaments.

1. Frondose.

1. J. calycina. Frond lineari-oblong, the margins elevated, sinuose, undulated, fruit on the upper surface of the frond over the midrib, the calyx tumid, broadly ovate, subplicate, fringed at the mouth; calyptra included in the calyx.

On shaded wet banks and in fields lately cropped, very common. Flowering at Dunkerron, County of Kerry, in February and March. This species is so like Jungh. epiphylla that it appears hitherto to have been confounded with it; the only advance towards their separa-
tion having been made by Dr. Hooker. The var. *furcigera* of his *J. epiphylla* Brit. Jung. t. 47, is a state of our plant as it buds in autumn: he says, "those curious processes are in all probability destined by nature as a means of increasing the species, different from any that has been noticed in any other Jungemannia." We may now add, and quite different from the annual buds of *J. epiphylla*. By the following marks the two species may be clearly distinguished. In *J. calycina* the fronds are concave, their edges raised, their midrib broad and well marked: the calyx large, tumid, subplicate, the calyptra remaining in the calyx, whereas in *J. epiphylla* it is always much exerted; the spiral filaments are bent, not twisted as in the latter; the seeds are longer. The male flowers are very like in the two species, but are fewer and more scattered in *J. calycina*. The capsules before dehiscence are of a light green colour, and after dissemination the valves are paler than in *J. epiphylla*. The immature seeds show a ternate aggregation. This species often assumes a glaucous-blueish appearance when it grows where water trickles, and never exhibits a brownish-purple tinge over the midrib as does *J. epiphylla*.


On wet banks, common. Hollow subulate slightly curved, pale bodies are sometimes found rising from the surface of the frond as in *Jung. Blasia*, but I could never find any contents. The bud appears as a minute scale between the lobes at the top of the sinus, and afterwards expands into a lobed frond, and so the species is prolonged.


On sandy banks occasionally inundated; rather rare. Fruit at Castle Kelly Mountain, on the banks of the stream, in March.


On trunks of trees, also loosely cespitose on banks in woods; common.


On mountains near Belfast, Mr. Templeton. I have never seen this plant in Ireland, and give it on the authority of a small specimen from Mr. Templeton. The fruit, hitherto unknown, occurs on plants I have from Mr. Dickson, who gave as his authority, Mr. Menzies and Cape
Horn for the locality. The maturity is not so forward as to show capsules protruded out of the calyces, yet whether this ever takes place may be doubted, as the capsules were so ripe as to show two pedicelled bundles of spiral filaments on each valve, standing nearly erect; the seeds brown angulato-subroutund, unconnected by any fluid matter, and hence readily separating and falling out; the spiral filaments long much twisted. Upon careful examination I found the capsule had only two valves or rather lips at the summit, and was quite entire below without any mark of a suture. Thus this plant seems to propose pretensions to a separation from Jungermannia, yet Monoclea, which would approximate it in our artificial systems, would be as far from allowing its alliance, nearly as the frondose Jungermannia are separated from the foliaceous.

6. J. pinguis, Linn. Frond lineari-oblong, procumbent, carnose, plane above, tumid beneath, irregularly branched, the margins sinuate; the fruit from under the margin; calyptra exserted, oblongo-cylindraceous, smooth. Linn. sp. pl. p. 1602. Hook. Br. Jung. t. 46.

In very wet situations; common. A variety at Cromaglown, near Killarney, growing among the tops of the tufts of Dicranum flexuosum, was linear, of a very pale light green, and had a very evident nerve to the frond.


On wet spots, among grass, heath, &c.; common. Foreign specimens of J. palmata, Hedw. quite accord with a variety of our plant in the adscendent and palmate fronds.


In boggy spots; rare. Near Bantry, Miss Hutchins, At Lough Bray, near Dublin. Woods at Killarney.

2. Foliaceous.

The following sections are adopted from Dr. Hooker's excellent arrangement in his English Flora.

A. Stems without stipules.

* Leaves undivided.


Among mosses on banks; common. A large and handsome species, acquiring six or seven inches in length. The leaves have their edges recurved towards the base, where they are about to embrace the stem, and from that all along the anterior edge.

On trees and shaded rocks; common. Miss Hutchins discovered a minute variety of this, with the leaves few, tridentate. At Cromaglown is another on trees in cespitose, horizontal shoots, whose leaves are minute, cordate.

11. **J. decepiens**, Hook. Stem erect, the upper leaves subcompressed larger, rotundate, the lower ovate, all of them marginate, reticulated, with very few spiniform teeth. *Hook. Br. Jung. t. 50.*

On rocks in exposed situations; not very uncommon in the South of Ireland.


On rocks at the sides of streams and rivers; common.


On Mangerton, in the stream from the Punch Bowl.


The clusters of *gemmae* are sometimes found on the tops of branches leafy throughout.


On heaths and in woods; not uncommon. The calyx opens by four *lacinie*, each of which is serrulate; its mouth at length becomes widely expanded.


On stones; at Turk Waterfall; also near Dublin: not uncommon.


On the stream's side of Seafing Mountain, near Dublin; and at
Aooreagh River, near Sneem: rare. This species is more reddish and pellucid than the preceding or than *J. pumila*. A variety from Aooreagh River has the leaves broad, kidney-shaped; the calyx narrow below, plicate above; the stems more erect.


Sides of rivulets; at Lough Bray. Near Bantry, *Miss Hutchins.*

At Aooreagh River, near Sneem. The tops of the shoots are wider and redder than the inferior part. Stipules are found on the very young shoots only. When fresh it is very fragrant.

* * * Leaves *emarginate or bifid, the segments equal.*

19. *J. microscopica*. Stem very minute, very slender, curved; leaves ovato-lanceolate, concave, reticulate, cellulososerrate, distant, patent.

On *Hypnum loreum*, on a loosely cespitose bank in the wood at Gortagarree, near Killarney. This, the most minute of the genus yet discovered, grew almost parasitically on the Hypnum, on which it was detected by the microscope. Although the fruit has not been found, there are abundant marks to characterise the species. The stems are not one-tenth as broad as the leaves, and these are of a very pale green colour, and serrulated on the margin by the projections of angular, colourless, pellucid cells. The naked eye can trace no form whatever, only a minute greenish stain appearing on the paper to which it is affixed.


On wet rocks; common.


On Macgillicuddy's Reeks, and other high mountains. To the naked eye the branches appear destitute of leaves and have a silvery hue.


On Brandon Hill; rare.

On stones at Powerscourt Waterfall. Near Bantry, Miss Hutchins.


Woodlands, near Dublin, Mr. W. Wilson. This plant I have not seen.


On the mountains near Dublin.


Mountains of Dublin and Wicklow; common. The calyx is at first nearly spherical, and appears to be lateral, from the young shoots passing it.


Shady banks of a mountain rivulet, near Bantry, Miss Hutchins. This has never been seen growing but by its discoverer.


On moist banks; common.


On paths in woods and on bare bogs; common.

30. *J. connivens*, Dicks. Stem procumbent; leaves orbicular concave, deeply notched, the segments somewhat connivent; fruit terminal upon short proper branches; calyx oblong inflated, the mouth contracted, ciliated. *Dicks. Cr. Fasc. 4, p. 19, t. 11. Hook. Br. Jung. t. 15.*

On banks and ditches; not uncommon.

31. *J. curvifolia*, Dicks. Stem procumbent; leaves roundish, very concave, deeply bifid, the segments incurved; fruit ter-

On decaying timber, in woods; not uncommon. This has a remarkable perichaetium. The colour is whitish and red.

** ** Leaves tri-quadrifid; the segments equal.

32. J. capitata, Hook. Stem prostrate; leaves roundato-quadrate, the lower bifid, the upper capitato-imbricate at the top and tri-quadrifid; calyx terminal, oblongo-ovate, subplicate, the mouth contracted, toothed. Hook. Br. Jung. t. 80.

On dry mountain rocks, near Bantry, Miss Hutchins.


On wet banks; not uncommon.

34. J. pusilla, Linn. Stem procumbent; leaves large, quadrates irregularly 2—3-fid; fruit lateral by innovations; calyx campanulate, the mouth wide, waved, and cut; capsule globose, bursting irregularly. Linn. sp. pl. 1602. Hook. Br. Jung. t. 69.

On wet clay; common. In the irregular disruption of the capsule this plant forus an exception to the generic character. It flowers at all seasons of the year in the South of Ireland. The seeds are strongly muricated.

** ** ** Leaves bifid; the segments unequal, conduplicate.

35. J. nemorosa, Linn. Stem erect; leaves unequally 2-lobed, dentato-ciliate, lobes conduplicate, the lower larger, obovate, the upper subcordate, obtuse; fruit terminal; calyx oblong, incurved, compressed, the mouth truncated, dentato-ciliate. Linn. sp. pl. p. 1598. Hook. Br. Jung. t. 21.

In wet situations; common. This is a most variable species, as to colour, recurvation of the lobes of the leaves, and, above all, as to the degree of serrature of the leaves.

36. J. undulata, Linn. Stem erect; leaves unequally 2-lobed, entire or slightly serrulate, lobes conduplicate, the lower larger obovate, the upper subcordate obtuse; fruit terminal, calyx oblong, incurved, compressed, the mouth truncated, nearly entire. Linn. sp. pl. p. 1598. Hook. Br. Jung. t. 22.

In wet situations; common. Although from Linnaeus and Dillenius down to the present time this has been kept a distinct species from the preceding, I do not see how certain states of it are to be defined and distinguished; nor can I name them without the assistance of a lens, to tell the serratures of the leaves and calyx. Two and three fertile capsules in the same calyx are not uncommon at Sheen bridge, near Kenmare.

On the summit of Brandon Hill; rare.


On rocks; near Dublin.


On wet banks; common.

40. *J. albicans*, Linn. Leaves unequally 2-lobed, the lobes conduplicate, with a pellucid line or nerve in the middle, serrated at the point, the upper oblongo-ovate, acute, the lower larger, somewhat scymitar-shaped; fruit terminal; calyx obovate, cylindraceous, subcompressed, the mouth contracted, plicate, toothed. *Linn. sp.pl. p. 1599. Hook. Br. Jung. t. 25.*

On moist banks; common.

41. *J. obtusifolia*, Hook. Leaves unequally 2-lobed, the lobes conduplicate, obtuse, entire, the upper oblong, obtuse, the lower large, somewhat scymitar-shaped; fruit terminal; calyx obovate, the mouth contracted, toothed. *Hook. Br. Jung. t. 26.*


42. *J. Dicksoni*, Hook. Stem ascending; leaves unequally lobed, conduplicate, narrow ovate, entire, acute, the lower larger; fruit terminal; calyx ovate, plicate, the mouth contracted, toothed. *Hook. Br. Jung. t. 48.*

Mountains near Dublin.


On dry banks; not uncommon. Fruit rare; Lough Bray, near Dublin.

On dry banks; not uncommon: fruit unknown.


On subalpine bogs; common: fruit unknown.

46. **J. complanata**, Linn. Leaves distichous, imbricated, unequally 2-lobed, the upper lobes larger, orbicular, the lower ovate, adpressed, plane; fruit terminal; calyx oblong, compressed, truncate. **Linn. sp. pl. p. 1599. Hook. Br. Jung. t. 81.**

On trees; frequent. This species has lenticular gemmae. Pencils of fibres, from the duplicature between the lobes of the leaves, expand at their terminations into flat discs, by which the plant adheres to subjacent substances, as occurs in the Virginian Creeper. The seeds are large in proportion to the spiral filaments.

**B. STIPULATE.**

* a. Leaves entire or rarely emarginate.


On moist declivities of the mountains; not uncommon.


On moist clay banks; common.

49. **J. polyantha**, Linn. Leaves plane, rotundato-quadrate, entire or emarginate; stipules oblong, bifid; fruit on short proper branches from the underside of the stem; calyx much shorter than the calyptra, laciniated. **Linn. sp. pl. p. 1597. Hook. Br. Jung. t. 62.**

In wet spots, especially under trees; common. The stipules are minute compared to the leaves.

50. **J. cuneifolia**, Hook. Stem creeping; leaves rather remote cuneiform, entire or very obtusely notched at the extremity; stipules minute, ovate, bifid. **Hook. Br. Jung. t. 64.**

On **J. Tamarisci**, near Bantry, **Miss Hutchins.**

51. **J. viticulosa**, Linn. Stem procumbent; leaves flat, ovate, entire; stipules broadly ovate, dentato-laciniate; fruit dorsal; calyx subterraneous, oblong, fleshy, the mouth fringed with foliaceous scales. **Linn. sp. pl. p. 1597. Hook. Br. Jung. t. 60.**
On the ground, among mosses; common. The calyx, perhaps, would be better called pensile; it is by no means immersed in the soil, but attached by the neck on one side, it hangs down freely. This applies to the next species.

52. J. Trichomanis, Dicks. Stem procumbent; leaves flat, convex, ovate or emarginate; stipules rotundato-lunulate, emarginate; fruit dorsal; calyx subterraneous (pensile), oblong acuminated, fleshy, hispid, the mouth crenated. Dicks. Cr. Fasc. 3, t. 8, f. 5. Hook. Br. Jung. t. 79.

On wet soil; common. The stipules sometimes 3—4-fid; the leaves are occasionally glaucous, usually of an apple green; the capsule linear-oblong, its valves spirally twisted.

b. Leaves bi-tri-fid, or partite, segments equal.

* Stipules very small, distinct.


On moist mossy banks; common. On the specimens from Blackwater Bridge, County of Kerry, I find the calyces acutely triangular, with the angle corresponding to the inferior side of the stem serrate. As I have found some specimens which, with the utmost care in the investigation, I could not refer to one more than the other species quoted, I have ventured to unite them.

54. J. scutata, Web. et Mohr. Stem procumbent; leaves rounded, acutely emarginate at the top, the segments acute straight; stipules large, ovate, acuminated, subdentate at the base; fruit lateral; calyx obovate, subplicate at the top, the mouth contracted, bluntly toothed. Web. et Mohr, Cr. Germ. p. 408. Hook. Br. Jung. t. 41.

Near Bantry, Miss Hutchins. Lough Bray, on exposed rocks-Turk Waterfall, near Killarney, Mr. Wilson.

55. J. Francisci, Hook. Stem nearly erect; leaves ovate, concave, acutely emarginate; stipules minute, ovate, bifid; fruit terminal upon short proper branches; calyx oblongo-cylindraceous, the mouth toothed. Hook. Br. Jung. t. 49.

Near Bantry, Miss Hutchins; very rare.


On turf banks, with mosses; rather rare.
57. *J. reptans*, **Linn.** Stems cæspitose; leaves subquadrate, incurved, acutely quadridentate; stipules broadly quadrilateral, quadridentate; fruit dorsal; calyx oblong plicate, the mouth toothed. *Linn. sp. pl. p. 1599. Hook. Br. Jung. t. 63.*

In woods; common.


On the summit of Magillicuddy’s Reeks. It varies much in size. Fertile calyces have not yet been found in Ireland.

**Stipules nearly as large as the leaves, and very like them.**


On mountains; common. The above applies to West Indian specimens. The Irish have the segments of the leaves nearly straight, and are somewhat smaller in the stems.

60. *J. julacea*, **Linn.** Stems slender, nearly erect; leaves and stipules ovate, deeply bifid, imbricated, erect; those of the perichaetium quadripartite, their segments lanceolate, acuminate, subserrate; fruit terminal; calyx oblong, subulate, the mouth open, toothed. *Linn. sp. pl. p. 1601. Hook. Br. Jung. t. 2.*

Usually on the higher mountains. A variety is found at Aooreagh River, near Sneem, not two hundred feet above the level of the sea, in which the serratures of the leaves are not to be observed, whilst the leaves themselves are margined.

61. *J. laxifolia*, **Hook.** Stems filiform; leaves and stipules remote, erecto-patent, ovate, subcarinate, acutely bifid, their segments acute, erect; fruit terminal; calyx oblong, subulate, the mouth contracted, toothed. *Hook. Br. Jung. t. 59.*

On sides of rocky rivulets. Near Bantry, *Miss Hutchins.* At Castle Kelly Mountain, near Dublin; and at Aooreagh River, near Sneem.


On bogs and moist banks; common.

63. *J. tricophylla*, **Linn.** Leaves and stipules deeply 3–4-partite, the segments setaceous, jointed, patent, straight; fruit terminal; calyx oblong, the mouth contracted, ciliated. *Linn. sp. pl. p. 1601. Hook. Br. Jung. t. 7.*

On bogs; less frequent than the last.
c. Leaves bifid, lobes unequal, conduplicate.

* Lower or smaller segments plane.

64. *J. platyphylla*, Linn. Stem pinnate; leaves unequally 2-lobed, the upper lobe rotundato-ovate, nearly entire, or spinuloso-dentate, the lower ligulate, entire, the stipules entire or dentate; fruit lateral; calyx ovate, compressed, the mouth truncated, inciso-serrate. *Linn. sp. pl. p. 1600. Hook. Br. Jung. t. 40.*


On rocks and stones; common. This species is subject to many remarkable varieties; as of lighter colour, glossy surface, size, degree of serrature of the leaves. At Aooreagh River, near Killarney, is a state with lurid leaves, small size, the lower lobe wider than the upper and totally unconnected with it. This complete separation of the two lobes also is found on specimens on Dunkerron Castle.

66. *J. Woodsii*, Hook. Stem bi-tripinnate; leaves convex unequally 2-lobed, the upper lobe bipartite, spinuloso-dentate, the lower minute, oblong, nearly entire; stipules large, ovate, bipartite, spinuloso-dentate, with the base spurred on each side. *Hook. Br. Jung. t. 66.*

On Brandon Hill: sterile.


In woods and marshes; common. The leaf sometimes splits into four laciniae. On the tops of the shoots there occur, at Blackwater, County of Kerry, clusters of linear, jointed bodies not enclosed in any calyx.

* * Lower segments of the leaves involute.

68. *J. Mackaii*, Hook. Stem creeping; leaves unequally 2-lobed, the upper lobe rotundate, the lower minute, involute; stipules large rotundato-obcordate; fruit lateral as well as terminal; calyx obcordate, compressed, gibbous below, the mouth contracted, toothed. *Hook. Br. Jung. t. 53.*

On the faces of perpendicular rocks, especially limestone; common.

69. *J. serpyllifolia*, Dicks. Leaves unequally 2-lobed, the
upper lobe oblongo-rotundate, the lower a minute involution of the upper; stipules rotundate, bifid; fruit lateral; calyx obovate, pentagonal, the mouth contracted, somewhat toothed; capsule pellucid, quadrifid. *Dicks. Cr. Fase. 4, p. 19. Hook. Br. Jung. t. 42.*

On mosses, trees, and rocks; very common. A variety occurs at Blackwater Bridge, County of Kerry, exceedingly minute; the leaves acute, marginated; the stipules scarcely wider than the stem; their segments divergent. Another on Blackwater Hill, under rocks, is more than double the usual size in all its parts, and grows so much in tufts that in dry weather these form cushions of an inch in depth.

70. *J. hamatifolia,* Hook. Stem creeping; leaves unequally 2-lobed, the upper lobe ovate, acuminate, somewhat incurved, the lower involute; stipules ovate, acutely bifid; fruit lateral; calyx obovate, pentagonal, the mouth contracted, toothed; capsule pellucid, quadrifid. *Hook. Br. Jung. t. 51.*

On old stems of furze, also on trees and wet rocks; common. Sometimes, as at Woodlands, near Dublin, the stipules are scarcely to be found, and the calyx is by no means angular.

71. *J. minutissima,* Smith. Stem creeping; leaves indistinctly and unequally 2-lobed, the upper lobe hemispherical, the lower minute, almost obsolete; stipules ovato-rotundate, bifid; fruit lateral; calyx obovato-rotundate, pentagonal, the mouth contracted, slightly toothed; capsule pellucid quadrifid. *Eng. Bot. 1633. Hook. Br. Jung. t. 52.*

On trees at Woodlands, near Dublin. On stems of furze, also on rocks, County of Kerry. However minute this species, as compared with most of its congers, yet is it several times larger than *J. microscopica.*

72. *J. calyprifolia,* Hook. Stem creeping; leaves unequally 2-lobed, the upper lobe larger, very concave, rotundate, suddenly elongato-acuminate, the lower obtusely quadrate, involute; fruit lateral; calyx oblong, the top flat, sub-5-dentate, the mouth contracted; capsule pellucid, quadrifid. *Hook. Brit. Jung. t. 43.*

On the stems of old furze in the mountains, near Glengariff, *Miss Hutchins.* Near Dunkerron, in the mountains; not very rare.

** Lower segments of the leaf saccate.**

73. *J. Hutchinsiae,* Hook. Leaves unequally 2-lobed, the upper lobe ovate, spinuloso-serrate, the lower minute, saccate, often unidentate at the base; stipules rotundato-ovate, subserrate, acutely bifid; fruit lateral; calyx triangulari-obcordate. *Hook. Br. Jung. t. 1.*


74. *J. dilatata,* Linna. Stems prostrate; leaves unequally
HEPATICÆ. [Anthoceros.

2-lobed, the upper lobe roundish, acute, the lower rotundato-saccate; stipules roundish, plane, emarginate; fruit terminal; calyx obcordate, tuberculated, triangular. Linn. Sp. pl. p. 1600. Hook. Br. Jung. t. 5.

On trees, also on rocks; very common.

75. J. Tamarisci, Linn. Stems prostrate; leaves unequally 2-lobed, the upper lobe ovato-rotundate, the lower minute, obovate, saccate; stipules subquadrate, emarginate, their margins revolute: fruit on short terminal branches; calyx obovate, smooth, triangular. Linn. sp. pl. p. 1600. Hook. Br. Jung. t. 6.

On bushes, trees, and rocks; common. The stipules are often twice as wide as the stems. The middle and upper leaves of the branch are frequently apiculated, and sometimes even the inferior likewise.

7. Anthoceros, Linn.

Male flowers aggregate, immersed in the frond. Capsule linear, 2-valved, having a central filament, and issuing out of a tubular prolongation of the superior membrane of the frond.


On clay or soil bare of other vegetation, as in fallow fields, sides of ditches; very common: flowering throughout the year in the County of Kerry. That there are two distinct species on the Continent of Europe, it may be rash to deny, as all Continental botanists seem agreed on their existence. In Ireland I have seen but a single species, sometimes exactly represented by the Dillenian figure 1, at other times by 2; and not unfrequently intermediate specimens not quite referable to one or the other are to be found. This genus has hitherto been arranged among the calyptati; which, I fear, was only accidentally true, as the real calyptra seems to have escaped observation. It is true Hedwig has delineated and described in his Theoria, ed. of 1798, pag. 189, what would appear to be decisive on the subject; he says, "elevatur etiam monticulus conicus, e unus summatis insidet opus "fuscum et tenerrimis filamentos ad calyptrae formam compositum, brevi "stylisco instructum. Emergit postea inde corpusculum cylindrico- "conico, corniculum referens, tectum in caccum dicto stylosico mi- " trasformi, qui diutius ibi, punctuli fuscī specie ad nudum ocelum, " moram nectere solet, nisi tempestatum injurias inde deturbetur. Non "latuisse etiam Schmidelium hanc singularem partem constat e numero "8vo. sue descriptionis." I have repeatedly, at different seasons of the year, at different periods of maturity, and for many years, in vain looked for such a structure in our Irish species. I can hardly suppose that Hedwig was deceived, although even in the foregoing extract there is some confusion in first placing the calyptra on the top of the conical elevation of the upper surface of the frond, and afterwards on
the summit of the capsule, which bursts through this surface. The capsule almost universally commences to wither at its very summit, which turns brown, dry, and exhibits its reticulation very evidently. This withering of the summit takes place sometimes, just as it is emerging out of the conical elevation of the upper surface of the frond, and at other times not until the capsule has attained its full height of one inch or more; it may most easily be mistaken for a calyptra. The true calytra, however, never emerges out of the frond, but remains thick, carnose, of a globular form, and slightly yellowish-brown, around the base of the peduncle, having opened at the top to give exit to the capsule. In the youngest state of the plant the edges of the lobes lie flat, they are subsequently elevated, forming a cavity, from the bottom of which the fruit emerges. There are spherical elevations of the superior surface of the frond, beneath which two, sometimes three anthers lie; these elevations seem to burst irregularly. The anthers at first greenish, at maturity assume a yellowish orange colour; their shape is oblong, flattened often on one side from the pressure apparently of the twin anther; they contain a milky fluid. They are shortly pedicellated, and are found on plants distinct from the capsuliferous. The sheath of the capsule, (for it can never properly be termed a calyx, whose origin in this tribe of plants, is on the receptacle and around the base of the pedicell of the capsule), or elevation around of the superior membrane of the frond is about one-tenth of an inch in height. The capsule is one or two inches in length, at first all grass green, resembling the seedling shoots of onions as observed long ago by Buxbaum; turning brown previous to dehiscence, which takes place by the bursting of the two opposite longitudinal grooves hitherto covered by a thin pale membrane. The opening displays a central filiform columella, which is surrounded by a cylindrical transparent greenish membrane, out of which on all sides issue flat processes, variously angular, sometimes expanded at the top, these passing along the interstices between the quaternions of seeds embrace the quaternions; when these last are ripe, the flat processes detach themselves from them as well as from the membrane around the columella. The ripe quaternions while yet held together by the processes, form a cylinder around the columella. The quaternions in a very young state are pellucid, colourless spheres containing near the centre (apparently in a fluid) two dark oblong and parallel bodies attenuated at each end; after some time, each of the two divides into two equal parts, at length the four approach, and in time form a perfect quaternion, which, as it ripens, no longer displays its original spherical covering. Thus it seems demonstrated, that what have been hitherto termed seeds are properly the unions of several. This is true of the other Hepaticæ allied to Anthoceros in having flat fronds. Thus also, as in the Musci, the interior membrane of the capsule reflected on the columella produces the seeds. The columella is continued down to the junction of the capsule with the calytra; the capsule, therefore, cannot be said to be pedicellated. There are no true pores, as in the Marchantiae usually occur, on the surface of the frond. The sap or juice is singularly viscid and gelatinous, and presents a difficulty in dissecting the living plant. The mode of budding of this species has not hitherto been noticed. In the month of June I have observed towards the base of the fronds, and at the edges, the upper and lower membranes to separate and discharge a number of minute flat lobed reticulated and greenish bodies like fronds in miniature; with these,
however, I have also observed discharged oblongo-rotundate brownish bodies, evidently reticulated, whose destination or functions I am at a loss to conjecture; they are, however, very distinct from the compactly granulated dark green bodies of *Jungermannia Blasia* described by Dr. Hooke.


Capsule, with its exterior membrane calyptriform, bearing a style, the interior enclosing numerous subangular seeds united in fours or *quaternions*, with pellucid coats. The style protruded above the frond.


On banks and hedges; common; flowering all the year. The style is brownish-black, opaque. Capsules near the base of the frond sometimes ripen when those nearer the summit are quite immature. Among the *quaternions* of seeds there are no spiral or other filaments. I have observed of three capsules closely placed, the central to be abortive, in which case the covering that in a young state encloses each *quaternion*, though fully formed, was empty and collapsed. In two instances only, out of numerous trials, have I found immersed in the frond not far from the top, oblongo-spherical bodies of a light brownish colour, as large as the *quaternions*, but perfectly smooth and unmarked on the surface by any lines of division. These, I have no other reason to doubt are the true anthers, but the fewness of the observations.
ORDER III.

Lichenes. Hoffm.

Plants of less diversity of structure than the Musci or Hepaticae; consisting of a thallus, corresponding to the organs of vegetation; and of apothecia, corresponding to those of reproduction: unaffected by difference of temperature of the seasons or of climates, hence more uniformly scattered over the earth's surface than plants of the superior orders; hence, too, they are more rarely green on the surface, although the application of moisture induces a slight greenish tint on nearly all; of long duration, and slow growth; of peculiarly slow dissemination, not appearing to be supplied with the means of expelling their seeds at the period of maturity; many, however, are furnished with buds, an accessory mode of reproduction. Living on the surface of soil, of rocks and of trees, they are neither properly parasites on the latter, nor do they appear to draw any nutrient from the former, their roots serving the simple purpose of attachment. Lichens partially immersed in water, convey the fluid to the parts that are not submerged. Beneath the superficial or cortical layer of the thallus, is one green or becoming green by abrasion. The Gongyli or seeds immersed in the thallus cannot well be distinguished from those of the apothecia, yet some observations point to the conjecture that the Gongyli of the former produce thallus, and those of the latter apothecia. The Lichens prefer the purest air and to face prevailing winds: their Gongyli retain vivaciousness for long periods: new islands emerged from the ocean at the distance of hundreds of miles from land, soon exhibit the Lichens of the opposite windward shores, and form the first series of plants, the cradles of future vegetation.
Table of the Genera.

A. Apothecia none.

1. Lepraria. Thallus crustaceo-leprose, uniform effuse. Apothecia none. Gongyli covering the thallus, more or less scattered, naked.


B. Apothecia stalked.

* Stipulate; or apothecia with stalks of a proper substance.

3. Calicium. Thallus crustaceous, uniform. Apothecia goblet-shaped, more or less stipitate, marginate, enclosing a powdery mass.

4. Bœomyces. Thallus crustaceous, or filmy, uniform. Apothecia convex or orbiculate, not bordered, on solid, soft foot-stalks.

* * Apothecia on podetia, or stalks formed of the thallus.

5. Cenomyce. Thallus cartilagineo-crustaceous, or folia-ceous, laciniated; podetia fistulose, sterile, or bearing apothecia on their summits. Apothecia hemispherico-subglobose, not bordered, fixed by the circumference.

* * * Apothecia on the sublinear branches of a suberect thallus.

† Apothecia internally pulverulent.


† † Apothecia internally solid.

1. Apothecia turbinate, at length globose.

7. Stereocaulon. Thallus dense, nearly woody and branched, or crustaceous. Apothecia stalked, turbinate, solid, marginate, at length hemispherico-globose, their margin evanescent.

2. Apothecia discoid.

a. Thallus compressed.

8 Evernia. Thallus suberustaceous, branched and laci-
niated, or compressed and subangulate. *Apothecia* orbiculate, with an inflexed thallodal border, the disk concave, coloured.

9. **Ramalina.** *Thallus* cartilaginous, branched and laciniated, compactly cottony within. *Apothecia* orbiculate, bordered; the disk and border of the substance of the *thallus*, and of one colour.

b. **Thallus cylindrical.**

10. **Usnea.** *Thallus* cartilagineo-crustaceous, cylindrical, hollow, enclosing a central thread. *Apothecia* orbiculate, entirely formed of the *thallus*, and of the same colour.

11. **Alectoria.** *Thallus* cartilaginous, the branches subfiliiform, subfistulose, cottony within. *Apothecia* orbiculate, thick, marginate, at length convex and losing the border, entirely formed of the *thallus*, and of the same colour.

12. **Cornicularia.** *Thallus* cartilaginous, branched, somewhat solid and cottony within. *Apothecia* orbiculate, obliquely peltate, entirely formed of the substance of the *thallus*, and of the same colour.

C. **Apothecia without footstalks.**

* Apothecia, tuberces, immersed.

13. **Verrucaria.** *Thallus* crustaceous or cartilagineo-membranaceous, uniform. *Apothecia* subglobose, partly immersed, of a different colour and substance from the *thallus*, enclosing a *nucleus*, the apex papillosely, usually perforated.

14. **Endocarpon.** *Thallus* cartilaginous or foliaceous, often lobed. *Apothecia* globose enclosed in the *thallus*, with a marginated dusky perforation at the apex, enclosing a *nucleus*.

15. **Porina.** *Thallus* cartilagineo-membranaceous, uniform. *Apothecia* verruciform, formed of the *thallus*, one or many celled; each cell containing a *nucleus*, and opening by a perforation above, coloured, often distorted.

16. **Thelotrema.** *Thallus* cartilaginous, membranaceous or subcrustaceous. *Apothecia* verruciform, formed of the *thallus*, hollowed, marginated, containing a *nucleus* beneath a coloured disk.

* * Apothecia, (*lirellae,* sublinear.


18. **Arthonia.** *Thallus* crustaceous or cartilagineo-membranaceous, uniform. *Apothecia* roundish, elongated or varying
in form, nearly plane, not bordered, within somewhat gelatinous, covered by a dark membrane.

19. Opegrapha. Thallus crustaceous, membranaceous or leprous, uniform. Apothecia oblongo-elongated, immersed or sessile, covered by a dark membrane, the disk narrow, with a proper border.

*** Apothecia discoid, round, sessile, or at length emerging.

† Thallus (in a moist state) gelatinous.

20. Collema. Thallus of the same nature throughout, when moist gelatinous, when dry hard and cartilaginous, sometimes foliaceous. Apothecia orbiculate, sessile, (rarely on podetia), bordered, formed entirely of the thallus.

† † Thallus crustaceous.

21. Variolaria. Thallus crustaceous, or cartilagineo-membranaceous, uniform. Apothecia verruciform, formed of the thallus, bearing a powdery or flocculent substance which covers the disk.

22. Lecidea. Thallus crustaceous, uniform or scaly. Apothecia orbiculate, sessile, the disk coloured, the border of the same colour as the disk.

23. Urceolaria. Thallus crustaceous, uniform. Apothecia orbiculate, immersed in the thallus, the disk concave, the border formed of the crust.

24. Lecanora. Thallus crustaceous, uniform, or lobed and scaly at the margin. Apothecia orbiculate, sessile, their margins formed of the thallus, tumid, elevated.

† † † Thallus foliaceous, or membranaceous.

25. Parmelia. Thallus foliaceous or membranaceous, stellato-lobate or laciniated. Apothecia orbiculate, exteriorly beneath, as well as their margins, formed of the thallus, the disk concave coloured.

26. Sticta. Thallus foliaceous, or coriaceo-cartilaginous, hirsute beneath, and there furnished with hollow or bare spots, (cyphellæ). Apothecia orbiculate, sessile, exteriorly beneath, as well as their margins, formed of the thallus, the disk concave, coloured.

27. Solorina. Thallus foliaceous, coriaceous, lobed, free, beneath having fibrous veins. Apothecia subrotund, sessile, not bordered.

28. Peltidea. Thallus foliaceous, coriaceo-membranaceous, lobed, having woolly veins beneath. Apothecia borne on pro-
per lobules, orbiculate, or oblongo-rotundate, affixed by their entire bases upon the *thallus*, by which too they are bordered.

29. *Nephroma*. *Thallus* foliaceous, coriaceous or membranaceous, lobed. *Apothecia* borne on proper lobules, orbiculate or reniform, affixed by their entire bases on the inferior side of the *thallus*, by which too they are bordered.

30. *Cetraria*. *Thallus* foliaceous, cartilagineo-membranaceous, lobate, laciniated. *Apothecia* orbiculate, obliquely adnate by a part to the margin of the *thallus*, the rest free; the disk coloured, the border of the substance of the *thallus*.

31. *Gyrophora*. *Thallus* foliaceous, coriaceous, fixed by the centre. *Apothecia* orbiculate, sessile, covered by a dark membrane, the border of their own substance, (not thallodal); the disk usually marked with gyrose plaits.

More anxious to make known the species of Irish Lichens than to offer any opinion on the construction of Genera, I have limited myself to Acharius's distribution, by no means presuming to imply that new sub-divisions, lately proposed by distinguished botanists, will not prove in time worthy of adoption.
1. Lepraria. *Ach.*

*Thallus* crustaceo-leprose, uniform, effuse. *Apothecia* none. *Gongyli* naked, covering the *thallus*, more or less scattered.

The very first of our list is the most unsatisfactory and doubtful of the Genera of Lichens. Its present use appears to arise from its being a depository of certain species, with a powdery thallus, whose fructification is unknown. *Lepraria incana* of *Ach.* *Lich.* *Univ.* is now ascertained to be a *Lecidea*; whilst *L. eruginosa*, *Eng.* *Bot.* and *L. chlorina* *Ach.* have been removed by Dr. Hooker to the *Fungi.*


On trees, pales, and walls; common. On alders a membranous, and in wet weather a subgelatinous substratum of a duller green is sometimes observable, but whether truly belonging to the species is uncertain, as it commonly occurs without any such appearance.


On old trees; not uncommon. Near Belfast, *Mr.* *Templeton.* The crust is thinner on the pines than on old oaks.


On trunks of trees and on mosses; common. The crust is denser than in the preceding, and in the herbarium almost entirely loses its snow-white colour.


On stones; Deer Park wall, near Belfast, *Mr.* *Templeton.*


*Thallus* crustaceous, uniform, effuse, usually thin, continuous. *Apothecia* none, (that is without any subgelatinous *parenchyma*). *Gongyli* collected into compact masses, coloured, naked.

In *Lepraria* the *Gongyli* constitute the entire *thallus*—in fact, almost the entire Lichen; but in *Spiloma* they constitute the collections similar to *Apothecia*, upon a *thallus* of a different nature and structure. In the specific characters these collections are termed *Apothecia.*
LICHENES.


On rocks, usually parasitic; not uncommon in Kerry. Although sometimes the apothecia of this species are found on *Variolaria corrallina*, yet more rarely it appears to have its proper thallus, between which and the adjacent *thallus* of the *Variolaria* a black limit may be observed.


On old oak paling, at Dunkerron, County of Kerry. Our plant agrees with the figure and description in *Eng. Bot.* except as to the colour of the nucleus, which with us is not greenish but rather of a very pale brown. The presence of this nucleus is somewhat contradictory of the Generic character.


On rocks; County of Kerry.


On the bark of trees; common. The *gongyli* are collected upon a compact base of the thallus, somewhat in the nature of a perithecium. This species varies by the convexity or depression of the apothecia, by their being simple or appearing lobed from confluence, by the presence or absence of the *gongyli*, and by the surface of the apothecia being pruinose or naked.

* Apothecia stipitate, or with proper stalks.

3. **Calicium.** *Ach.*

Thallus crustaceous, uniform, not bordered, very thin, sometimes none apparent; apothecia subturbinate, or goblet-shaped, stipitate, (sometimes subsessile,) enclosing a powdery mass.


On decaying timber; near Belfast, *Mr. Templeton.* The crust
varies in thickness, is sometimes split and areolate. On the same stipes three or four apothecia are sometimes borne; the stipes is at times exceedingly short, and the crust more of an ash colour, constituting the var. termed roseidum by Acharius.


On decaying timber; at Powercourt, Dr. Whitley Stokes. This species is often associated with Lecanora varia.


Thallus crustaceous or filmy, uniform, sometimes lobed; apothecia convex or orbiculate, terminal on solid, simple, soft footstalks, not bordered.


On stones and on the ground; common.

2. B. microcephalus. Thallus filmy, continuous, greyish-white, the border greenish; apothecia numerous, minute, nearly globose, reddish brown, nearly black when dry; stipes very short, pellucid.

On the surface of Hypnum myosuroides, on Carig mountain, County of Kerry: also on Jungermannia dilatata. The patches, rather orbicular, are from one to six inches in diameter, conspicuous as white spots at some distance. When the thallus is moistened the greenish parenchyma is here and there apparent in points. The surface is uneven from most minute wrinkles. Apothecia minute, barely observable with the naked eye, when young almost sessile, of a light reddish brown, translucent and shining even in the dry state, when old and dry they are nearly opaque and black, sometimes two on the same stipes, globose. The stipes is scarcely two diameters of the apothecium in length, strangulated in the middle, the upper portion more brown, the lower paler. It has no affinity with any described species with which I am acquainted. The patch at a little distance is very like that of Lecidea vernalis, when this occurs investing mosses, but the presence of the stipes and structure of the apothecia, widely different, remove all chance of confusion.


On sandy clay, near Belfast, Mr. Templeton. The apothecia at
LICHENES.

length bared of the buds represent all the characters of a Bæomyces. In the dark brown disk opaque minute gongyli exist. Stipes solid, yet less hard at the axis.


On stones in woods, and on rocks, County of Kerry; common. Thallus rather thick, cracked into areoles, pale brownish grey, somewhat greener when growing in shade; of a fibrous or columnar structure; the margin of a pale flesh colour. Patches sometimes occur two or more feet in diameter. The surface of the areoles is rough, with elevations and depressions. Apothecia when young immersed, in which state they remain in shaded situations; in more exposed, the apothecia emerge, borrowing sometimes a spurious border from the crust, but which is soon relinquished. On the centre of the apothecia an umbilicus is commonly seen, as in others of this genus. The stipes remains immersed in the crust.

* * * Apothecia on podetia formed of the thallus.

5. CENOMYCE. Ach. including Cladonia of Fée and Pycnothelia of Dufour.

Thallus cartilagineo-crustaceous, or foliaceous, laciniated; podetia fistulose, sometimes sterile; apothecia hemispheric-subglobose, terminal on the podetia, not bordered.

a. Thallus somewhat shrubby, branches subulate.


a. common in the mountains. b. on the side of Devis mountain, Mr. Templeton. The var. b. is very remarkable, perhaps distinct. It has never the sulphur-yellow colour of a, but is brown, has a very considerable thallus of minute lobed scales at the base of the podetia; these have sprinkled over their surface, brownish flattened granular buds, that expand occasionally into minute white scales.


On heaths and on mountains; common. Podetia three to five inches. Mr. Templeton found a variety near Belfast, in which the
LICHENES.

podetia apothecia the apothecia do apothecia Thallus apothecia yet podetia C. [Cenomyce. «. not common. the face a figure pervious, panding lindrical, and Those rotundate, ceding, granular the Bot. irregularly so face The Bot. 5. C. parasitica. Scales of the thallus minute, erosolacini- nulate, glaucous-green, granulato-pulverulent; podetia dilated above, slender, subdivided at the top; apothecia conglomerate. Lichen parasiticus, Hoffm. Enum. Lich. t. 8, f. 5. Lichen delicatus, Eng. Bot. t. 2052.

On the edges of dry turf, on heaths, on decaying timber; common. The apothecia are brown, convex, and dimpled on the summit, as in the genus Bocomyces. White granular buds, sprinkled over the surface of the podetia, are observed at length to expand into thallodial scales. A variety occurs on mud walls, near Kenmare, with the scales so densely covered with greenish grains as to form a continuous surface; the apothecia are nearly sessile, and have their border studded with green grains strongly simulating a Lecanora.


On dry banks, near Bantry, Miss Hutchins. Not unlike the preceeding, of which it may prove only a variety; yet the scales are more rotundate, and far less incised.


On rocks in the mountains, near Dunkerron; not uncommon. The figure of English Botany is deficient of the proper scales of the thallus, and gives only those that germinate from the buds on the podetia. Those scales are sometimes one quarter of an inch in length, incised in a pinnate manner, the laciniae linear; they are of a pale dull green above, and white beneath. The podetia, where they are not covered with the
greyish white powder constituting the buds, are of a brownish flesh-
colour, longitudinally striated, often widely split, and usually perforated
at the axillæ of the branches. The apothecia are convex, dimpled on
the centre.

7. C. cervicornis, Ach. Thallus erect, fastigiate, the scales
branched into lineari-oblong, somewhat crenate, laciniae; po-
detia from the disk, dilated and branched above, their margins
at length proliferous; apothecia minute, marginal, sessile. 

On rocks; near Dunkerron; common. This species grows re-
markably tufted, and, contrary to what is usual in the genus, the
organs of vegetation bear a great proportion to those of reproduction
as to size. The apothecia tinge the portions of the thallus that sup-
port them of a reddish-brown colour, but they are themselves almost
black; they have occasionally an elevated margin to the disk, not obli-
terated by the application of moisture. On the cups a glaucous grey
powder, constituting the buds, expands into greyish round scales,
eventually becoming thallus.

8. C. coccifera, Ach. Scales of the thallus minute, imbrici-
cated; podetia cylindraceo-obeconical, wide above, mealy, some-
times proliferous; apothecia conglomerated or confluent. 
t. 1393.

On heaths common, Mr. Templeton. Acharius himself, in page
534, allows that his C. pyxidata differs from his own C. coccifera
only by the colour of the podetia and of the apothecia. Mr. Templeton
found the dark apothecia upon sulphur coloured podetia in specimens
collected near Belfast. I have observed, apparently on the same tuft,
in our Kerry mountains, the apothecia to vary from bright scarlet to
dark purplish-brown. I am not aware how the two species, as given
by authors, are to be kept distinct.

9. C. fimbriata, Ach. Thallus of soft foliaceous scales;
podetia from a narrow base dilated into a wide, campanulate,
impervious cup, with minute acute teeth, sterile, or with minute

On the sides of ditches; common. Mr. Templeton.

10. C. radiata, Ach. Thallus with minute, imbricated
scales; podetia elongato-cylindraceous, taper, expanding above
into cups, which are irregularly radiated into simple (sometimes
subdivided) acuminate shoots, or into very short processes,

On Aghalee bog, near Lough Neagh, Mr. Templeton. Mr. Tem-
pleton alone has observed this species in Ireland.

11. C. cornuta, Ach. Thallus with laciniated and crenate
scales; podetia, the barren subulate, the fertile cylindraceous,
narrower above, tipped with minute scarlet or brownish apo-
On dry banks; not uncommon. A variety grows in Pigeon Island, in the river Kenmare, tufted; the lower parts of the podetia and scales of the thallus of a tawny colour; the cylindrical portions of the podetia about one-fourth of an inch only in height, and covered throughout with buds, expanding into thallodal scales of a greenish grey colour. Mr. Templeton, on the contrary, has found at Ballygowan bog, near Belfast, the var. g. proboscidalis of Ach. L. Un. which is at least five times as great in all its parts.


At Kilranelagh, County of Wicklow, Dr. Whitley Stokes. The podetia are brownish, smooth to the naked eye, yet having buds on the surface, which sometimes expand into a thallodal scale here and there.


On the mountains, near Dunkerron; common. In all the foreign specimens I have seen, the colour was (I suppose through age) of a dark brown.


Near Belfast, on the mountains; Mr. Templeton. The buds at first swell into pale greenish-grey globules, which presently expand into thallodal scales. The colour of the apothecia is described by authors as scarlet, but in Mr. Templeton’s specimens they are of a dark purplish-brown, proving, with what has been observed of other foregoing species, that the brightness of the colour of the apothecia is little to be depended on in this genus as a discriminating mark.

e. Thallus subcrustaceous.

15. C. Papillaria, Ach. Thallus subcrustaceous, uniform, granulated, greyish; podetia erect, the young ventricose, simple, smooth, the older branched, all of them white; apothecia globose, brown. Ach. Lich. U. p. 571. Dillen. t. 16, f. 28.

On heaths, near Belfast, Mr. Templeton; common in the South of Ireland.
Apothecia on the sublinear branches of a suberect thallus.

Apothecia internally pulverulent.

6. Sphærophoron.  

Thallus crustaceo-cartilaginous, branched, suberect, solid.  

Apothecia subglobose, terminal, exteriorly formed of the thallus, enclosing a black powdery mass, bursting with a torn margin.

1. S. coralloides, Ach.  

Thallus cartilaginous, shrub-like; apothecia when young globose.  


β. fragile; thallus densely cæspitose, branches short, naked.  


γ. compressum; thallus compressed; old apothecia flat.  


On rocks in the mountains; common. The variety γ. at first appears to be distinct, but I have found the flattened apothecia with a subreflexed border upon a thallus quite cylindrical, supposed peculiar to the two first. There is a state of this species deserving of notice, with the thallus very short, white, cæspitose, with the erect branches tipped with roundish, shining, greenish-dun coloured bodies, less in diameter than the branches, which open, at length, on their summits, turn black, and emit, on pressure, a semitransparent mass of aggregate points.

† † Apothecia interiorly solid.

1. Apothecia turbinate, at length globose.

7. Stereocaulon, Ach.

Thallus dense, nearly woody, branched, and shrub-like, or crustaceous.  

Apothecia stalked, turbinate, solid, marginate, at first plane, at length hemispherico-globose, their margin evanescent.

1. S. paschale, Ach.  

Thallus greyish, branched, granulatifibrillosc, the branches crowded and much divided; apothecia scattered and terminal, at length convex, conglomerate, waved, blackish-brown.  


On rocks in the mountains; common. A dwarf variety occurs at Blackwater, County of Kerry, which answers to the characters of S. botryosum, Ach.

2. S. Cereolus, Ach. Meth.  

Thallus tartareous, in clustered, convex, sublobate, rugged, greyish-white warts, on a brownish substratum.  

Podetia short, of the substance of the substratum, covered with thalldal granules.  

Apothecia black, very convex, somewhat shining.  


On rocks, near Dunkerron. The substratum, where thickest, is cracked; it sometimes rises in blackish-brown subrotund masses above.
the thallus: these are not to be confounded with young apothecia, which have a more polished surface. The disk is rather thick, opaque, and black; the lamina proligera of a horny transparency, very pale, brown, striated. The sooty brown warts observable among the scales of the thallus being many times in diameter that of the full grown apothecia, their rugged surface, and, above all, their internal structure, show their functions to be different. The stipes is sometimes branched; and the apothecia occasionally so minute as to be scarcely distinguishable by the naked eye.

2. Apothecia discoid.

a. Thallus compressed.


Thallus cartilagineo-suberustaceous, branched and laciniated, or compressed and subangular, densely fibrous within. Apothecia orbiculate, with an inflexed, thallodal border, the disk concave, coloured.


On trees; near Belfast, Mr. Templeton; near Bantry, Miss Hutchins; near Killarney, Mr. G. S. Gough. The buds are marginal circular eruptions of the thallus, pouring out a greyish glaucous powder; such may also be observed exteriorly on the border of the apothecia.


Thallus cartilaginous, branched and laciniated, compactly cottony within; apothecia orbiculate, bordered, the disk as well as the border of the substance of the thallus, and of one colour.


At the Hill of Howth, Mr. Templeton; not uncommon in Kerry. Mr. Templeton found a state in which the marginal buds were expanding into new fronds. The buds are oblong, often confluent eruptions of the thallus emitting a grey powder.


Near Belfast; Mr. Templeton. Mr. Templeton’s plant is linear.
in all its branches, without any appearance of buds or soredia, and the apothecia when aged remarkably convex, wrinkled, and of a purplish-brown.


On trunks of trees; frequent. On stones at the sea-side, Derriquin, County of Kerry. The variety termed *calicaris* by Hudson has the branches linear and acuminate, bearing sometimes short spur-like laciniae.


On maritime rocks near Howth; Mr. Templeton. Our Irish plant differs from that collected by Dr. Greville, in the Isle of Bute, with which he has obliged me, by the broader thallus, which is more brown, and, when aged, rough with oblong pale buds, that have each a pit on their summits, scattered over the surface; the disk, too, is less coloured.


On trees; near Belfast, Mr. Templeton. A variety occurs at Dunkerron, with the disk quite concolorous with the thallus, without any shade of the buff colour. The segments of fertile fronds are wider than the others.


On trees; near Belfast, Mr. Templeton.

b. Thallus cylindrical.

10. Usnea, Ach.

*Usnea* cartilagineo-crustaceous, cylindrical, hollow, enclosing a central thread. *Apothecia* orbiculate, entirely formed of the thallus, and of the same colour.

The central thread is tougher than the enclosing cylindrical thallus; this, cracking transversely into elongated beads, sometimes gives origin to an articulate variety. The buds (or soredia) arise on the stem and main branches as minute white points, enlarge, break at the top, and disclose a cancellated base; the cells contain a powder which develops young acuminate cylindrical shoots. The accident of more
expansion of the buds on one plant above another, even in the same
tuft, sometimes yields a closely pinnate appearance, giving origin to
another variety. When growing pendulous, the branches are more lax
and elongated, and the ultimate divisions capillaceous, which is a source
of another variation.

1. U. plicata, Ach. Thallus pendulous, smooth, pale; the
branches loose, much divided, subfibrillose, the ultimate ones
capillaceous; apothecia plane, broad, ciliated; the cilia slender
nearly erect, scabrous with buds. Ach. L. Un. U. plicata, \( \epsilon \). hirta,
L. Un. p. 624. Eng. Bot. t. 258, f. 2. \( \epsilon \). florida; thallus nearly
Eng. Bot. t. 872.

On aged trees and bushes; also on rocks. Mr. Templeton
found \( \gamma \). near Belfast; \( \gamma \). grows on the sand hills at Portmarnock,
near Dublin; the others are common.

11. Alectoraria, Ach.

Thallus cartilaginous, the branches subfiliform, subfistulose,
cottony within. Apothecia orbiculate, thick, marginate, at
length convex and losing the border, entirely formed of the
thallus, and of the same colour.

1. A. jubata, Ach. Thallus tufted, pendulous, much
branched, olive-brown, shining. Apothecia of the same colour
as the thallus, at length convex, the margin entire. Ach. L.

On rocks at Knockcurris, in Innishowen, Mr. Robert Brown. At
Lough Bray and the Killiney Hills. I quote the apothecia from
Acharius, having never seen them. The buds are remarkable for
their size, being wider than the stems; they contain a glaucous
powder.


Thallus cartilaginous, branched, nearly solid, cottony within.
Apothecia orbiculate, obliquely peltate, entirely formed of the
substance of the thallus, and of the same colour.

1. C. tristis, Ach. Thallus branched, nearly erect, shining,
compressed, rough on the edges with blackish buds; branches
fastigiate; Apothecia flattish, deep-brown, the margin rough

On the higher mountains; not uncommon. Tufts half an inch
high, very rigid. The degree of expansion of the buds gives the
apothecia more or less of a radiate appearance at the margin.

2. C. aculeata, Ach. Thallus tufted, rigid, of a dark chest-
nut colour, much branched, compressed, lacunose at the angles,
the branches flexuose, divaricated, spinulose at the ends; apothecia

Near Belfast, *Mr. Templeton.* On the mountains in the South; common.


Near Belfast, *Mr. Templeton.* On the mountains in the South; common. The apothecia have not yet been found in Ireland.

13. **Verrucaria, Persoon.**

*Thallus* crustaceous, or cartilagineo-membranaceous, uniform. *Apothecia* subglobose, partly immersed, of a different colour and substance from the *thallus,* enclosing a *nucleus,* the apex papillose, usually perforated.

The limits between this genus and *Endocarpon* are not very strict; still the freedom beneath of the margins of the lobes seems to present a natural character to the latter.


On the bark of trees; common. The pale dots or elevations of the cuticle are sometimes, though rarely, wanting. The crust is apt to be thickened towards the edges, forming a kind of border. The surface has a greasy appearance. The *perithecium* passes under the *nucleus.*


Near Bantry, *Miss Hutchins.* On holly especially, also on oak at Askew wood, near Sneem. In contact with other lichens it throws out a dark brown limit to the thallus. The *perithecium* is deficient below the *nucleus.* The apothecia are not half the size of those of the preceding: the thallus shining and without any pale dots strewed over the surface. Hitherto, this species is limited to the South of Ireland.

3. *V. conferta.* Thallus between powdery and tartareous, black, very thin, not limited; *apothecia* crowded, large, black, rough, bursting up from under the cuticle of the bark of the tree on which it grows.

On birch, at Askew Wood; County of Kerry. The size of the apothecia rivals that of *V. nitida*; the patch is often much larger. It has the habit of certain fungi, that commence existence under the cuticle of the bark; hence, that which to a casual observer might appear a white filmy thallus, is nothing more than the cuticle of the tree; from under it the apothecia burst out of splits, the cuticle peels
off, and at length exposes the dark brown or black thallus, of the same colour as the apothecia. These have a minute opening on their summits. The perithecium is deficient below the nucleus. The nucleus when moist is pale, semitransparent, and gelatinous; and contains imbedded in its substance several terete, lanceolate cellules, nearly opaque, and darker than in any of the congeners.


On the smooth bark of ash, &c. at Dromore, County of Kerry. A variety on holly at Askew Wood has the thallus of a tawny peach-blossom colour, and the apothecia, of very different sizes, scattered rather thinly. The perithecium is deficient below the nucleus, although the contrary seems represented in English Botany. This species varies by the colour of the thallus, by the size of the apothecia, even on the same patches, by their greater or less aggregation, by their summits being sometimes imperforated, and at others the pores being very wide, by the surface of the apothecia being polished or wrinkled. Specimens occur in our woods so intermediate between this species and V. epidermidis, Ach. that I know not to which they should be referred. To V. epidermidis, Ach. Mr. Borrer unites V. analepta of the same author; to which again Acharius joined V. olivacea of Persoon. Between this last and V. rhyponta, Ach. Mr. Borrer observes that Mr. Lyell had discovered a Verrucaria nearly intermediate both as to thallus and apothecia. Acharius distinguishes V. punctiformis, Pers. from his own V. analepta, principally by its globose nucleus; a character, however, which he informs us, in the same page of his Lich. Universalis, to be of little importance: Sir James Smith relied more on the widely umbilicated appearance of the apothecia not noticed by Acharius; but then he states in Eng. Bot. that he thought he could trace the various appearances of Acharius’s own specimens of V. punctiformis to his own V. analepta. I own that, of the four following numbers, I am unable to say whether they are good species or not. I give the specific characters of authors.


On birch, near Bantry, Miss Hutehins. Near Belfast, Mr. Templeton; both α and β.

On oaks, at Dromore, County of Kerry.


Near Belfast, Mr. Templeton; on oaks at Dromore, County of Kerry. Elms, at Dunkerron.


On alder at Dunkerron, County of Kerry.


On ash at Dunkerron; County of Kerry; near Belfast, Mr. Templeton. The perithecium is deficient below the nucleus. A large and conspicuous species and by no means uncommon.


Near Belfast, Mr. Templeton. On oaks at Dromore, on box at Ardully; not uncommon. Thallus usually indeterminate, yet, in contact with the thallus of other lichens or of itself, throwing up a black border sometimes in a continuous line, at others of minute dark points arranged closely in lines. The patches seldom exceed an inch in breadth, but are often longer. Apothecia numerous, distinctly visible to the naked eye, subglobose, elevated, minutely unilobated, brownish-black, somewhat rough, the young raising up the cuticle of the thallus, through which they finally burst, the older often open by rupture or by widening of the umbilicus. The perithecium passes under the base of the nucleus. The V. niveo-atra Eng. Bot. Supp. t. 2637, f. 1. I find on old elms at Dunkerron, but then the perfect lirellae of an Opegrapha uniformly accompany it.


On elms at Ardully, on oaks at Dromore, County of Kerry. The cells of the thallus appear to be formed of fibres at the surface, interlacing or netted. The border is evanescent. The apothecia very minute, not to be distinctly seen at the distance of an arm's length, some-
what rugose, occasionally with a depressed opening on the summit, of
different sizes, the older falling off and removing a portion of the film
of the thallus with them. Acharius says, the minuteness of the apo-
thecia prevented his detecting the nature of the nucleus, but that all
appeared to him black within. However, the nucleus is pale, whitish,
semitransparent, greatly swelling by moisture, consisting of numerous
upright filaments with granular matter interposed; the perithecium
passes under the nucleus.

12. V. lenocepha!a, Ach. Thallus filmy, somewhat powdery
on the surface, very thin, grey, investing; apothecia prominent,
subcylindrical, brownish-black, when young crowned with a
white powder consisting of gongylites, when old naked. Ach. Lich.

On bark of aged trees, near Killarney; on moss in the shaded cre-
vice of a rock at Carig mountain, County of Kerry. What the char-
acters of the Cyphelium of Acharius are, I am not aware, having no
opportunity of consulting the Stockholm Transactions for 1817; but
of the propriety of removing this species out of the genus Verrucaria,
I think, there can be little doubt. I can find no nucleus, but from the
aperture on their summits the apothecia discharge a cloud of simple
diaphanous cylindrical bodies whose length is about four times their
breadth; their collection on and outside of the apothecia has a pale
flesh colour.

13. V. rupestris, Schrad. Thallus whitish, continuous, thin,
arenaceo-scabrid, with a limit of a cream colour; apothecia
numerous, small, immersed, aperture margined, smooth, entire,
at length wide. Schrad. Spicileg. p. 109, t. 2, f. 7, according
to Acharius in Lich. Un. p. 284. Eng. Bot. t. 1711, the figure not
good.

On limestone at Dunkerron; common. The thallus is whiter,
thicker, the apothecia are larger and less thickly set than in the suc-
ceeding. When the thallus is moistened it assumes a greenish tinge
which under the lens is seen to arise from a number of green points
thus made visible. The apothecia are rather loose in their respective
cells, and their black perithecium borrows a thin covering from the
thallus that closely invests it.

14. V. immersa, Hoffm. Thallus greyish-white, continuous,
thin, pulverulento-scabrid, with a black limit; apothecia nu-
merous, immersed, thickly set, minute, their aperture immor-

On limestone, near Belfast, Mr. Templeton; at Dunkerron com-
mon. In this, as in the preceding, the perithecium passes under the
nucleus. The apothecia are more minute, more rough, somewhat split
on their summits, and fit the cavities of the thallus less loosely. The
thallus is less rough, less white, and scarcely alters its hue by the ap-
llication of moisture. On meeting other lichens it throws up a black
border.

15. V. concinna, Borr. Thallus determinate, very thin,
tartareous, continuous, even, grey, somewhat pruinose; apothecia of a middle size, prominent, hemispherical, umbi-
Lichenes.

On limestone, near Killarney; Sir T. Gage. This is given in the words and on the authority of Mr. Borrer. I have never seen it.


Near Belfast, Mr. Templeton; near Bantry, Miss Hutchins; at Blackwater Bridge, County of Kerry. The change of colour by application of moisture is very remarkable. It often forms patches of a foot in breadth, the thallus closely investing the stone.


On siliceous rocks; common in the County of Kerry. It is the first lichen that plants itself on the clean newly fractured surfaces of the siliceous rocks in the County of Kerry. It varies much in the colour of the thallus. This is minutely cracked; the cracks black. The apothecia have their bases partially covered with the elevated thallus; they are irregular in shape, with or without a pore, conical or flattened, sometimes imparting a black tinge to the thallus in contact, and are somewhat rough on the surface.


On limestone, near Belfast; Mr. Templeton. Dunkerron, Kerry. The perithecium passes under the pale nucleus. It is sometimes brownish or mouse-coloured. The apothecia are papillated or porous on their tops, which emerge usually but little out of the thallus.


On sandstone, near Belfast, Mr. Templeton. It does not appear that any good figure of this species has been yet given, and never having seen an authentic specimen, I think some doubts may be entertained whether Mr. Templeton's plant above defined, should be referred to the Acharian, from the character of whose apothecia it reedes in having the emerging part convex not conical.

On the old walls of Dunkerron castle; and on maritime rocks. The perithecium passes under the nucleus. Apothecia when growing on mortar usually partially immersed. The thallus sometimes evanescent, yet like a whitish stain on the rock: the nucleus pale brown, gelatinous when wet. The tops of the apothecia often shining, though minutely wrinkled.

21. V. lthina, Ach. Thallus thin, tartareous, areolato-rugose, greyish-green; apothecia minute, partially immersed in the elevated portions of the thallus on which each is placed, brownish-black; pore on their summits marginate, often wide. Ach. Lich. Un. p. 287.

On shaded siliceous rocks at Derriquin, County of Kerry. The thallus may be considered as divided into numerous, minute, tumid, wrinkled tartareous scales, so closely joined that the surface seems continuous, yet under the lens it appears areolate and the scales themselves are sometimes split; greyish-green when dry, greener when moist; having a thin faint white border. Apothecia each on a proper portion of the thallus, globose-conical, umbilicate, evenly scattered, very minute, yet distinct to the naked eye. Nucleus pale, gelatinous when moist, and then protruding out of the pore. Perithecium passing under the nucleus.


On limestone at Dunkerron; common. The thallus usually suffused with a reddish hue, slightly and minutely cracked, but when thin continuous. Apothecia among this genus, often one-fifteenth of an inch, roughish. Nucleus globose, minute, shrivelled when dry, when moistened swelling, filling the cavity of the perithecium, pale, hyaline; contained in a proper, whitish, closely investing tegument. The perithecium does not pass beneath the nucleus. The apothecia slightly immersed beneath the surface.


On limestone rocks, and on the walls of Dunkerron castle, County of Kerry. Patch from one to six or seven inches in breadth, conspicuous by the evenly scattered large apothecia. The thallus has a narrow dark brown or black limit, more evident in contact with other lichens; by moisture the surface becomes greener; this arises from (as seen by a lens) the parenchymatous green substance becoming more visible among the minute greyish grains of the superior layer; when dry the surface appears harshly-powdery as if sanded; beneath the green layer is another more compact and white. Apothecia immersed by about one-fourth of their entire height below the surface of the thallus and penetrating slightly the limestone beneath; having a
very faint swelling of the thallus about their base; hemispherical, with a decided pore, and sometimes two or three pores on their summit, rather rough, prominent, large as poppy seeds, sometimes larger. The nucleus moistened is gelatinous, semitransparent, of a pale flesh-colour. It is contained in a proper black tegument that completely envelopes it; but quite distinct from the broader, thicker, hemispherical perithecium, which is deficient below the nucleus. This structure shows our species to be very different from *V. epipolaea*, Ach. with which alone it can be confounded, and associated with which it is found often on the same wall or rock; besides it has never a reddish suffusion of the crust so common in the other; but when we consider that the thallus is determinate, scarcely cracked, and the remarkable pores of the apothecia, there remains but little doubt. From *V. rupestris* Schrad. the prominence of the apothecia, their internal structure, their comparatively slight immersion, and darker colour of the thallus will keep ours separate.


On rocks, near Bantry, Miss Hutchins. On rocks in Askew wood, county of Kerry, I have given Mr. Borrer's specific character. There are, as appears to me, two or three states of this lichen to which the marks do not well apply. In one from Askew wood, the thallus is more compact, and the apothecia larger, and more denuded, than represented in Eng. Bot. In another in the same wood, and on similar rocks, the thallus when moist appears to consist of very scattered scales not forming a continuous surface, yet the apothecia are usually quite covered with them, and appearing when dry as if varnished over. In a third variety from Blackwater Bridge, the apothecia are so minute as scarcely to be visible to the naked eye, while the thallus is more pulverulent, and very like the figure in Eng. Bot. In the first of these states the perithecium passes under the pale gelatinous globose, nucleus. The thallus is sometimes brownish, the pruina of the apothecia absent.


On maritime rocks of all kinds, common. Young thalli forming on limestone are of a dark olive colour, and have a very distinct though narrow whitish border. The perithecium passes beneath the nucleus, which I do not find blackish as stated by Acharius but pale, of a horny transparency, and gelatinous when moistened.


On siliceous stones and rocks in the Dargle River. Acharius defines the nucleus to be "cinereo-nigricans," or blackish-grey, but in
our specimens the nucleus itself is pale, semitransparent, and gelatino-us when moist; yet it is not readily discoverable, being enveloped in a black crust. A variety on walls and on limestone at Dunkerron has the thallus compact, and the apothecia often conical; which, I suppose, is the β. nigrescens of Acharius, and V. nigrescens of Eng. Flor. v. 5, p. 155.


On flints, near Belfast, Mr. Templeton. On Carig mountain, County of Kerry. Acharius, in his Lich. Univ. p. 293, appears to have been imperfectly acquainted with this species, and hence has made it a variety of the V. striatula of Wahlenberg, from whose description of the thallus that of ours widely recedes: the nucleus is whitish, semitransparent, and gelatinous when moist, and has no perithecia passing under it. Mr. Templeton's specimens on flint have the apothecia nearly twice as large as in the common appearance in our mountains; the apothecia, too, while destitute often of any thallus adhering, yet have much black matter, similar to that of their perithecia, around their bases.

28. V. polysctica, Borr. Thallus of minute tartaraceous, very thin, crowded, angular, even, whitish scales, upon a thick rimose, black substratum; apothecia minute, immersed, at length slightly emerging, plano-convex above, the pore obsolete. Borr. in Eng. Bot. Supp. t. 2741.

On the old walls of Dunkerron Castle. Our plant has the apothecia more frequently dimpled; in all other respects it entirely corresponds with Mr. Borrer's specimens.

29. V. rubiginosa. Thallus indeterminate, subtararaceous, very thin, smooth, slightly cracked, of a pale olive-grey, on a black substratum; apothecia very minute, hemispherical, the thallus rising about their base, their tops depressed, with a wide pore, of a rust colour.

On siliceous rocks at Blackwater, County of Kerry. The black substratum is perceptible through the cracks of the thallus; the cracks are not continuous. The apothecia, not visible distinctly to the naked eye, in many instances seem sessile on proper circular portions of the thallus; their pore is wide; the nucleus pale, semitransparent, and gelatinous when moist, beneath which the rust coloured perithecium does not pass. This species has some affinity to Lecidea rupestris in a young state, but the generic character is very different and very distinct; the thallus, too, is more even and smooth: besides, the Lecidea is confined to calcareous rocks or mortar.

30. V. irrigua. Thallus indeterminate, when moist of a greenish-grey or olive-brown, and subgelatinous, when dry very slightly cracked, filmy towards the edges; apothecia of a middle size, thickly set, hemispherical, minutely papillose, pale-reddish, pellucid when moist.
On siliceous rocks, occasionally inundated; at the Dargle river, County of Wicklow: faces of rocks over which water trickles at Carig mountain, County of Kerry. Patches from 1 to 8 or 10 inches in breadth. Thallus subtartareous, closely investing the surface of the rock, somewhat powdery on the surface when dry, slightly cracked about the apothecia, swelling and becoming somewhat translucent by moisture. Apothecia prominent, distinctly visible; when dry, appearing concolorous with the thallus; when moistened, swelling, translucent, pale-reddish, with a dark brown *papillula* on their summits, through the centre of which is a most minute pore. The *perithecium* does not pass beneath the *nucleus*; this is pale, gelatinous, and semitransparent when moist, and exhibits a multitude of cylindrical vesicles fasculated together, and of different diameters, some being apparently six or eight times that of others. This species seems to have some, though but little, affinity with *V. submersa. Borr.* but the colour and structure of the apothecia are widely different, however apparent the similitude of their crusts.

31. *V. fissa.* Thallus tartareous, indeterminate, thin, cracked, uneven, of a tawny dark brown, the cracks black; *apothecia* rather large, hemispherical, dark brown, porous, smooth, each on a raised portion of the thallus.

On large siliceous stones, occasionally inundated, in a stream at Carig, County of Kerry. Thallus on being moistened becomes swelled, of a dirty greenish-yellow colour, and somewhat gelatinous; the cracked portions resemble distinct scales, but the edges of the thallus are entire, and, becoming thinner and thinner, are closely applied to the subjacent surface. The thallus is sometimes stained here and there blackish; this, with the blackness of the splits, would lead to the supposition of a black substratum, but which is not to be traced more distinctly. Apothecia at first appear as minute black specks in the centres of the *areoles*, pierced with a pore discoverable with a microscope: at length the fertile *areoles* swell, and form a base to each apothecium, which is large as poppy seed, and has a blackish somewhat marginate pore on the summit. The thallus rises very considerably about the apothecia: a vertical section of the apothecia shows, under this thallodal covering, a brownish peritheciun, not passing beneath the *nucleus*; which, however, is enclosed in a transparent and colourless tegument, and is itself of a pale green colour, gelatinous and hyaline. This lichen has a strong affinity with the genus *Endocarpon*, but the thallus is entirely crustaceous, not scaly. The appearances of the dissected apothecia, the thicker and decidedly cracked thallus, keep this species distinct from the two preceding, which likewise select an aqueous situation.

32. *V. gemmijera.* Thallus determinate, tartareous, powdery on the surface, of a bluish-grey, with a brownish-black limit, areolate, edges of the circular (*soredia or*) buds whitish; *apothecia* minute, half immersed, rounded or conical above, shining, black, dimpled.

On siliceous rocks, Dunkerron Mountain; not uncommon. By moisture the thallus becomes greenish-grey: the fissures between the *areoles* are dark brown, as is the limit, which also is thicker than the thallus; hence, probably, there is a dark brown *substratum*: the sur-
LICHENES.

The face is rough with a coarse powder. The buds or soredia occur near the edges of the thallus; they are roundish, usually single, sometimes confluent openings with a white border, and containing a greenish-grey powder, darker than the hue of the thallus; they are also sprinkled with a white pruina. Apothecia, when saturated with moisture, just visible to the naked eye; they are of different sizes, more rugged and irregular towards the centre of the patch: their umbilicus is sometimes so wide as to cause them to assume the appearance of patellata. Nucleus pale, transparent, gelatinous when moist, having points and elongated cellules dispersed through its substance, and the black thick perithecium passing under it. In old age the thallus sometimes is raised in serpentine ridges, with dark-brown or blackish sinuses between. The very young thallus has a whitish surface. The apothecia of Lecidea confluens are sometimes found on the thallus.


On the ground, near Belfast, Mr. Templeton; at Killiney, near Dublin. The thallus is nearly tartarous, somewhat raised about the apothecia, and there of a deeper brown. The depression on the surface of the apothecia, is the orifice of a short duct, (like the neck of a bottle), to the globular perithecium which passes under the nucleus. The apothecia swell remarkably when moist, and are large though concealed in the thallus. Acharius says the apothecia are black within; but I find the nucleus pale, whitish, semitransparent, and swelling when moistened.

34. V. obscura, Borr. Mss. Thallus cartilaginous or tartarous, black-edged, undulated, olive-brown, smooth, cracked, the areole usually tumid; apothecia deeply immersed, their tops at length oval, elliptical or linear; often crowded, or closely arranged in slightly curved lines. Borr. Mss. Lichen obscurus, Eng. Bot. t. 1752.

On the barks of old trees; also on rocks near the shore at Derriquin, County of Kerry. This species does not come accurately under any described genus, perhaps better under Verrucaria than any other, yet the top of the apothecia sometimes resembles a patellata, and at others a lirella; but the nucleus, pale and gelatinous when wet, is always deeply immersed in the thallus.

35. V. circumscripta. Thallus thin, tartarous, whitish-ash coloured, unaltered when wet, pruinose, with minute linear elevations towards the edges, at length minutely cracked, with an olive-brown border; apothecia minute, immersed, pruinose, mostly confluent in lines.

Near Bantry, Miss Hutchins; on shaded rocks, County of Kerry. The thallus is minutely cracked, principally about the centre; the border is somewhat silky. Patches seldom exceed one inch in diameter, yet several contiguous individuals form a more extended map-like appearance; the thallus is interiorly of a greenish yellow. This species is closely allied to the preceding, differing by the thallus, whose
surface is even, not broken up at any period into tumid warts, and is
pruinose even in a young state, while \textit{V. obscura} appears pulverulent
only in old age, when the tough brownish cuticle has been worn away.
The pruinose tops of the tubercles are likewise distinctive. Yet the
analogy is strong in the relative position and apparent confluence of
the tops of the apothecia. The \textit{nucleus} seems destitute of a coat, is
oblong, pale brownish, semitransparent, gelatinous when wet, and
studded with minute points. The apothecia are placed upright, and
not inclined in various directions as in \textit{Porina}.

36. \textit{V. peripherica}. \textit{Thallus} tartaceous, finely pruinose,
white, rather thick, cracked in the centre, the border broad,
smooth, tinged with flesh colour; \textit{apothecia}, numerous, black,
globular, half immersed, occurring about the periphery.

On siliceous rocks, Carig Mountain, County of Kerry. The broad
white peripheries of imperfect circles sometimes three to four inches,
at others two to three feet in diameter, studded with minute, con-
trastedly black apothecia, render this species easy to be recognised.
The central portions are wanting to the thallus, or replaced by other
lichens, while the existence of the individual is continued as a slowly
increasing wave on the surface of the rock. Apothecia on the newer
parts of the thallus, perhaps less than poppy seeds in size, numerous,
not crowded, black, not shining, half emerging, globular, with a nipple
on the summit, which dropping, leaves a pore. \textit{Perithecium} thick,
black, passing beneath the \textit{nucleus}, which is globular, semitransparent,
pale brown, consisting of numerous cellules, among which are other
larger, longer, darker, slightly curved, transversely striated cells, con-
catenated into cylindrical bodies, attached to the base of the \textit{perithe-
cium}.

37. \textit{V. umbrosa}. \textit{Thallus} thin, subtartaceous, brown or
olive, determinate with a black edge; \textit{buds} conspicuous in ele-
vated, minute, flattish collections of ochraceous granules; \textit{apo-
thezia} black, rough, numerous, not crowded.

On shaded rocks, County of Kerry and elsewhere; not uncommon.
The brick coloured buds or \textit{soredia}, constantly present, at once denote
this species. The thallus swells with moisture; it closely invests the
rock; its surface is rather rough and uneven. The buds are dispersed
or irregularly crowded, and are not unlike the supposed apothecia of
\textit{Spiloma gregarium}. The apothecia are roundish or oblong, flattish,
slightly sunk in the thallus, rough with irregular depressions above, as
if the surface were ruptured. The \textit{perithecium} is coal black, rather
thick and hard; beneath is an irregular rather shallow \textit{nucleus}, slightly
brownish, transparent, gelatinous, containing elongated cellules as well
as some of a round form: this \textit{nucleus} or \textit{lamina} rests on a thick
black layer, or, perhaps, we may be justified in saying that the \textit{peri-
theicum} passes beneath the \textit{nucleus}. The apothecia are rare, in dif-
ferent specimens they vary much in size.

38. \textit{V. mollis}. \textit{Thallus} subtartaceous, soft, powdery, or
minutely granulate, rusty brown, finely cracked into minute
flat heaps; indeterminate; with a thin, black, substratum;
\textit{apothecia} very minute, numerous, irregularly aggregated, black,
not polished.
On rocks, on the summit of Carig, County of Kerry. To the naked eye the apothecia are scarcely visible, and the thallus would seem little more than an efflorescence of rust on the surface of the rock. Viewed with a lens, on the nearly filmy thallus, minute flattish lighter coloured elevations are observable; the thallus is not altered by moisture; the substratum appears between the cracks and at the edges of the thallus. The apothecia are immersed, somewhat rugose: the peritheciurn passes beneath the nucleus, and is entirely filled with it; yet the nucleus seems also enclosed in a proper hyaline slightly brown tunic: it is globose, and consists of white transparent gelatine, in which numerous opaque points or cells are observable under a high power of the microscope. The thallus, cut into, exhibits a layer of green parenchymatous matter beneath the brown surface.

39. V. erysiboda. Thallus subtartaceous, very thin, uneven with granulations, very minutely cracked, indeterminate, of a pale rust colour; apothecia prominent, rather large, hemispherical, dark rusty brown when dry, pellucid and fiery brown when wet; pore minute; peritheciurn deficient beneath the nucleus.

On rocks, on the summit of Carig, County of Kerry. The moistened thallus, when cut, presents a layer beneath the surface of a lively yellowish-green colour; granulations distinct or confluent are not unusual towards the centre. The apothecia are easily distinguished by the naked eye, of a duskier brown than the thallus: the peritheciurn is thick, dark brown, pellucid when wet, not passing beneath the nucleus; its minute pore is apparent by transmitted light: the nucleus is large, globose, and has a distinct pale tunic within the peritheciurn: its lower half lies beneath the surface of the thallus; it is semitransparent, whitish, gelatinous, and contains a multitude of longitudinal cells, placed side by side. The present species differs from V. rubiginosa by the rusty hue of the surface, which, too, is cracked, by the want of a substratum, by the larger apothecia, and by their minutest pore. It selects dry situations, but V. rubiginosa where water trickles.


Thallus cartilaginous or foliaceous, often lobed; apothecia globose, enclosed in the thallus, with a marginated, dusky perforation at the apex, enclosing a nucleus.

The inferior edge of the thallus being free, i.e. not adherent, seems to indicate a natural character to distinguish this from the preceding genus; however unsatisfactory, it is still less so than any difference in the structure of the apothecia, on which, however, Acharius laid the greatest stress.

1. E. miniatum, Ach. Thallus foliaceous, coriaceous, subumbilicated, orbicular, lobed, smooth beneath, olive grey or greenish; apothecia numerous, their pores minute. Ach. L. Un. p. 301. a. umbilicatum; nearly simple. Eng. Bot. t. 593. β. complicatum, cæspitose, polyphyllous, the lobes imbricated, erect. E. complicatum, Ach. L. Un. p. 303. γ. aquaticum, cæspitose, polyphyllous, the lobes imbricated, the middle con-

α. on dry rocks; β. on rocks occasionally inundated or bedewed; γ. usually on submersed stones. The two first varieties are common, the third was found by Mr. Robert Brown, on Knockenris, in Innishowen, according to Mr. Templeton. The union of the three Acharian species is adopted from Dr. Hooker, in his English Flora, vol. 5, p. 156. In the first variety, the flesh coloured globular nucleus, contained in a coat somewhat less transparent, is surmounted by a minute convex, light brownish covering, (appearing on the surface of the frond,) which is rather papillary than porous; although when moist an irregular opening may be observed. In the other varieties the appearances on dissection are similar; the tops of the apothecia, however, are darker.


On wet sides of ditches, at Dunkerron, County of Kerry. Scales about one twentieth of an inch in diameter; when dry almost white, when moistened greenish-grey, or even of a lively green. *Nucleus* pale, gelatinous, large in proportion to the size of the scale; the orifice of the apothecia, a pore with a brownish margin.


On rocks in mountain streams, at Carig mountain, County of Kerry. The edges of the thallus are far more free and elevated than in the preceding, the colour never becomes quite green by moisture, but still retains much of its brown hue; the thallus swells less when wet, and the apothecia are more numerous. The *nucleus* is slightly of a flesh colour, otherwise the structure of the apothecia is as in *E. pusillum*, Hedw.


"On rocks thinly covered with earth, Ireland, Sir Thomas Gage." I have never seen an authentic specimen of this species; it is here given on the authority of Sir James E. Smith.

5. *E. leptophyllum*, Ach. *Thallus* cartilagineo-foliaceous, roundish, of a dark-grey, the circumference spreading, flexuose, smooth and blackish beneath; *apothecia* numerous on each

On slate rock, near Bantry, Miss Hutchins. Thallus whitish-grey, also dark-grey, turning brownish, especially about the orifices of the apothecia when moist; its scales thick, sometimes imbricated, somewhat ascending, and foliaceous; in other specimens placed side by side so closely and so flat as to resemble an areolate crust: beneath, the scales are dark brown or blackish, except at the very edges, which are paler. Orifices of the apothecia without any depression, (as occurs in E. pusillum.) dark brown: the nucleus colourless, hyaline, in a tegument slightly opaque. The Irish plant described I suppose to be that intended by Acharius.

6. E. rufo-virescens. Thallus of minute, flattish, often scattered, roundish, pale yellowish-green scales, with whitish edges, and white beneath; apothecia usually solitary, their orifices large, brownish; flat when dry.

On rocks, in the South of Ireland; not uncommon. The thallus is liable to vary in having the scales so closely set, as to appear like an areolate crust with blackish cracks; the edges of the scales are sometimes raised, subcrenate, and slightly flexuose: when moist the colour is of a livid green, which, under the lens, appears contrasted with the reddish-brown orifices of the apothecia; these are large, often half as wide as the scales on which they are set, and flattened as patellula; in old age becoming dark brown. The nucleus is somewhat flattened, transparent, and gelatinous, very slightly brownish; but by moisture it swells so as to show a convex surface on the scales; it then much resembles the patellula of certain Lecideae, having a brownish disk and a striated colourless horny lamina protigera. Mr. Harriman's specimens of E. smaragdulum, Ach. appear to me so nearly allied to this species that I think it probable future observations may identify them. At present, however, this last plant appears to have the apothecia usually numerous on each scale; the scales themselves more lobed, and of a tawny colour, scarcely altered by moisture; their substance thicker, their edges deflexed.

7. E. sulphureum. Thallus of minute, roundish or angular, closely set, uneven, granulato-rugose sulphur coloured scales, sometimes bursting out with sulphur coloured minute buds; apothecia numerous, with prominent, subglobose, pale tops.

On rocks at Kilceanagh mountain, County of Kerry. A species by no means rare in the South of Ireland, but the apothecia I have found only in the locality named. In its commoner state it is covered over with buds concolorous with the sulphur coloured thallus. The scales are usually thickly set, uneven with tumult elevations, by mutual pressure representing somewhat an areolate crust; sometimes, however, their lobed and slightly crenate margin is observable. The inferior surface is nearly of the same colour as the superior. The apothecia, though usually but one on each scale, are still numerous; they are globose, half immersed; their peritheciun, which does not pass under the nucleus, hemispherical, paler than the thallus, with a pore on the summit, through which the moistened hyaline gelatinous nucleus is visible; this under the lens is found to be quite globose, and not large
as in the rest of the genus, but more of the proportionate size of that of a *Verrucaria*, under which, perhaps, this species may as well be arranged as under *Endocarpon*. The patches are sometimes a foot or more in diameter.


On the bark of trees, on mosses, more rarely on rocks; very common in the South of Ireland. *Mr. Templeton* detected it near Belfast in 1806. As the involute rim of the thallus unfolds, it leaves concentric marks on the scales; these are seldom more than the tenth of an inch in diameter; they often bear greenish granular clusters of buds, are sometimes imbricated, and slightly greenish white, when wet of a glaucous green. When moist the tops of the apothecia appear as semiglobose, black prominences; on dissection the *nucleus* is found to be covered by a black *perithecium* enclosing it altogether: within this is a pale tegument containing the colourless gelatinous *nucleus*, in which are seen numerous cylindrical bodies at the periphery, pointing to, but not reaching the centre. It is frequently found with apothecia in woods and on mosses in the mountains.


On turf, near Belfast, *Mr. Templeton*: near Bantry, *Miss Hutchins*. On Carig Mountain, County of Kerry. The young thallus is in concave cups, with white edges, placed side by side and in contact; their edges entire; of the older, lobed. No apothecia have been observed.


On the mortar of old Dunkerron Castle, County of Kerry. The edges of the scales are nearly black, truly elevated, and hence, even in the moistened state, the scales are concave. The *nucleus* of the apothecia is pale or very slightly brownish, gelatinous, and semitransparent when wet.


*Thallus* cartilagineo-membranaceous, uniform. *Apothecia* ruciform, formed of the thallus, usually many-celled, each cell containing a *nucleus*, and opening by a coloured, often distorted perforation above.

Near Belfast, Mr. Templeton. In Askew Wood, County of Kerry. Thallus very thin towards the edge, which is whiter; by moisture it becomes somewhat gelatinous and semitransparent. The orifice or pore of the apothecia is dark brown or black, beneath which the nucleus, of a pale brownish flesh colour, is elongato-ovate, deeply immersed. The internal structure of the nucleus noticed by Acharius is remarkable, for among a mass of pellucid filiform and punctiform bodies occur a few others oblong, very wide, and with double teguments.


On slate rocks, near Bantry, Miss Hutchins. Sir Thomas Gage. South of Ireland; not uncommon.


On old trees near Belfast, Mr. Templeton. Askew Wood, County of Kerry: also on rocks, Dunkerron Mountain. The wide, cylindrical, opaque vessels, with their pellucid coats, among the fibres and granules of the nucleus are very remarkable.


Rocks at Glengariff, near Bantry, Miss Hutchins. This is given on the authority of Mr. Borrer. I have never seen it. Can it be a state of Pertusaria ceuthocarpa?

16. Thelotrema, Ach.

Thallus cartilaginous, membranaceous, or subcrustaceous; apothecia verruciform, formed of the thallus, hollowed, marginated, containing a nucleus within a membranaceous peritheciun, beneath a coloured disk.

On the bark of trees, common; also on siliceous rocks. The characters given of *T. melaleucum*, *Turn.* and *Borr.* seem to apply to states of this species, which varies in the colour of the thallus, in its tenuity, in the degree of inflection of the thallodial margin of the warts, in the elevation of the warts, as well as in the lighter or deeper colour of the disk. In the rock variety, the *g. scutelliforme* of *Ach.* the thallus is often much dispersed into white, tartareous, lobed, and crenate scales; these, as well as the exterior shell of the apothecium, are cancelled and rough with minute points and depressions; the *nucleus* is whitish, semitransparent, and gelatinous when wet, having erect bundles of siliiform cells, whose summits, protruding above the disk, constitute the pruinose appearance; among these cells may be seen most minute dark points. In all states of this species occasionally two and even three *nuclei* may be seen within the same wart.


On limestone, near Belfast, Mr. Templeton; common in the South. The surface of the thallus often has a sanded appearance.


On moss, near Bantry, *Miss Hutchins*. The disk is greenish-grey, covered with white *pruina*, concave; the *nucleus*, nearly colourless, pellucid, gelatinous, deep, and round beneath, is contained in cortical matter, indurated into a membrane, rising above the surface of the disk and forming the characteristic mark of the *genus*. The structure of the apothecia of *Thelotrema lepadiinum* is very different.

**Apothecia, (lirellæ,)** sublinear.

17. *Syncesia*.


However averse to offering a new genus among the lichens, I found it impossible to arrange the present under any described. It approaches *Arthonia* in character but not in habit. It bears to *Arthonia* the relation of *Porina* to *Verrucaria*, but is still more distinct by the presence of opaque immersed *stipites* to the apothecia: these plates appear to have a fibrous structure in a vertical direction: they remind one of the blackish brown matter on which the *lamina proliger* of certain *Lecanora* and *Lecideæ* rest.

1. *S. albida*.

On dry shaded rocks between Dunkerron and Killarney, County of Kerry. Thallus from five to eight inches in diameter, tartareous, thin,
usually scattered in rough, uneven, flatish, irregular, sub-confluent portions, exhibiting the face of the rock on which it grows in the interstices: sometimes the central portion of the thallus is continuous, arculate, and of a very pale flesh colour, but the surface is more commonly whitish and powdery; within, the thallus is of a pale greenish-yellow: it is somewhat radiated towards the margin, which is uninterrupted all round, fibrous or silky, of a dusky olive-brown. The surface is not altered when moistened. The verrucose or receptacles are subrotund, larger than rape seed, elevated, rather evenly scattered, the larger nearer the centre: on their tops the lens discovers stellate-radiate, pruinose gyrations, which are the disks of the apothecia; the lamina proligerá is pale brown, pellucid, striated, but without any distinct tegument, yet the disk is somewhat opaque. The apothecia stand on the edges of vertical plates, which are opaque, dark brown, or almost black, plunged in the white cortical matter of the verrucose. The cylindrical vessels that cause the laminae to appear vertically striated often have their summits emerging above the disk. The lamina in old age drops off, when the surface of the singular supports remains black, and of the original figure of the apothecia.

18. Arthonia, Ach.

Thallus crustaceous or cartilagino-membranaceous, uniform. Apothecia roundish, elongated or varying in form, nearly plane, not bordered, within somewhat gelatinous, covered by a dark membrane.


On trees at Cledaneamure, County of Kerry. The surface of the thallus is powdery: single apothecia rounded or oblong, with their edges raised, and with a thallodal covering; surrounding the apothecia there are usually cracks of the thallus.


On box, in a shaded grove, at Ardtully, County of Kerry. I have given the specific character from English Botany, yet I confess I cannot detect the thallus on my specimens; on the contrary, the apothecia plainly emerge from under the cuticle of the bark on which it grows, indicating the habit of a Fungus; and yet I have found cylindrical bodies, acuminated at each end within the apothecia, corresponding to Gongyli.


On bark, near Belfast, Mr. Templeton; Askew Wood, County of Kerry. Varies in the colour of the thallus from whitish, through cream-coloured and yellowish, to brownish, as in Mr. Templeton's spe-
LICHENES.

varies, in having the surface nearly entire or cracked into scales.

4. A. ilicina. Thallus membranaceous, thin, smooth, whitish or cream-coloured, at length breaking into contiguous scales, with a thin, brownish border; apothecia large, angulate, or oblongo-subrotund, flat; the disk black, often cracked, with a narrow thallodial border when dry.

On old stems of holly in woods at Killarney; not rare. The patches are usually considerable in size, sometimes three or four inches in diameter, closely investing the bark. The breadth of the border to the thallus varies, but is always distinctly marked in contact with other lichens. The apothecia, by no means crowded, are yet remarkable, from their size, being sometimes nearly a line in diameter; they are half immersed, when wet they swell, become convex and prominent; they have no proper margin; their disk is black; their lamina proliger of an olive brown, semitransparent, and showing vertical striae. Perhaps, this may prove to be only a state of A. gyrosa, Ach.—this last, however, is smaller in all its parts, the apothecia are more numerous, and more confluent, and their margins appear irregularly incised—or, as Acharius defines them, "gyroso-rugosi," of which there is not the least appearance in our plant.


Thallus crustaceous, membranaceous or leprous, uniform. Apothecia oblongo-elongated, immersed or sessile, covered by a dark membrane; the disk black, narrow, with a proper border.


On lime trees, near Belfast, Mr. Templeton.

2. O. atra, Pers. Thallus membranaceous, very thin, smooth, grey, olive-grey, or pale ferruginous; apothecia subsessile, the smaller punctiform or globose, the larger elongated, narrow, somewhat wrinkled, flexuose, coal-black, simple or divided. Pers. in Ust. Ann. fasc. 7. p. 30, f. 2. C. c. according to Hook. in Eng. Flor. v. 5, p. 145. Eng. Bot. t. 1753; also t. 1347 and t. 1789.

On the bark of trees; common; rarely on rocks, as at Dunkerron Mountain. Specimens occur on ash trees, at Dunkerron, so exactly intermediate that I do not think they can be more strictly referred to O. rufescens, Pers. than to the present species: but the former is by no means rare on oaks and other trees in the South of Ireland; it is even to be observed on siliceous rocks. This plant varies by the colour of the thallus, its thinness, its continuity, or being occasionally broken into little scales, by the length of the apothecia, by their dispersion, by their confused or stellulate aggregation.

On stems of old trees; near Belfast, Mr. Templeton: on the stems of furze, near Dunkerron, County of Kerry. The variety on furze has the thallus thin, investing, smooth, and shining, nearly white. Mr. Templeton found it with the lirellæ scarcely longer than they are broad, with the thallus powdery, and of a buff colour, inclining to green.


On the bark of aged trees; not uncommon. The shape of the disk of the apothecia seems at first to distinguish this from the preceding, but unfortunately in the former it is occasionally very wide, and in the present as narrow as, perhaps, in any other Opegrapha.


On rocks, on walls, and on mortar; not uncommon. On limestone the thallus has sometimes a reddish hue, and the lirellæ are extremely narrow. On siliceous slate in maritime situations there is no vestige of a thallus, but a whitish discolouration of the surface of the rock; the lirellæ are jet black, shining, and clustered. Again, on mortar, as at Kilbarrick Church, near Dublin, the thallus is tartarceous, thick, slightly cracked, snow white, somewhat powdery on the surface, and the lirellæ as densely clustered as in O. atra. Future observations may confirm the conjecture that the present is but a rock variety of the preceding.


On the bark of old trees; not uncommon. The thallus is usually smooth, yet sometimes much wrinkled, thick and powdery on the surface. The apothecia vary in length, and have their disk sometimes pruinose: the thallodal whitish border to the lirellæ distinguishes this from all the preceding, and the distinct black margins to the disk in a great measure from the following.

7. O. dendritica, Ach. Thallus subtartarceous, determinate, somewhat powdery, white; apothecia immersed, flexuose, branched; the disk flat, with a border from the thallus only.

α. on trees common. β. on siliceous rocks, at Carig Mountain, County of Kerry.

8. O. sulcata, Pers. Thallus membranaceous, subtartaceous, subrugose, subdeterminate, of a brownish-grey; apothecia black, large, emerging, at length prominent, tumid, the disk narrow, the border tumid, with two or three longitudinal grooves, each surmounted by a film of the thallus. Persoon M.S.S. according to Mugeot and Nestler, in Cr. Vog. — Rhen. No. 360.

On holly; near Belfast, Mr. Templeton. Killarney woods, common. Thallus from three to four inches wide, closely investing the bark near the border, where, on meeting other lichens, it throws up a black edge; sometimes the thallus is cracked, and always uneven, with minute elevations or wrinkles. Apothecia larger than in any other British species, mostly simple, though often much bent, raising up a film of the thallus on each side as they emerge; the disk narrow, the border thick, tumid, and having two, three, and, more rarely, four grooves on each side; the tops of the ridges displaying each a longitudinal scale from the thallus. The lamina protigera has a black disk, but is itself gelatinous, pale, semitransparent when wet, striated with erect linear cellules. This species is allied to the thallus to O. elegans of Smith: the structure of the lirellae, however, is very distinct.

* * * Apothecia discoid, round, sessile, or emerging.

† Thallus (in a moist state) gelatinous.


Thallus homogeneous, gelatinous when wet, when dry, hard and cartilaginous, sometimes foliaceous. Apothecia orbiculate, (rarely on podetia), bordered, formed entirely of the thallus.

* Thallus somewhat crustaceous.


On limestone; common: on sandstone, near Belfast, Mr. Templeton.

* * Thallus broadly lobed over the whole surface, imbricated, plaited, spreading, very turgid when wet.

2. C. fragans, Ach. Thallus suborbicular, olive black, the lobes ascending, crowded, somewhat round, thick-edged, cre-

On the ground at the Dargle River, County of Wicklow; Dr. Whitley Stokes. Near Bantry, Miss Hutchins. Our specimens differ from the Eng. Bot. figure and description only in having the lobes more deeply crenate, the crenulations tumid, and the apothecia large, irregular, their disk waved and brownish.


On mortar, and on the soil: near Belfast, Mr. Templeton: at Dunkerron, County of Kerry.


On a sand bank, near Belfast, Mr. Templeton; County of Derry. Mr. D. Moore. Our specimens are destitute of *apothecia*; in all other respects they accord with the Acharian description.


On the bark of young ash at Roughty, County of Kerry. Thallus in dispersed cushions scarcely as large as peas; it alters very little its hue or its size by being wet; rough with protuberances on the surface; affixed by a central spot, free beneath at the edges, easily detached; dissected it appears a coriaceous sac, with irregular processes, containing within much pale subfibrous matter. *Apothecia* consisting of nearly uniform opaque dark-brown matter. This cannot be confounded with any other described British species. Acharius states the apothecia to be sessile, but dissection shows this appearance to arise from a slight contraction of the process of the thallus beneath the apothecium.


On wet clay. Near Belfast, Mr. Templeton; near Dublin, and at Dunkerron, County of Kerry.

7. *C. multipartitum*, Smith. *Thallus* orbicular, radiating, at length open in the centre; lobes smooth, repeatedly branched,

a. on limestone, in dry situations, at Dunkerron; common. b. on limestone in rivulets at Sallagh Braes, County of Antrim, *Mr. Templeton*. The lichens that grow absolutely in water are few, if any. I have referred *C. fluviatile* (at least of *Eng. Bot.*) as a variety arising from occasional inundation, to *C. multipartitum*, (of the same work.) The thallus of both is sometimes granulated with buds. I do not think any specific distinction is discoverable to keep the two separate.

8. *C. fragile*. Thallus orbicular, olive-black, radiating, at length open in the centre, marginal lobes rough with wrinkles and granules, concave beneath; apothecia immersed, concave, their disk pale tawny; their border scarcely raised above the thallus.

On limestone rocks; at Dunkerron, County of Kerry. Thallus in round patches from three to four inches in diameter, divided into radiating lobes, the central parts at length deficient, or the plant increasing by a prolongation at the circumference, in which case the lobes are quite unconnected. The lobes are short, linear, tumid, deflexed at the top, concave beneath, scarcely crenate, sooty-black inclining to greenish-olive, sometimes to brown when dry; by moisture becoming of a dark olive-green and more pellucid; their upper surface rough with granules, concolorous with the thallus, clustered, of different sizes, globular, yet flattened at the top; the newer and circumferential portions of the thallus are often a little wrinkled above. Apothecia on lobes that are thicker and paler than the barren, clustered, quite immersed, the disk very pale brown; they occur but rarely, and when present are not easily seized by the eye. This species has so strong an affinity to the preceding that it probably has been taken for young patches of it. But, although usually growing in company with, it is scarcely one-sixth of the size of *C. multipartitum*; and no intermediate states are to be found. It is of a darker colour, its surface more rough, but, above all, the full grown apothecia are so minute as to be inconspicuous to the naked eye, entirely plunged in the thallus and very pale. The repeated observation of numerous specimens gave the same results.


Near Belfast, *Mr. Templeton*; near Bantry, *Miss Hutchins*. The border to the shields appears sub-crenulate, owing to the granular buds of the thallus that are affixed to the outside of the apothecia; when these buds at length drop off, the border remains entire.
LICHENES.

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C. Burgessii, Ach. Thallus foliaceous, thin, subimbricated, glaucous, greenish or dark brown; the lobes rounded, sinuated, crenulated, crisped, villose beneath; apothecia depressed, flattish, dusky brown, with a crisped and minutely foliaceous border. Ach. L. U. p. 645. E. Bot. t. 300.

On old trees in the woods, near Killarney. The inferior surface of the frond shows an affinity with the genus Sticta; for the down beneath is composed of broad acute stellate laminae. The apothecia are pedunculated with an elevated portion of the thallus, which, seen from behind, appears a deep cavity: the backs of the apothecia are downy in the same way as the bottom of the thallus, and this downiness even extends a little way from the apothecia on the upper surface. The edges of the thallus are thickened and dark, as also of the buds as they expand into foliaceous scales on the margins of the apothecia.


Near Belfast, and at the Dargle River, Mr. Templeton. At Dunkerron, common. The apothecia sometimes scattered, pruinose.


On trees, near Bantry, Miss Hutchins. When moistened of a paler colour and greener at the edges than the preceding, and when dry never so remarkably wrinkled.


On the ground, near Belfast, Mr. Templeton; at Dunkerron. The buds or grains are larger than in the preceding.


On stones, and on mortar. Near Belfast, Mr. Templeton. In the South of Ireland not uncommon.

15. C. sinuatum, Hook. Thallus foliaceous, membranaceous, imbricated, and plaited, dark glaucous-green; the lobes
16. C. tremoloides, Ach. Thallus foliaceous, membranaceous, very thin, almost diaphanous, smooth on both sides, of a leaden green colour, lead coloured and opaque when dry; the lobes oblong, rounded, sometimes incised, entire; apothecia sessile or elevated, flat, reddish, with a smooth, pale border. *Ach. L. U.* p. 655.  *Eng. Bot.* t. 1952.  \(\beta.\) 

**Thallus cut into numerous slender branches.**


Among mosses; common. At Askew Wood, County of Kerry, a variety, (if it be only a variety,) in a barren state, occurs, in which the lobes are minute, ascending, concave, slightly waved, quite entire, of a dull dun-green when wet, lead coloured when dry. There is, indeed, a crenulate appearance of the lobes, but a magnifier shows this to arise from minute, round, entire foliaceous buds, that issue from the edges of the frond; these, when grown to half the size of the fronds, remain perfectly entire; and hence may, perhaps, with much propriety, be considered a prolific state of the present species.


On wet clay: not uncommon in winter and spring.


Among mosses; very common.


On rocks, walls, and on the earth. Near Belfast, Mr. Templeton; near Bantry, Miss Hutchins: at Dunkerron, it is never found but on limestone.
LICHENES.

Variolaria.


On earth; near Lisburn, Mr. Templeton. When dry the disk is almost black and very concave.

†† Thallus crustaceous.


Thallus crustaceous or cartilagineo-membranaceous, uniform. Apothecia verrucentiform, formed of the thallus, bearing a powdery or flocculent substance covering the disk.


On cherry bark at Killarney. Sir Thomas Gage. I have never seen this species.


Near Bantry, Miss Hutchins.


On trees, near Belfast, also on stones on Devis Mountain, Mr. Templeton. The bitter taste of the foregoing species, absent in this, has been supposed to be a sure criterion between them: all other distinctions, it must be confessed, are too slight. But the rock variety of Mr. Templeton, above quoted, is as bitter as V. discoidea.


On oaks, at Dromore, County of Kerry. Patch from four to six inches wide. Thallus of a dull white, unaltered when wet, but the powder on the apothecia shows more of a greenish-hue: beneath the powder is a thick dense layer of a pale flesh coloured matter, in which, however, neither cellules or gongyli are discoverable, thus representing a barren lamina proligera.


a. on siliceous rocks, Kenmare River. β. Mr. J. T. Mackay. Thallus scarcely altered in colour when moistened: the border sometimes not conspicuous. The apothecia do not seem to bear fertile lamina proligera beneath the powder with which the surface is strewn over. I have not seen the var. β. but quote it on Dr. Hooker’s authority.

6. V. constellata. Thallus filmy, subtartaraceous, wrinkled with flattish, minute granulations, thin, of a greyish-white, indeterminate; apothecia numerous, rather evenly and thickly set, small, white, subhemispherical; disk flesh coloured; the border rather thick, ruptured.

On birch bark at Askew Wood, County of Kerry. The thallus scarcely assumes a greener shade when moistened, and forms a broad patch, conspicuous at a distance from its whiteness; it closely invests the bark; its border a little whiter, is neither zonate or fibrous, but gradually disappearing. The powder over the disk of the apothecia is pure white, continuous, and like a coarse granulation; beneath this a very fine white powder covers the pale flesh coloured disk; the border is rather thick, low, having all round a ruptured appearance, and exhibiting greenish points, as if from the thallodial rim a circular piece had been abraded. The lamina proligera, when wet, is pale, gelatinous, semitransparent, and consists of elongated, among punctiform cells.

7. V. corallina, Ach. Thallus tartaraceous, thick, of a leadgrey, cracked, wrinkled, bearing pale, round buds on cylindrical, closely set elevations; apothecia hemispherical, flattened above; border inflexed, closely granular, white as well as the powder over the pale flesh-coloured disk. Ach. L. Un. p. 319.

On siliceous rocks, in the mountains, County of Kerry. Our plant exactly accords with the Acharian description, and very well with that of Isidium paradoxum, Hook. Eng. Fl. v. 5, p. 231, except that the bodies with which the cylindrical podetia are tipped, are rarely of a brownish-olive, but usually whitish: when these drop, they leave cup-shaped cavities on the tops of the podetia, green at their bottoms. The colour of the thallus is unaltered by moisture. The border and tops of the apothecia often bear buds. The disk is of a pale wax or flesh colour, covered with a fine white powder; the lamina proligera is small compared to the size of the apothecium, and when wet is gelatinous and semi-transparent, and consists of numerous elongated cells among others that are short and roundish.

8. V. polytheica. Thallus tartaraceous, thick, granulated, rough, indeterminate, greyish-lead-coloured; apothecia stalked, thickly set, with coarse, white and greenish powder; the bor-
der thick, irregular; the disk of a pale, flesh-colour; often seve-
ral in each apothecium.

On siliceous rocks, facing the south. Dunkerron Mountain; not rare. The patch, often several inches in diameter, is conspicuous by the crowded and stalked apothecia, placed in contact, like certain basaltic columns. The granulations of the thallus are of different sizes, the larger sometimes convolute, or indistinctly lobed by the confluence, as it were, of several granulations. The thallus is thin and almost filmy at the edge, and even somewhat radiating. The wet surface is somewhat more green than the dry. Towards the edges the apothecia have shorter, sometimes no stalks. The apothecia rise as large spheres of the thallus, of a like colour and similar roughness, burst by an irreg-
ular crack in one or more directions, leaving very coarse thallodal grains here and there on the surface: at length these grains drop off, and a fine powder, white, (wet or dry,) covers the flesh-coloured disk or disks. Two, three, four, and even five laminae proligeræ are seen within the same apothecium, separated by dense and white partitions, by moisture pale and pellucid, having internally elongated cellules. This aggregation of laminae proligeræ presents a character so im-
portant, that they who are inclined might see in it a generic distinction analogous to that which separates Porina, Ach. from Verrucaria Ach.

9. V. torta. Thallus very thin, between filmy and tartare-
ous, cracked, smooth, whitish, indeterminate; apothecia very minute, hemispherical, bursting irregularly; the disk twisted and bent, of a pale flesh colour; the border irregular.

On siliceous rocks, in shade, at Askew Wood, County of Kerry. Thallus in old age assumes a greenish hue, which is always observ-
able in a moist state; when dry the edges of the cracks of the thallus are slightly elevated, giving a rough appearance to the surface. Apo-
theia when young are covered with a white pruina or powder. The twisted disk lies in a cavity of the apothecium, correspondently twisted; this cavity has sometimes a cellular appearance of the sides. The lamina proligeræ is of a pale milky colour, gelatinous when wet, and under a high magnifier is found to contain numerous cylindrical cellules, having minute globules interspersed. This species may be taken for certain states of Lecanora coarctata, Ach. but the thallus is more distinctly separated by fissures, and the structure of the apothecia by no means alike. A white powder covering the disk in a young state gives it a better claim to Variolaria than any other described genus.

10. V. chlorothecia. Thallus tar tarceous, thin, white, areolate, subpulverulent at the surface, with a narrow, deep-black bor-
der; buds with hemispherical, thallodal podetia, tipped with minute, round, brownish, at length caduceous points; apothecia sessile, round, flattish, with a thick, thallodal margin; powder white, covering a greenish-olive disk.

On siliceous rocks, Carig Mountain, County of Kerry. The minute Isidium-like buds, the narrow black border to the thallus, the flat apo-
theia, and colour of the disk, together, are sufficiently distinctive. The buds dropping, leave cup shaped cavities, green at their bottoms, on the tops of the podetia. The lamina proligeræ, when moist, is
gelatinous, semi-transparent, sub-rotund, not enclosed in any distinct tegument, containing elongated cells in a jelly-like substance.

II. V. terricola. Thallus thin, pulverulento-tartaceous, white, rough, indeterminate, continuous; apothecia globose, with a thin, white, granulate, covering; disk pale flesh-coloured; border irregular.

On the surface of peat and on stems of heath near Comber, Mr. Templeton. Dunkerron Mountain: rare. The patches are several inches broad. The thallus has a rugged appearance, principally arising from the cup-shaped remains out of which the apothecia have dropped. Apothecia sometimes a little flattened, sometimes elongated; their granulated and wrinkled covering on dissection shows a layer of green parenchymatous matter, proving its nature to be thallodal. The moistened lamina proliger a contains numerous pellucid globular bodies. At some little distance the patch may be passed over as belonging to Cenomyce Pychnothel a, or, perhaps, to that of Lecidea iemadophila, both of which affect similar situations; but the slightest examination of the apothecia would suffice to correct either error.

22. Lecidea, Ach.

Thallus crustaceous, uniform, or scaly. Apothecia orbiculate, sessile, or slightly immersed; the disk coloured; the border of the same colour as the disk.

† Thallus crustaceous.

* Apothecia black.

1. L. macula. Thallus subtartaceous, very thin, determinate, areolate, inferior stratum black; upper of very minute, distinct, crowded, thin, greyish-olive, concave scales; apothecia half immersed, concave; the disk black, rough; the border elevated, pale when dry.

On siliceous rocks, near Dunkerron, County of Kerry; not uncommon. The patches, one or two inches in diameter, closely invest the surface of the rock, and are conspicuous as black stains. The thallus, though extremely thin, is composed of two layers, of which the inferior is most abundant, black, seen between the minute scales, of which the superior is composed, and likewise exceeding at the edges. The scales are concave, of a greyish olive, roundish or oblong, with elevated whitish edges observable only by the lens; in a dry state their surface is rough and somewhat powdery. The apothecia, thinly scattered and inconspicuous to the naked eye, are immersed in the scales, and have a pale, entire, raised border, of the colour of the scales when dry, but black when wet; the disk by moisture swells, becomes convex; it is black; beneath which, dissection shows the lamina proliger a to be a thin layer, pale brown and semi-transparent. This species, perhaps, may with equal propriety be referred to the genus Urceolaria but for its great affinity to a small tribe allied to Lecidea atro-alba.

2. L. melastigma. Thallus subtartaceous, very thin, subdeterminate, areolate, inferior stratum black; upper of very minute,
crowded, rather convex, rugged, dark-grey scales, greenish when wet; *apothecia* very minute, conspicuous, sessile; the disk black, rough, flat, at length convex; the border thick, entire, at length subobliterated.

On siliceous rocks, near Dunkerron, County of Kerry. This, like the preceding, forms patches or stains on the surface of the rock, but of a duskier black. The inferior black stratum exceeds at the edges, and appears abundantly between the scales: these are of a yellowish-green when moist, of a dusky-grey and pruinose when dry, rough with elevated paler points, oblong or rotundato-angulate, not distinguishable by the naked eye. The *apothecia* are scattered and minute, yet very visible as black projecting points; the disk rougher and blacker than the border, flat or convex; the border becoming obsolete sometimes from the convexity of the swollen disk. Dissection under the lens shows, beneath a black rough disk, a *lamina proligera* striated, its upper layer pale, its lower of a pale blue, beneath this is some slightly brownish-white matter resting on a black substance. It may be distinguished from *L. macula* by the evident and sessile *apothecia*, not placed each on a scale, by the appearances on dissection, and by the scales being more minute and without the elevated pale border. In *L. prominula*, Borr. the upper surface does not change its brownish hue to yellowish green when moistened, is areolate, but not divided into distinct scales; the *apothecia* in a dry state have a more concave disk, and more raised border; the entire *thallus* is thicker; the nature of the *lamina proligera* very different.


On siliceous rocks, near Dublin: also near Dunkerron, Kerry. In a dry state the warts or scales of the *thallus* are flatter, and so aggregated that the collection appears like portions of a crustaceous *thallus* areolated. The patches are from one to six inches in diameter. The moistened *apothecia* are very convex, their border scarcely to be seen, their disk, from being black, assuming a dun or grey colour; beneath this is a thick, pellucid, brownish-grey *lamina proligera*, striated, resting on brownish-black matter.

4. *L. fumosa*, Ach. Substratum of the *thallus* tartareous, thick, black, cracked; the upper layer of immersed, roundish, distinct or crowded, flat or concave scales, of a brownish-fawn colour, with raised, pruinose edges; *apothecia* scattered, larger than the scales, flat, black, pruinose; the border thick, entire, slightly waved. *Ach. L. Un.* p. 157. *Muguet and Nest. Cr. Vog. Rh.* No. 461.

On siliceous rocks; Dunkerron; not uncommon. Allied to the preceding. Moisture applied produces no other change on the scales but their more pruinose appearance especially at the edges. The *apothecia* are not in the interstices as in the preceding, their border paler than the disk; this last appears, on dissection, to be black, thick,
covering a pale, almost white, thin lamina proligera, beneath which again is much brownish-black matter, completing the rest of the apothecium. Minute tumours of the scales, irregularly opening, with white powdery edges, black within, constitute the buds.

5. L. recedens. Substratum of the thallus subtartaceous, thick, black, cracked; the scales of a smoke-grey; the infertile thin, minute, crowded; the fertile large, roundish, somewhat lobed; apothecia immersed, scattered, flat; disk black; the border paler, obliterated by moisture.

On siliceous rocks, mountains near Dunkerron. The situation of the apothecia is like that of the preceding, viz. on the scales of the thallus; these are somewhat browner when wet; the infertile are crowded into an areolate form. The apothecia, concave when dry, become plane when saturated with moisture; the border sometimes appears to have a whitish pruina; when dissected the disk appears thin, and rough, with projecting black points; the lamina proligera is thick, striated, nearly colourless, transparent, resting on dark brown matter. The species is allied to Urecolaria cinerea.

6. L. fuso-atra, Ach. Substratum of the thallus black, thin; scales greyish-black, crowded into an areolate form, flat, pruinose; apothecia larger than the scales, slightly immersed in the interstices, depressed; the disk flat, black, rather rough; the border paler, thick, raised. Ach. L. Un. p. 359. Eng. Bot. t. 1734.

On flints, near Belfast, Mr. Templeton. The border to the thallus is a radiating production of the substratum. The surface of the older apothecia is sometimes proliferous and rough with young apothecia. Dissection shows the disk black and opaque, covering a thin, semi-transparent lamina proligera, resting on brownish-black matter. It is difficult, perhaps impossible, to distinguish this from L. atro-alba.

7. L. cechumena, Ach. Substratum of the thallus thin, black, appearing among the interstices and at the edges; upper layer of tartaceous, tumid warts crowded and confluent at the centre, distinct at the edges, powdery, white on the surface, under which of a pale, brownish-olive; apothecia on the warts, immersed, blackish, at length convex; the border thin, partially covered with a thallodinal layer. Ach. Meth. p. 42. Eng. Bot. t. 1830.

On siliceous rocks, near Dunkerron, County of Kerry. Our plant agrees better with the description of the variety β. athroocarpa of L. cechumena, Ach. L. Un. p. 158, than with his α. Disk pale brown; lamina thick, nearly colourless, striated, resting on brown matter.


On siliceous and aluminous stones; not uncommon. This has
somewhat the habit of an *Urceolaria*, the apothecia having occasionally a spurious border from the thallus. Beneath the dark disk is the *lamina proligera*, of a horny transparency, pale or whitish, never of the same colour as the disk, as Acharius defines it; beneath the *lamina proligera* is some brownish-black matter. The apothecia are commonly, but not always, concentrically arranged.


On siliceous and aluminous stones and rocks; at Blackwater bridge, County of Kerry; near Belfast, *Mr. Templeton*. So nearly allied to the preceding, that it is with the greatest hesitation here allowed to be distinct. The thallus is less rough, the apothecia have not the concentric arrangement, have never the spurious border, and the entire patch has at times a glaucous, and even greenish hue, not observed in the preceding. Acharius relied much on the internal structure of the apothecia, which I do not find to be very different: the black border, indeed, is more apparent, and the disk less opaque.

10. *L. stellulata*. Substratum of the thallus very thin, black, exceeding at the edges; the upper layer of minute, brilliant, smooth, tartareous, roundish, subereneate scales, aggregated in a subradiated manner; *apothecia* central to the clusters of scales, flat, black, half immersed; the border smooth, entire, obliterated when moist.

On siliceous and aluminous rocks, in the Kerry mountains; also near the sea-shore: not uncommon. Patches of the thallus usually less than an inch in diameter, yet sometimes confluent into such as are three or four inches long. The black central apothecia are contrasted with the bright white scales that surround them; they are numerous, yet evenly scattered, sometimes confluent. The white scales near the border are thinner, and infertile. The patch is little or not at all altered by moisture. The disk swells greatly when wet, and obscures the border; it is rough, but not in the least pruinose: under the lens the dissected apothecium shows the disk thick and black, with black converging processes entering the *lamina proligera*; this is dark brown, somewhat pellucid, and striated; beneath is much black matter, forming the base of the apothecium. Probably this species is alluded to by Mr. Borrer under *Verrucaria polysticta*. in *Eng. Bot. Supp.* t. 2741.


On siliceous rocks: common. Patches often several inches in diameter. Sometimes the apothecia only, sometimes the entire thallus, has a rust coloured surface; the thallus is occasionally not observable
when the apothecia are largest and most convex; the apothecia sometimes seem to occupy the thallus of other lichens. Dissection shows, beneath a thin black disk, the *Lamina proligera* to be a very narrow layer, striated, whitish-grey, and pellucid, supported on a thick collection of black matter.


On rocks near Belfast, Mr. Templeton. County of Kerry; not uncommon. Varies in the colour of the thallus, its evenness, as well as remarkably in the size of the apothecia. Beneath a brownish-black disk is a *Lamina proligera* pellucid, brownish-grey, and striated, but the brownish-black matter, so commonly filling up the base of the apothecium in nearly all the preceding species, is here almost wanting.


On elms, near Belfast, Mr. Templeton. At Derriquin, County of Kerry; plentiful. Our specimens agree with those of Fries and with the Acharian description. There is no black border to the thallus, as in *L. eleochromae*, Ach. The apothecia are twice the size of the latter, and their internal structure is different: besides, moisture causes their surface to turn brownish, but of *L. eleochromae* of a pale blue. Beneath a brownish-black disk, rough with elevations, is a *Lamina proligera*, in a thin, almost colourless, and transparent layer, beneath which again is a thick collection of black matter.


On trees; common. In wet weather the disk has a pale bluish tinge: the greenish tinge of the thallus is sometimes faint, and in other cases deep; a brownish-olive here is not uncommon. On oaks at Derriquin the apothecia are in very distinct clusters, each cluster appearing to the naked eye as a large apothecium. Dissection of the wet apothecia shows, beneath a pale bluish-brown disk, a thin, transparent, and colourless *Lamina proligera*, resting on much brown matter.


On birch trees; at Cromaglown, near Killarney; rare. The
whitish, filmy, less granulated, and more extensive thallus—as well as the scattered apothecia, with their disk rougher, and, when wet, brownish-black, not glanscent—distinguish this from the preceding; indeed, it seems far more nearly allied to L. premnea, whose thallus, however, is thicker, tartaceous, minutely and more decidedly wrinkled, of a greenish hue, whose border is white and fibrous: and the apothecia usually larger. Beneath a dark brown disk, dissection shows a dusky or brownish semi-transparent lamina proligera, with some scattered, but nearly parallel and vertical opaque dark striae, resting on much brownish matter.


On bark of firs; near Belfast, Mr. Templeton. Woods at Turk mountain, near Killarney, where it occurs also on oak.


On paling; near Belfast, Mr. Templeton. On paling at Derriquin, County of Kerry; and on a barn window at Feltrin hill, near Dublin. Our plant has the strongest analogy with L. elaochroma: the appearances on dissection of the apothecia are quite the same.


On old oaks, near Belfast, Mr. Templeton: on furze, Dunkerron. The thallus does not appear to be limited. The tops of the young apothecia sprinkled, as rough black minute specks, over the thallus, each contain under them a lamina proligera. This, in the full grown tubercles, under an opaque dark brown disk, is a thick, brownish, striated, semi-transparent layer, resting on a thin stratum of somewhat an opaque brown.


On a rock called O’Donoghue’s Prison, at Killarney, Sir T. Gage. I have never seen a specimen of this: the English Botany figure does not appear to be very different from that of L. synothea, t. 1711, of the same work.

20. L. sanguinaria, Ach. Thallus tartaceous, coarsely gra-
LICHENES.


On granite rock, at Lough Bray, near Dublin, Mr. Templeton. A red tinge sometimes occurs within the cortical substance of the thallus, and which communicates to so much of the crust as lies within the apothecium. This colour, whence the Linnaean trivial name originated, is by no means constant. The dissection in the *Eng. Bot.* does not represent the lamina *proligera* of a decidedly greenish hue, which occurs in the Lough Bray specimens.


On moss, on the mountains, near Belfast, Mr. Templeton. The disk is thin and black; the lamina *proligera* a very thin, dusky, striated, scarcely transparent layer, resting on much blackish matter, that occupies the greater part of the apothecium.


On rocks, near Belfast, Mr. Templeton. Our specimens correspond with original ones of *L. miscellus* of Eng. Bot. Beneath the black disk is a thick lamina *proligera*, of a dark olive colour, striated, and pellucid, resting on a thin layer of the same colour but more opaque. The thallus does not appear to be determinate.

23. *L. scabra*. Thallus tartaraceous, granulated, the granules whitish, crowded, on a filmy greenish-grey substratum, rough, minutely wrinkled, cracked; apothecia black, immersed, irregularly clustered and confluent, flat, at length somewhat convex; the disk rough; the border smooth, entire, waved, at length discharging its black colour.

On siliceous rocks, on the shore at Derriquin, County of Kerry. Patches sometimes three or four inches in diameter, having a sordid greenish hue. Thallus not determinate, growing thinner towards the edges. The granules are erect, somewhat stalked, at first entire, at length broken on their tops, and there appearing white and powdery. The border of the apothecia in many instances becomes pale throughout its substance. Dissection shows a disk, consisting of a coarse black *pruina*, beneath which is a thick, greenish-grey, striated, pelucid lamina *proligera*, resting on a layer of brownish matter.

24. *L. geographica*, Hook. Substratum of the thallus thin, black, subtartaraceous, cracked, determinate; the upper layer of bright sulphur yellow, cracked, crowded, and subconvex scales, sometimes somewhat lobed; apothecia black, immersed between the cracks of the scales, flat; the disk rough; the border rather

On siliceous and aluminous rocks; common. This has the strongest affinity to *L. atro-alba*; from which it could scarcely be distinguished on cursory observation but for the colour of the scales. Beneath a thick black disk is a *lamina proligera* of a dusky brown, semi-transparent, and striated, resting on a layer of black matter.


On sub-alpine rocks; not rare. A spurious thalloidal border to the apothecia is very common; the thallus is indeterminate; under the lens the disk appears studded with numerous black points, but these are so far separated that the blackness of the surface is not continuous; the *lamina proligera* is nearly white, pellucid, striated, resting on a small central portion of black matter.


On sub-alpine rocks; not uncommon. Accompanies the preceding. In both the structure of the apothecium is extremely similar, only in the present the disk is flat or concave. Apothecia are often clustered and confluent.


On siliceous rocks; not uncommon. The surface of the true thallus is often covered and concealed beneath the buds, that appear as a greenish powder.

28. *L. flavo-virescens*, Borrer? *Thallus* indeterminate, with a pale brown, filmy, investing substratum; scales very minute, clustered in patches, of a lively yellowish-green; *apothecia* minute, black, on the substratum; the disk plane or concave, rough; the border thick, entire, smooth. *Borrer, MSS. according to Hook. Eng. Flor.* v. 5, p. 178? *Lec. citrinella*, *Ach. L. Un.* p. 179?

On mosses, at Bonane and Kilceanagh, County of Kerry. Doubts arise as to the synonyms given above, since the authors above quoted do not notice two distinct *strata* to the thallus, and since they denominate the apothecia to be globose. Our plant attracts the eye by its colour, and the graniform aggregations of the scales into flattish clusters, each seldom exceeding a quarter of an inch in diameter. The border of the apothecia is the mouth of a thick black cup, in which the *lamina proligera* is contained, being a thick layer of pellucid, pale
brown, striated matter, subtended above by a dark brown thin disk, whose surface is rough with projecting points. The apothecia are sometimes clustered, when their border is variously waved. Perhaps what I have called scales may turn out to be the buds; they are far more coarse than in the preceding species, nor do they contain the apothecia immersed among them.

29. *L. pulvinata*. Thallus indeterminate, pulvinate; the substratum thick, cracked, dark-brown, brittle; scales tumid, minute, rotundo-lobate, conglomerate, of a dull whitish brown; apothecia on the substratum, black, at length globose and immarginate.

On moss, associated with *Jungermannia julaea*, on Mangerton, as also at Dereenafinchy mountain, County of Kerry. Patches of the thallus form cushions two or three inches in diameter. Carelessly viewed, the upper layer of the thallus would appear to be crustaceous and granulate, but the real structure exhibits aggregate sublobate scales, of a dull pale brown; in which respect it is very different from the preceding, but still more decidedly so in the structure of the apothecia. These are at first mere minute points, then concave, with a thick border, at length far exceeding the scales in size, very convex and immarginate. Dissection can scarcely discriminate the disk from the *lamina proligerata*, which is subjacent in a very thin layer, and is transparent and pale, resting on much coal-black opaque matter, which fills the greater part of the apothecium. This would be arranged by some botanists under the genus *Psora* of Hoffmann. It is allied to the foreign *Lec. Wahlenbergii*, Ach.

30. *L. Templetonii*. Thallus filmy, continuous, investing, with roundish, minute elevations, indeterminate, whitish-grey; apothecia black, plane, at length very convex, wrinkled and confluent, with the border disappearing.

On moss, near Belfast, Mr. *Templeton*: on turf, near Bantry, Miss Hutchins. Patches roundish, from one to three inches in diameter; the thallus when wet of a greenish-grey. The border of the apothecia is entire, though often waved. Dissection shows the *lamina proligerata* to be extremely thin, pale brownish-grey, and pellucid when moist, lying upon an opaque black substance, forming the principal part of each apothecium, and which, seen through the transparent disk and *lamina proligerata*, causes the apothecia to appear black: the disk cannot be distinguished from the upper surface of the *lamina proligerata*. This species approaches, as to characters, the *L. arthonioides*, of Ach. *L. Un.* p. 178, except that the apothecia are never "scabrid or pulverulent as in the *Spilomata*."
their young state only. The disk rough, opaque, nearly black; the *lamina proligerα* shallow, whitish brown, semi-pellucid, striated, resting on white cortical matter, that forms the great proportion of the contents of the apothecium.


On the wet surface of turf or clay; not uncommon. An inconspicuous species, requiring close inspection for its detection. Beneath a black disk rests the *lamina proligerα*, in a thin, slightly brownish, striated, pellucid layer, lying on much brownish-black matter, that forms the principal part of the apothecia.

33. *L. geomceæ*. Thallus with the inferior layer filmy, of a brownish-grey; the upper of tartareous, minute, rotund, crowded granulations, of a slightly greenish-white; *apothecia* black, globose, smooth, at length confluent; the border evanescent. *Lec. uliginosa, γ. geomceæ, Ach. L. Un.* p. 180.

On moss, near Belfast, Mr. Templeton; on turf, on stems of furze and of heath, near Dunkerron, County of Kerry. Granulations smooth or uneven, green within. Apothecia larger than the granulations. The synonym is taken from a specimen named by Acharius for the late Mr. Harriman, and sent by the latter to Mr. J. Mackay. The greatest peculiarity of this species is discovered by dissection, for beneath a disk consisting of black points contiguous or with pellucid interstices, is found a *lamina proligerα*, in a narrow layer of a sea-green colour, resting on much pale-brownish pellucid matter.

34. *L. lapidicola*. Thallus of minute, roundish, flat, scattered scales, aggregated towards the centre of the patch, of a tawny-brown, with greyish summits; *apothecia* minute, numerous black, rugged, round or oblong; the disk tumid when moist; the border evanescent.

On slate rock, County of Down, Mr. Templeton. On stones, on the bridge wall at Cappamore, near Dunkerron, Kerry. There is, in the dry and young apothecium, an angular circumscription, but no distinct border, hence this species might arrange under *Arthonia*, did not all analogy forbid it. Dissection shows the disk black; beneath it the *lamina proligerα*, in a thin, whitish, pellucid, striated layer, resting on brownish-black matter, twice as thick in depth; below all a greyish substance may be observed analogous to the cortical part of the thallus.


On siliceous slate, Dunkerron; not uncommon. The patch is often several inches in diameter. The apothecia crowded or dispersed, but always numerous; sometimes the young growing out of the old.
LICHENES.

Under the lens the disk is scarcely distinguishable from the _lamina proligera_, but as a dusky surface; the latter is a narrow layer, very pale brown, semi-transparent, and striated, resting on a dense layer of black matter. The apothecia sometimes resemble crowded _lirella_.

36. _L. immersa_, Ach. _Thallus_ tartaceous, thin, continuous, whitish, somewhat determinate; _apothecia_ black, numerous, evenly scattered, flattish or concave, immersed; the disk subpruinose; the border thick. _Ach. L. Un._ p. 153. _Eng. Bot._ t. 193.

On limestone; not uncommon. The apothecia are not only immersed in the thallus, but, by a singular property of this species, and of _Verrucaria Schraderi_, are placed in cavities of the stone formed by some law of the living force as yet unexplained.

37. _L. rivulosa_, Ach. _Thallus_ tartaceous, determinate, cracked, brownish-grey, at length waved and rough; the border zonate, of an olive colour; _apothecia_ numerous, scattered, sessile, black, flat; the disk subpruinose; the border waved, of a pale brown. _Ach. Meth._ 38, _Syn._ p. 28. _Eng. Bot._ t. 1737.

On siliceous rocks; very common. A number of individuals, separated by their dark linear borders, give the appearance of the divisions of a map far more strikingly than in _L. geographica_. Dissection shows the disk of a blackish-olive, which layer re-enters under the apothecium; beneath the disk is a pale, striated, semi-transparent _lamina proligera_, of considerable thickness, resting on some white, apparently cortical matter. Fries, in his _Lich. exsicc._ number 39, makes _Lecidea Lightfootii_, _Ach._ (and, probably, justly) a variety of this.


On walls, near Belfast, Mr. Templeton; on granite, near Dublin, not uncommon. Under the lens the disk cannot be distinguished from the _lamina proligera_; this appears of a light reddish-brown, becoming paler where it meets some white cortical matter, on which it rests, and which enters the apothecium at its lowest point; the _lamina_ is semi-transparent and striated. The apothecia sometimes appear immersed below the level of the surface of the lime that exudes from the mortar of walls.


On limestone, at Dunkerron Castle. At Portmarnock, near Dublin, is found apparently the same species, but with scarcely any _pruina_ on the apothecia, which are very convex and rugged: this state, I sup-
pose, is the *L. amylacea* of *Ach*. Moisture gives the thallus a greenish hue. The dissection in *Lich. Un. tab. 2, f. 1*, does not accord with that of the Irish plant, and, as it gives no distinct *lamina proligera*, perhaps it is incorrect. The lens shows the disk studded with closely set, dark points, beneath which is the *lamina proligera*, brownish-grey, striated, and semi-transparent, resting on black matter. I have seen Irish specimens, collected by other botanists, of *L. epipolia*, *Ach.* and of his *L. corticola*, but neither, could I satisfy myself, to be distinct from the present species.


*On* old oaks, near Belfast, *Mr. Templeton*. The apothecia are frequently clustered, swelling much by moisture. Beneath a thick dark brown disk, is observable the *lamina proligera*, sub-pellucid, of a redder or more lively brown, resting on a very thin layer of dusky matter.

41. *L. pulverea*, *Borr.* Thallus thin, between filmy and tartaraceous, brownish-grey, rugged, cracked, indeterminate; the surface nearly covered with buds in a soft, pale, coarse, greyish-green powder; *apothecia* sessile, black, often confluent, scattered; the border livid, slightly raised, at length evanescent. *Borr. in Eng. Bot. Supp. t. 2726.*

*On* old oaks, at Dromore, County of Kerry. The disk is rather thick and black; the *lamina proligera* dusky, yet pellucid and striated, resting on a shallow layer of dark brown matter. Our specimens exhibit a sub-stratum of the thallus to the powdery buds.

**Apothecia not black.**


*On* decaying turf, at Colin glen, near Belfast, *Mr. Templeton*. The apothecia have not yet been met with in Ireland.


*On* elms, at Dunkerron; on rocks, at Derriquin, County of Kerry. The thallus varies in thickness, being thinner and more powdery on trees; on rocks, at Derriquin, it is almost tartaraceous, somewhat rugged; at Glenflesk, smooth, soft, and whitish. The disk appears dotted, the
LICHENES.

Lamina proligera is a shallow, striated, colourless layer, lying on much whitish matter, constituting the greater part of the apothecium.


On mosses, especially Hypnum; not uncommon. Mugeot and Nestler's Lecidea viridescens, number 550, quite squares with Acharius’s description, in his Lich. Univ. p. 200, and is distinct from any Irish specimen that I have seen. The structure of its “rugulose apothecia” is remarkable, for the lamina proligera, entire below, seems divided above into a few irregular processes, corresponding to the wrinkles on the surface of the disk. In our plant the disk under the lens appears studded with dark points; the lamina proligera is of considerable thickness, pale, almost colourless, striated, having in the centre of the globule a little opaque brownish matter. It invests the surface of Hypnum sometimes to the extent of several inches in diameter.


On siliceous rocks, Pigeon Island, Kenmare River; near Belfast, Mr. Templeton. A thallodial border to the apothecia is very observable; hence, perhaps, the shifting this species from under Lecanora to Lecidea might have been omitted by Acharius.


On fir trees, at Derriquin, County of Kerry. This species too, perhaps, ranges as well under Lecanora. The lamina proligera is colourless and transparent.


Near Belfast, Mr. Templeton; near Bantry, Miss Hutchins; on rocks, at Blackwater Hill, County of Kerry. To the apothecia of
this species, likewise, there is usually present a thallodal border. The variety from Blackwater Hill is singularly pulvinate, has the lobes distinct, pruinose, their surface uneven, with a substratum to the thallus dense, spongiose, brownish-black; the apothecia at first of a light orange colour, afterwards brownish, always semi-transparent by moisture. In a specimen from Observatory Inlet, north-west coast of America, collected by Dr. Scouler, the lobes of the thallus are light-brown, erect, fastigiate.


On wet clay, near Belfast, Mr. Templeton. On bogs, near the roots of heath, County of Kerry; common. The apothecia may be observed of more than four different colours. The buds appear in large heaps, of a tawny colour, emitting a pale green powder. The granulations of the thallus are greenish when wet. Beneath a pruinose disk is a semi-transparent, slightly coloured lamina proligerova.


On limestone, near Belfast, Mr. Templeton. Dunkerron; not uncommon.


On red sandstone, near Belfast, Mr. Templeton; on mortar of a wall near Tralee; and on siliceous rocks at Blackwater, County of Kerry.


On cherries at Powerscourt; on ash at Dunkerron.


On siliceous rocks; common. Too near the preceding.

On turf, under heath or furze; not uncommon. The apothecia are sometimes proliferous of others.

54. L. marmorea, Ach. Thallus tartaraceous, very thin, scarcely cracked, grey, indeterminate; apothecia urceolate; the disk of a salmon colour; the border very thick, raised, subinflexed, crenulate, pale. *Ach. L. Un.* p. 192. *Eng. Bot. t.* 739.

On limestone, common; also on the bark of old elms, at Dunkerron. The *lamina proligera* has a perithecium passing under it and rising up into an elevated border. The variety on elms has its minute apothecia almost entirely immersed; in this, too, the *lamina proligera*, dropping out, leaves a whitish urceolate perithecium.


On mosses, near Bantry, *Miss Hutchins*; near Belfast, Mr. Templeton. In Askew Wood, County of Kerry. There is a perithecium quite analogous to that of the preceding, out of which the *lamina proligera* occasionally drops.


On limestone, at Dunkerron, County of Kerry. On calcareous rocks the thallus is more truly mealy; on elms, as in Mr. Harriman's specimens from Durham, it is between filmy and tartaraceous. This species is very nearly allied to *Lec. rupestris*, whose apothecia, however, are not so crowded, more convex, and immersed in the crust; besides their *lamina proligera* rests on a shallow, central, brownish-tawny mass, while in *L. ulmicola* it rests on a whitish substance.


On a wall, near Belfast, Mr. Templeton; on rocks, near Bantry, *Miss Hutchins*; on willows and on sycamore at Derriquin, County of Kerry. The black edge of the thallus is best observed on the specimens on *Salix cinerea*; the thallus varies in thickness. The *lamina proligera* is slightly tinged of the same colour as the disk: a thalloidal
border is observable on old apothecia in Fries’ specimens, number 41 of his Lich. Suec. exsiccati.


On limestone at Dunkerron, County of Kerry; also at Tralee. Our specimens, which accord with the English Botany figure and description, differ remarkably from the preceding species by the nature of the border to the thallus. Besides the proper margin to the apothecia, a spurious thallodial exterior rim is usually observable. This species has a strong affinity to Lecanora elegans. I know not where to refer, if not to this species as its very young state, a Lecidea common on our limestone, whose apothecia are more minute, more pale, and whose thallus is in so thin a layer as to be nothing more than a citron-coloured very fine powder.

59. L. picta. Thallus leproso-tartarous, very thin, brownish-grey, minutely wrinkled, continuous, or scarcely cracked, rugged, determinate; apothecia minute, numerous, crowded, half immersed, very concave; the disk of a pale greenish dun colour, with a bright yellow pruina; the border very tumid, inflexed, of a bright yellow.

On siliceous slate, Dunkerron mountain, and elsewhere in the County of Kerry. The thallus is elevated into minute acute wrinkles or roundish pieces, whose edges are whitish and shining; when moist, under the lens greenish points appear. The apothecia concave, almost urecolate when dry, by the application of moisture have their disk elevated to nearly or altogether the level of their border. The border is commonly quite entire, yet sometimes slightly jagged. The opening of the apothecia is usually compressed, hence the border is waved. The lamiina proliger a is deep, and has upright striae; it is colourless and pellucid. The patches are sometimes a foot or more in length. To the naked eye only a yellowish suffusion of the surface of the rock appears. It might be considered closely allied to Lecanora vitellina if it were not for the very different crust and dissimilar structure of the apothecia.

† † Thallus subcrustaceous, or scaly, lobed.

Under this head may have been arranged some species of the preceding section, with a black substratum and dispersed warts to the thallus. It comprehends the Psor. of Hoffman.


On tress, near Belfast, with apothecia, Mr. Templeton; at Rathronane, County of Tipperary, Mr. G. S. Gough; on walls common, but barren.

On the North Wall, near Dublin, _Mr. Robert Brown_. At the sand hills of Baldoyle, near Dublin, abundant. _β. aromatica_, scales rather erect, fastigate, of a brownish-grey, somewhat pruinose. _Lecidea aromatica_, Hook. Eng. Flor. v. 5, p. 177. _Lichen aromaticus_ Eng. Bot. t. 1777. On walls, at Dunkerron Castle; on wet rocks in the mountains near Dunkerron. Sir James Smith, long since, affirmed the difficulty of separating what are above united into varieties: the propriety of which is strongly indicated by the identity of the remarkable odour that issues from the bruised recent apothecia of both, the scent being that of _Geranium robertianum_, though fainter.

62. _L. polytropa_, Acc. Thallus in dispersed clusters of tumid, wrinkled, somewhat lobed, pale, sulphur coloured, tartraceous scales; _apothecia_ conglomerate, plane or convex; their disk of a pale flesh colour; the border lighter, waved, and crenate. _Ach. Method. Lich._ p. 72. _Eng. Bot._ t. 1264, the lower figure.

On siliceous rocks, at Derriquin, County of Kerry. In our plant a black, powdery substratum to the thallus is observable, which I do not find in specimens from Ben. Lawers, collected by the late Mr. J. Mackay; besides, the scales of our plant are in distinct swollen clusters, which is not represented in the English Botany plate.

63. _L. fuliginosa_. Substratum of the _thallus_ of numerous, short, fastigate, simple or branched, bent filaments, black as their connecting thin membrane; scales minute, much scattered, flat, hemispherical, entire, of a dusky olive; _apothecia_ black, convex, the border soon obliterated.

On siliceous slate at Dunkerron and Carig mountains, County of Kerry. Patches, at a little distance, appear like the rudiments of _Anodria Rothii_; from one to four inches in diameter. The filaments of the substratum when dry are black, when wet of a light brown; they are especially collected about the circumferences of the scales, and of the apothecia, to which they adhere: towards the margin of the patch they are short. The scales, larger than poppy seed, are commonly distinct, sometimes confluent, when wet they are almost gelatinous, otherwise they remind one of the scales of an _Endocarpon_; when cut, under the lens, they exhibit beneath a brown, semi-transparent, cortical layer, another more thick, quite green when wet, resting on much cortical matter, whose whiteness, as usual, is not altered by moisture. The apothecia are often subglobose, somewhat shining, situated single or two together on one of the scales, overhanging its side. Dissection shows the disk thin and black; the _lamina proligera_ of a light brown, pellucid, striated, in a very thin layer; while the centre and greater part of the apothecium is occupied by much black matter, which occasionally protrudes, from beneath, beyond the base of the apothecium.
23. Urceolaria, Ach.

Thallus crustaceous, uniform. Apothecia orbiculate, immersed in the thallus; the disk concave; the border formed of the crust.


On siliceous rocks, at Dunkerron; on the sand hills at Portmarnock, near Dublin, abundant. Disk pruinose; lamina proligera thin, horny, with dark opaque vertical stria.

2. U. contorta, Ach. Thallus of distinct, clustered, tumid, light-greenish scales, with elevated whitish edges; apothecia usually single, immersed in the scales; the disk brownish-black, pruinose; the thallodal border whitish and powdery. U. Hoffmanni, β. contorta, Ach. L. Un. p. 333. Eng. Bot. t. 1940, (the greenish figure.)

On limestone, at Portmarnock and Feltrim Hill, near Dublin; on basalt, near Belfast, Mr. Templeton. On granite, near Dublin.


On limestone; common.


On siliceous rocks (never on calcareous); common. The surface of the thallus is more rugged and not so white as in the preceding; the border is much broader and of a different colour; the apothecia are larger, besides it does not occur on limestone.


On rocks near the water’s edge, Finnehy River. β. on drier rocks, exposed to the sun: neither variety is ever seen on limestone: the substratum of the lamina proligera is apt to turn from white to dark-brown.

6. U. rufescens, Hook. Thallus indeterminate, thin, tartaraceous, tessellated, of a smoke-grey; apothecia small, dark-grey,
immersed, at length flat; with an elevated, entire border. 


On siliceous green sandstone, Cappamore, near Dunkerron, County of Kerry. Our plant agrees in every particular with the figure and description in English Botany, as well as with a specimen from Mr. Borrer, except in the colour of the thallus and of the disk, the last of which Acharius calls a dusky-black. Under the lens the disk is seen to be rough with elevated cellules; the lamina proligera is deep, plano-concave, pale, pellucid, full of minute cells; the disk extends, as in the Acharian figure, beyond the surface of the lamina proligera.

24. Lecanora, Ach.

Thallus crustaceous, uniform, or scaly and lobed at the margin. Apothecia orbiculate, sessile, their border formed of the thallus, tumid, elevated.

† Thallus crustaceous, uniform.

* Apothecia black, or dark brown.

1. L. atra, Ach. Thallus tartareous, scarcely determinate, granulato-areolate, whitish-grey; apothecia numerous, crowded, sessile; their disk and lamina proligera black, concave, at length plane; their border whitish, at length crenulate. Ach. L. Un. p. 344. Eng. Bot. t. 949. (not good.)

On trees and on rocks, especially of the sea-shore; near Belfast, Mr. Templeton; in the South of Ireland, common. The thallus is liable to be dispersed.

2. L. exigua, Hook. Thallus subtartareous, thin, uneven, of a dull greenish-ash colour; with a black, thin substratum exceeding at the edges; apothecia minute, crowded, blackish; the disk rough, at length convex, and the whitish border at length brownish. Hook. Eng. Flor. v. 5, p. 187. Eng. Bot. t. 1849. (the figure on tile.)

On tiles, near Portmarnock Church, County of Dublin; also on granite, near Dublin. The disk, dissected under the microscope, is brownish, rough; the lamina proligera of a very pale-brown, semi-transparent, and has usually dark opaque striae, converging towards the centre of the apothecium, but not exceeding the lamina.

2. L. pericica, Ach. Substratum of the thallus very thin, dark brown; scales minute, very thin, snow-white; apothecia numerous, minute, black; the disk rough; the border snow-white, subpruinose. Ach. L. Un. p. 355. Eng. Bot. t. 1850.

On sandstone rocks, sea-shore, at Derriquin, County of Kerry. The substratum is unnoticed by Acharius; this species he seems to have found limited to the bark of trees, yet I think it highly probable that our rock plant is the same.

The *areolae* are, for the most part, tumid, subconfluent, and waved. The surface is of a lead-grey, and appears harsh and rough. The minute apothecia sometimes burst from a thallodal wart, as in *Lecanora coarctata*. A thin dark substratum may be observed as a limit to the thallus. Our specimens accord well with the description of *Acharius*.


On stones and rocks, near Belfast, *Mr. Templeton*; not uncommon in the South of Ireland, sometimes in situations occasionally inundated. The thallus in wet places has a permanent greenish hue, on red sandstone rocks brownish; but in all, the young apothecia are similar and like white globules. Perhaps the *Variolaria tijtea* of Acharius is not distinct. The *lamina proligeræ* is of a pale, dirty wax hue, and remarkable for the size of the cellules with which it is striated.


On siliceous rocks, near Bantry, *Miss Hutchins*; not uncommon about Dunkerron, near Kenmare. The patches are sometimes continuous and wide, at other times in dispersed, minute portions: the surface is occasionally uneven with irregular, eminent, whiter portions of thallus. The warts or granulations are scattered towards the edges, crowded and in contact in the centre, tumid, subject to split, angular, unpolished, grey, yet sometimes assuming a brown hue from numerous punctiform young apothecia, of a brown colour, with which they are studded. Apothecia numerous, sessile, very minute; the *lamina proligeræ*, dropping out, leaves a whitish thallodial cup. Dissection shows the disk to consist of minute, brown, elevated points, the terminations of opaque brown *striæ*, continued through the *lamina proligeræ*, which is pale and pellucid; the border is evidently thallodal, containing green parenchymatous matter. Different specimens vary much in the size of the apothecia.

7. *L. involuta*. *Thallus* tartaceous, rather thin, in closely adjacent or scattered, whitish-grey, rather flat, unpolished, somewhat lobed, or crenate warts, indeterminate; *apothecia* few, at first globose, bursting on the summit, at length convex, pale rose-reddish, finally brownish, and the border almost obliterated.
On siliceous rocks, on Carig and Dunkerron mountains, County of Kerry. Sometimes there is a black substratum observable. Sometimes the thallus is in scattered, tumid, minute, scarcely lobed warts. When wet the thallus assumes a greenish hue, while the disk of the apothecia becomes apparently more gelatinous. A little after the opening of the globular scales that contain the apothecia, the disk of these appear concave, but in the full grown it is always convex; there is more of a rose colour in the disk than in any of the congeners. Dissection shows the entire of the lumina proligeræ to be of the same colour throughout; striated and semipellucid; from it the disk can scarcely be distinguished as a separate layer. From the preceding the lobed or crenate scales, the colour and convexity of the apothecia will keep the present distinct. While the same circumstances, besides the thicker tartareous thallus, and want of the inflexed border to the full grown apothecia will distinguish it from L. coarctata. The appearances on dissection are very different from those of either of the two foregoing species.


On rocks, on the shore at Bangor, near Belfast, Mr. Templeton; Blackwater Hill, County of Kerry. A black-olive edge is visible, especially where two thalli of this species meet. The edges of the areola are somewhat crenated: the areolæ themselves are powdery on the surface: the hue is often light-ochrey, or cream coloured. The apothecia are frequently nearly globose, always pruinose when young; the dark disk at length drops off and exposes the lamina proligeræ of a wax colour: dissection shows this last to be pale, striated and pellicud, and of the colour stated.

9. L. sabfuscæ, Ach. Thallus tartaceous, thin, cracked, subgranulate, uneven, grey, with a paler or white border; apothecia numerous, sessile, slightly convex, the disk brown or dusky, the border at length crenate. Ach. L. Un. p. 393. Eng. Bot. t. 2109.

On trees, most common; on siliceous rocks, common; on limestone or mortar, more rare. The varieties on trees are—1, the common appearance above defined: 2, with a very thin thallus, and very pale and pruinose disk to the apothecia, as on birch and hollies; this may be Lecanora angulosa, Ach. 3, with the thallus white, the apothecia subpedicellated, their border singularly thick and wrinkled, as also the backs, this occurs on oaks, at Askew wood, County of Kerry. 4, the thallus almost filmy, investing, of a greenish grey, in small patches, the apothecia minute, somewhat immersed; the disk pale, the border thick and entire; on Salix cinerea in Askew wood. There are besides, varieties on stone, of which the most remarkable are—5, with a thin dirty white investing thallus, with the areolæ flat in the centre, somewhat crenate at the edges, and the border white, fibrous, and with a silky lustre: this occurs on rocks occasionally inundated at Blackwater River, County of Kerry; also, larger in all its parts on siliceous stones on walls near Tralee. 6, on
mortar, at Templeogue, near Dublin, with the thallus in scattered granules; the apothecia numerous, crowded, hence subangular, their disk concave, light brown, with a dense white pruina, their border even in the youngest and minutest, waved and crenulate. 7, crustless, apothecia very minute, dispersed; their disk olive, pruinose; on siliceous rocks at Derriquin, County of Kerry; the same, I suppose it is, that occurs on limestone on the seashore, often occupying the crust of Thelotrema exanthematicum, and looking like the minute apothecia of Lecanora chloroleuca, Ach. In all the different varieties dissection shows beneath a disk more or less intensely coloured, brownish, a lamina proligera of considerable thickness, of a pale waxy hue, semi-pellucid and striated.

* * Apothecia red, yellow, or brown, (never black.)


On granite near Dublin; Dr. Whitley Stokes. Slieve Croob, Mr. Templeton. In old dried specimens the thallus sometimes becomes quite brownish, and loses all yellowish hue. The areola are often confluent, always convex. The young unformed apothecia rise with a tumid border from the crust. The disk and lamina proligera are of the same colour, that is, a reddish-brown, the latter forms but a thin layer over much white cortical matter, and is semipellucid and striated.


On rocks near Belfast, Mr. Templeton; on shaded rocks near Dunkerron, County of Kerry. The thallus becomes thinner and white towards the border; but when two thalli of this species meet (and sometimes independently of this,) there is a narrow black edge visible. The dissection of the apothecia exhibits appearances quite similar to what is observed in Lecanora ventosa. I find the thallus to vary in thickness, and sometimes to be completely tartaceous and areolate; to vary too as to the degree in which the surface is powdery. I must confess, to me, the distinctions between this and the preceding are very unsatisfactory.

12. L. cerina, Ach. Thallus membranaceous, very thin, slightly granulated, indeterminate, greyish-white; apothecia scattered, sessile; the disk flat or concave, at length scarcely convex, of a wax-yellow; the border inflexed, with a white pruina, at length turning black. Ach. L. Un. p. 390. Eng. Bot. t. 627.

On trees, near Dublin, Mr. Templeton; in Kerry, not uncommon. On dissection the lamina proligera is seen to lie, in a lenticular form, on
a base of cortical matter, and is of the same wax yellow, but more di-
luted than the disk throughout its substance; in younger apothecia it
appears almost colourless. It is always pellucid and striated. The
disk consists of a number of eminent points, with which it is somewhat
rough. Moisture causes it to assume a convex shape.

13. L. varia, Ach. Thallus between powdery and tartareous,
in scattered pieces, cracked, indeterminate, of a pale sulphur
yellow; apothecia crowded, irregular, often confluent, slightly
convex; the disk of a pale yellowish-green; the border pow-
synnica.

On palings at Derriquin, County of Kerry. There appears to be-
long to the thallus a very thin white pulvulent substratum. The disk
becomes of a dusky brown by age. It seems to accord with the
Acharian variety above quoted. On dissection the central part of the
apothecium is seen filled with much green parenchymatous matter as
well as a little whitish cortical substance above and below the latter:
the lamina poligera appears as a very thin convex layer almost colour-
less, pellucid and striated; the disk is somewhat more opaque, but
seems to lose much of the yellowish tinge when saturated with mois-
ture. The apothecia seem almost gelatinous when wet, and the thallus
considerably greener. We have in Kerry a variety, as I suppose, very
common on siliceous rocks, the thallus being less powdery, and rather
scattered in somewhat tartareous, flattish granulations, in other respects
agreeing with the species above defined.

14. L. intricata, Ach. Substratum of the thallus subtar-
tareous, black, cracked; scales flat, crenato-sublobate, dis-
pered or collected into areole, whitish sulphur-coloured; apo-
theicia plane or convex; the disk olive-coloured; the border
t. 1264. the upper figure.

On old red sandstone rocks, at Kilceanagh, County of Kerry. The
thallodial border to the apothecia is very distinct. The colour of the
disk and of the border sometimes changes from olive to a brownish-
orange. The apothecia commence as minute points on the scales. A
variety, if not distinct species, occurs at Blackwater Hill, with the sub-
stratum dispersed and inconsiderable, the scales so minute as to be
scarcely observable by the naked eye; they are besides nearly entire,
the apothecia more convex, their border less waved, and above all, the
diameters of the apothecia far exceeding that of the scales: it may for
the present be termed the 6. comminuta, of our species.

15. L. parella, Ach. Thallus tartareous, whitish, plaited
and warty, subdeterminate; apothecia numerous, large, crowded,
central; their disk pruinose, slightly flesh-coloured, concave;
their border very thick, tumid, and even. Ach. L. Un. p. 370.

On siliceous rocks; common. In shade the thallus becomes very
thin and scattered, but the thickness of the thallodial border to the ap-
othecia remains unaltered. On the bark of Sycamore at Derriquin, oc-
curs a variety so exactly intermediate between this and Variolaria
velata, Ach. that I know not to which it should be referred. Dissection shows the lamina proliger a to rest on much cortical matter; to be slightly tinged as well as the disk, to be semitransparent and striated with longitudinal cellules, rather unusually wide: the disk is more opaque and rough with the pruina.

16. L. tartarea, Ach. Thallus tartareous, thick, the granulations tumid, crowded, pitted, indented or almost lobed, greyish-white; apothecia scattered, large; the disk flat or convex, often wrinkled, yellowish-brown inclining to flesh-colour; the border thick, inflexed, at length flexuose. Ach. L. Un. p. 371. Eng. Bot. t. 156 and t. 1634.

On siliceous rocks: not uncommon; also investing mosses or heath in subalpine situations when it becomes the Lichen ursi-ensis of Linn. the Lichen frigidus of Eng. Bot. This varies in the thickness of its thallus, and occasionally has a strong resemblance to the preceding. On the full grown disk I do not observe the dense pruina constant in Lec. parella. Dissection shows the disk pale brown, rather opaque, the lamina proliger a transparent and colourless, but striated, beneath which again is a layer of opaque yellowish-brown matter which principally imparts colour to the apothecia. When this species occurs on trees, it might seem to constitute the Lecanora Turneri of authors, were it not for the pruina on the disk of the latter as figured in Eng. Bot. t. 857, by which it approaches much nearer to the Lecanora parella. Buds yellowish-grey are not uncommon.

17. L. citrina, Ach. Thallus in aggregated leprous scales, somewhat granulated and lobed; buds powdery, bright lemon coloured, covering the surface; apothecia scattered, minute; the disk flat, at length convex, orange coloured; the border powdery, elevated, yellow. Ach. L. Un. p. 402. Eng. Bot. t. 1793.

On walls and rocks: common; on bark of fir, near Belfast, Mr. Templeton. The thallus seems renovated in winter. The apothecia are somewhat immersed in the powder of the buds, they are usually few. The disk is rather thick citron-coloured, the lamina proliger a pale, semipellucid, and striated.

18. L. vitellina, Ach. Thallus in most minute, somewhat tartareous, sublobate, dispersed, shining, tumid scales, of a tawney-yellow; apothecia numerous, crowded, minute, flat or concave, at length convex; the disk of a pale dusky yellow, subpruinos; the border shining, tumid, of a full yellow, subflexuose. Ach. L. Un. p. 403. Eng. Bot. t. 1792.

On pales, also on basalt, near Belfast, Mr. Templeton. The old thallus, at least, presents a thick black substratum, which is much cracked. On old pales the apothecia reach a larger size, and their disk becomes brownish-black. Dissected, the disk appears of a brighter greenish-yellow than the lamina proliger a, which is not destitute of a yellowish shade, and is semipellucid, pale, and striated. A variety occurs on rocks near Dunkerrow, in which the black substratum is the most conspicuous part of the thallus, and fibrous or pulverulent; above this occur minute, dispersed, golden yellow, shining scales, lobed in a substellate manner; the apothecia are large, their disk usually convex.
†† Thallus scaly, or crustaceous and lobed.


On basalt, near Belfast, Mr. Templeton. The colour of the dry thallus is of a dusky brown, of the wet of a brownish-olive and much lighter. Under the lens the dissected disk appears rather opaque and deep brown, the *lamina proli dera* of a reddish and white brown, semipellucid, and striated.


On moss or stones in Askew wood, County of Kerry, with *apothecia*; the infertile state on trees in woods near Killarney, common. The buds appear first on the margin, afterwards on the surface of the *laciniae* of the thallus. The wet surface is less white, somewhat greener. The *apothecia* are sometimes clustered, their disk at length dusky. The patches among moss on the barks of trees often extend to several inches.


On mossy banks, near Belfast, Mr. Templeton; woods of Killarney, common. The *apothecia* are conspicuous from their size and crenate border, and rival those of the larger *Parmelia*.


On trees, and on rocks; not uncommon. This appears to vary most singularly in the size and breadth of the thallus from the minute state on trees, whose division is scarcely perceptible to the naked eye, to
the expanded state figured at t. 1795 of Eng. Bot. which is common on our limestone rocks near the sea. In the last case minute swellings of the fronds, which burst and display an orange colour at their tops occur, which perhaps are never present in the minuter state, nor in Parmelia parietina, to which otherwise it is strongly allied.


On walls and on rocks; common.


On siliceous rocks, Blackwater Hill, County of Kerry. Another state, scarcely variety, occurs on mortar and on limestone at Dunkerron, with the thallus in pieces, somewhat more orbicular, of a yellower tinge and the apothecia for the most part concave or flat, yet occasionally quite convex. But how it is to be distinguished from Lecanora elegans, Ach. I cannot conceive, though I have not ventured to quote this under our species. Again, growing intermixed with the last alluded to, appears a state in which the thallus is orbicular, adnate, pruinose, lemon-coloured, lobed in a radiating manner, the apothecia orange coloured, at length convex, the border at length obliterated; which thus corresponds to the descriptions of Lecanora fulgens, Ach.

25. L. gelida, Ach. Thallus tartaceous, determinate, cracked, whitish-grey, lobed in a radiating manner, the edges dusky; buds in a greenish-olive powder in roundish excavations of the thallus; young thalli in central elevated flattish warts, cracked from their centre; apothecia concave; the disk of a pale red; the border at length crenate and waved. Ach. L. Un. p. 428. Eng. Bot. t. 699.

On siliceous rocks, Dunkerron mountain, with apothecia. In our specimens the conversion of the apothecia into central warts is observable. It is by no means an alpine or with us a northern species. Disk pruinose, at length dusky: lamina proliger a, containing numerous, coloured, erect, variously shaped processes.

26. L. saxicola, Ach. Thallus between tartaceous and foliaceous, lobed in a radiating manner, the lobes scaly, imbricated, of a pale greenish-brown; the edges elevated, whitish, powdery; apothecia crowded; the disk flattish, of a tawney-brown; the border paler, at length waved and crenate. Ach. L. Un. p. 43. Eng. o. i. 169.

On siliceous rocks, near Belfast, Mr. Templeton; in Kerry, common.
† † † Thallus foliaceous, or membranaceous.

25. Parmelia, Ach.

Thallus foliaceous or membranaceous, stellato-lobate, or laciniate; apothecia orbiculate, sessile or substipulate, exteriorly as well as the margins formed of the thallus; the disk concave, coloured.

In the following arrangement, particular attention has been paid to the figure and situation of the buds, or those powdery collections, the parts of which, in almost every species, have been observed to expand into perfect individuals. In practice they are found to be more distinctive than the apothecia. The Genus Borrera, Ach. would have been most gladly retained if any solid character existed by which it could be separated from Parmelia.

* Extremities of the lobes uninflated.

1. Buds indistinct.


On old fruit trees, and on others; also on rocks; common. This is unlike any other Irish Parmelia. I can find no satisfactory distinctions between it and that variety of Lecanora candelaria called polycarpa.


On old trees, also on rocks, in woods; common. This would range better under Sticta than Parmelia, and is at any rate a completely connecting link. The glomeruli on P. glomulifera, Ach. appear to be parasitic, and in the absence of any other character are quite insufficient to constitute a distinct species.

3. P. pulverulenta, Ach. Thallus stellate, brownish-grey, pruinose when dry, glaucous-greenish-grey when wet, with dark thick fibres beneath; the laciniae linear, multifid, flattish, waved; apothecia central; their disk blackish, pruinose; their border thick, entire, inflexed, at length flexuose. Ach. L. Un. p. 473. Eng. Bot. t. 2063.

On trees; common. The buds probably are those granulations of the edges and surface of the old thallus, which flatten, and at length
expand into new fronds. Varieties occur with the *pruina* very indistinct on the thallus, and sometimes altogether wanting from the disk of the apothecia.


On trees and on stones; common. The pale whitish spots become, in very old plants, at first round solid granulations, which at length expand into new fronds. *A pruina* is sometimes observable on the disk of the apothecia.

2. **Buds** granulate.


α, and β, usually growing together on the same trees; common; γ, on rocks, at Blackwater, County of Kerry. δ, on rocks. Whenever buds occur on the thallus of any of the *Parmeliae*, they are almost always likewise found on the backs and edges of the apothecia, and give these a new character. When granulations, in the present species, are absent, the margins of the apothecia, though waved, yet for the most part remain entire; constituting the *P. plumbea* of Acharius; when present, reappearing on the margins of the apothecia, they give to the edges a thick, elevated, crenate appearance constituting the *P. rubiginosa* of the same author. In the first case, (such is the liability of the apothecia to change their habit) I have observed, on the same thallus towards the edges, the shields with a perfectly thallodial margin of a greyish lead colour, and towards the centre quite black as well as the disk: in both cases spongy fibres proceeding from the backs and bases of the apothecia attached themselves to the thallus, giving an additional testimony to the thallodial nature of the margins of the apothecia. The variety γ, which I had at first taken for a distinct species, is very remarkable for its greyish-blue colour, its edges are thin and adpressed to the rock, while the centre is elevated more than one-fourth of an inch into a cushion consisting of coarse granulations, which at length assume white edges and become flattened, and among which the concave apothecia with crenate borders, are partially immersed. This I have traced by intermediate states to the variety β. At Cromaglown, Kerry, we
have the state called *P. conoptea* by Acharius. On rocks in the site of old woods, intermediate varieties may be traced to the *Placodium microphyllum* of Hooker.


(the colour bad.)

On siliceous rocks; common.

3. Buds, on thallodal solid podetia.


On stones and on trees; common.


On siliceous rocks; not uncommon.


On siliceous rocks and on trees, not uncommon; the apothecia rare, in four or five localities near Dunkerron. The figures of Dillenius *t.* 20, *f.* 42, 44, and *t.* 82, *f.* 3, as well as specimens from near Boston, North America, sent by Mr. Boott to Dr. Hooker, and most kindly communicated by the latter to me, and which I suppose constitute the true *P. perforata* of Acharius, differ from the British plant 1, by the thallus being destitute of stipitate buds; so also the apothecia whose margins are smooth and entire; 2, by the margins of the thallus being here and there laminated, but not crenate; 3, by the lobes being more linear; 4, beneath, towards the edge, the upper and lower surfaces are nearly of the same colour, but in our plant the inferior surface is brownish-black; 5, by the greater thickness and toughness of the thallus; 6, by the finely reticulato-rugose upper surface; 7, by the broad tubular podetia to the apothecia; whereas, in our plant the podetia are narrow, short, and as it were strangulated; 8, the *cilium* of the margin of the thallus are longer and stouter; 9, the apothecia are marginal,
in our plant central; 10, the constancy of the perforations of the disks of the apothecia, which in our plant almost never occurs, at least not oftener than what may be observed in P. perlata, P. omphalodes, or P. saxatilis. As the _Lichen proboscideus_ of Linnaeus is a Gyrophora, I have ventured to continue the trivial name of Allioni to our Parmelia, all chance of confusion being removed by the well marked differences of these genera.

10. _P. horrescens_. Thallus orbicular, substellate, greenish-grey when moist; greyish-white when dry, shining; lobes small incised, with circular sinuses, suberenate; the tops deflexed, beneath light brown, with black fibres; the _buds_ brown on whitish solid podetia, crowded towards the centre, and expanding into new individuals; _apothecia_ unknown.

On the perpendicular faces of siliceous rocks, facing the South, on Dunkerron mountain, County of Kerry. The patches seldom exceed two inches in diameter, and are usually much less; the central region covered with brown buds, extends to very near the circumference, where the short small lobes of the shining greyish white thallus are visible as a narrow rim. It has a strong affinity to _P. saxatilis_, from which it is principally distinguished by the less linear lobes, which are never pitted or reticulated, but shining and deflexed at the tops; and so in characters would approach _P. levigata_ but for the decidedly different nature of the buds.

11. _P. columnaris_. Thallus substellate, white, lobes minutely subpruinose, convex, multifid, covered about the centre with crowded erect, solid, white podetia, bearing slightly brown _buds_; _apothecia_ unknown.

On wet rocks on _mosses_ and _Jungermanniae_, Dunkerron. To the naked eye little more is observable than a patch of the slightly brown, coarse granules, fringed around by a very narrow strip of milk-white laciniated frond. The lens detects a close columnar aggregation of the _buds_; these breaking off exhibit a greenish-grey fracture. Closely allied to _P. aleurites_, _Ach_. but I suppose distinct; 1, by the milk white thallus; 2, by the pruinose not shining, rather convex, not con-cave _laciniæ_ of the frond; 3, by the pale brown (not dark) _tops_ or _buds_ on the larger, more fastigate podetia.

12. _P. saxatilis_, _Ach_. Thallus substellated, glaucous-grey; the lobes retuse incised, reticulated with elevated ridges, bearing brown _buds_ on whitish, short, solid podetia black and fibrous beneath; _apothecia_ central, the disk brown, the border inflexed, rough with _buds_. _Ach_. _L. Un._ p. 469. _Eng. Bot. t._ 603. (not _good_.)

On rocks, stones, and trees; very common. This varies much in the size of the thallus and in the breadth of its segments. _Apothecia_ though common, yet they are usually few in number; when old often very large and flexuose, and covered with _buds_ the colour of the disk, sometimes, nearly vermillion.

13. _P. furfuraceo_, _Ach_. Thallus branched, greyish, the segments diffuse, linear, attenuated, channelled beneath, farinaceous, with pale olive _buds_ on greyish solid cylindrical podetia.

On granite, also on old trees at Lough Bray, near Dublin.

4. Buds, powdery, on linear eruptions of the thallus.

14. P. sulcata. Thallus orbicular, stellate, glaucous white when dry, glaucous green when wet, dark brown, with black fibres beneath, the lobes incised, somewhat concave, reticulated with elevated ridges; buds in oblong or linear eruptions, consisting of a greyish-brown fine powder. Apothecia central, stipitate; the disk brown; the exterior smooth, or with powdery buds. Lich. saxatilis, Scop. Fl. Carn. II. p. 388. Jaceq. Collect. tom. IV. t. 20, f. 2.

On siliceous rocks, also on trees; not uncommon. This species far more common on rocks in the County of Kerry than on trees, attains a foot or more in diameter: it is proposed as distinct from P. saxatilis, as being larger, whiter, its segments less imbricated, more concave, more green when wet, the buds powdery, not stipitate, and consequently the backs of the apothecia far more smooth. Mr. Borrer informs me that in the list of Tunbridge Plants by Mr. Foster, it has been called P. conspersa, for which it was mistaken.

15. P. rugosa. Thallus very uneven, white, unaltered when wet; lobes broadly linear, imbricated, rugose at the base; buds in a grey powder along the tops of the ruptured rugae; apothecia smooth, the margin crenate.

On heath in large tufts; also on rocks, with apothecia on the banks of Blackwater River, County of Kerry. Patches often a foot or more in diameter, attractive by their whiteness; the surface extremely uneven: the lobes are divaricating, linear though broad, their extremities often retuse than rounded, their sinuses somewhat oval. The more aged portions of the thallus above are closely wrinkled: the tops of the wrinkles sometimes appear abraded, and show a fine, pale ash-coloured powder; often, however, they are scarcely split above when the edges of the dark cracks exhibit minute, white, rounded or flat disks that soon assume the appearance of fronds. The apothecia are smooth exteriorly, except the very aged, on the backs of which buds may be observed with a lens. The nature of the buds, the linear lobes, and uneven surface of the frond, with their singularly wrinkled surface, distinguish this from P. laevigata, Ach. with which it may be easily confounded.

16. P. omphalodes, Ach. Thallus substellate, purplish-brown, shining, rough with dark points, black and fibrous beneath; the segments linear, flat, sinuato-multifid, subtruncate; the buds in a fine white powder in linear elevations of the thallus. Apothecia stipitate, concave; the disk brown; the border thin, incurved. Ach. L. Un. p. 469. Eng. Bot. t. 604.

On rocks in the mountains; common. Varies in the breadth of the s
**LICHENES.**

laciniae; a state occurs on granite at Lough Bray, County of Wicklow, with the laciniae broad, convex, tumid and shining. It varies also in colour from a pale olive-grey to purplish-black. The black points on the thallus, though tolerably constant, are much to be suspected as parasitic bodies. I have seen apothecia an inch in diameter.

5. Buds, powdery, in cup-shaped eruptions of the thallus.


On rocks and on trees, very common: the apothecia rare. On rocks I have measured patches more than five and a half feet broad, a diameter, greater than that of our largest native trees. On trees the thallus is usually more green. In every situation the central parts are brownish, the extreme edges smooth, shining and deflexed. I have met with apothecia on rocks at Dunkerron mountain, and on trees in Sir Edward Denny’s Park, Tralee. The buds originate from minute round elevations, which split at the top, and soon assume a circular shape and become lined with a powder concolorous with the thallus: they are at length, confluent; they may be observed, about the centre of the frond, expanding into new individuals.


On rocks at Dunkerron; on trees at Roughty, County of Kerry. The inferior surface is brownish-black: the edges of the laciniae of the frond brown and elevated: the buds often confluent in old individuals towards the centre of the patch.


On apple trees, near Belfast, Mr. Templeton. On elms at Dunkerron; also on walls and rocks. The apothecia, as long since noticed by Acharius, from their outer and inferior surface send down rootlets or fibres, analogous to those of the inferior side of the frond. I have never seen Irish specimens of *P. cycloselis* distinct from the present. The *Lecanora virella*, of Acharius would seem by his description to be very different. Our plant varies exceedingly in size.

20. P. adglutinata, Flærke. Thallus stellate, finely membranaceous, very thin at the edges, adpressed; buds greenish or brownish-grey in cup-shaped eruptions of the thallus, at length confluent; apothecia unknown. Flærke in Myeot et Nestler, *St. Cr. Vogeso-Rh.* No. 543.
On ash and elm at Dunkerron, County of Kerry; frequent. There is a minute state of _P. ulothrix_, growing on the same trees with the present, and easily confounded with it. In _P. adglutinata_, however, the edges of the lobes are more wide, far more thin, and, as it were, pasted to the bark of the tree on which it grows; the thallus too is less deeply divided. The buds originating in round ruptures of the thallus, soon become confluent, run along the tops of the ridges that separate the lobes, and form on the central and greater portion of the frond a flattened, rimose cushion, of coarse brownish-grey powder.


On rocks, very common in the County of Kerry. The buds are rarely confluent. The united patch of several fronds, sometimes a foot or more in diameter.


On rocks at Blackwater bridge, County of Kerry. I have never seen _apothecia_ on Irish specimens. The patches are usually small, scattered, conspicuously white.


On trees, furze, heath, and stones; common. A variety found by Mr. G. S. Gough at Rathronane, County of Tipperary, is so intermediate between this and _P. ciliaris_ (Borrera of authors) that I know not to which to refer it. The variety _γ_, _exempla_, _Ach. L. Un._ p. 499, occurs on Scotch fir at the Dargle. In this all the characters that distinguish _Borrera, Ach._ from his _Parmelia_, vanish; the _laciniae_ of the thallus are broad, flat, by no means "canaliculate beneath," nor are the _cilium_ to be observed, except here and there, and in this case only with a lens; the buds are in curved, linear clusters and situated immediately below the margins of the terminating _laciniae_. I am persuaded future observation will prove it to be a distinct species.


On rocks and stones, near Waterford, Dr. F. Barker. Dublin mountains and Killiney Hill, near Dublin. The northern limit of this _Lichen_ is much higher than generally supposed. _Acharius_ had it from Jamaica, St. Domingo and Peru.
6. Buds powdery, scattered all over the thallus.


On moss on moist rocks; not uncommon. Patches three or four inches in diameter, often on the perpendicular faces of rocks, varying from white to sulphur-coloured: the thallus is thin, beneath covered with a bluish-black down. Apothecia hitherto unknown in Ireland.


On rocks, common; the apothecia by no means rare, near Dunkerron. Thallus often several inches in diameter; when the living plant is wet the lobes assume a greener tint. The buds marginal, in bent tufts are very characteristic; they appear on the barks of the aged apothecia, the border is much incurved.

27. P. reticulata. Thallus orbicular, substellate, glaucous-grey; the lobes round, entire, rather concave, dark at the edges; the surface marked with minute, whitish, elevated, reticulated lines; buds marginal and terminal, in coarse grained glaucous-greenish-grey collections; apothecia unknown.

On rocks, near Dunkerron, County of Kerry; common. Patches several inches or feet in diameter, corrugated and of a dusky purplish brown in the centre; the extreme lobes rather concave. The inferior surface is black and shaggy, except at the edges, where it is of a chestnut brown. Moisture renders the upper surface slightly greenish. The buds are in coarser grains than in the preceding, and extend from the margin towards the axis of the lobes: those grains are frequently observed to expand into perfect fronds; the sinuses of the lobes are oblong and somewhat jagged, whereas in P. laxigata they are circular and nearly entire, and the lobes themselves deflexed at the edges, but in our plant, the erect edges cause the terminating segments to appear concave. Besides, the reticulation of the upper surface distinguishes the present from every other known species. The apothecia are, hitherto, unknown.


On rocks, common; with apothecia at Dunkerron, County of Kerry.
The variety (if it be not quite distinct) most common in Kerry, differs from the English Botany figure, in having the segments of the lobes rounded, short, never linear; nor are the collections of buds situated on short proper lobuli. Although the mode of budding described is very common and characteristic, yet it likewise occurs in minute cup-shaped eruptions on the surface of the thallus. Apothecia are sometimes found on Dunkerron mountain an inch in diameter; on their backs and edges the buds reappear.


On mosses, on rocks, and on stems of furze and of heath near the ground; common: the *apothecia* not very rare, near Dunkerron, County of Kerry. The buds usually issue from the terminal edges of the lobes; yet sometimes they form a dense thick collection in the centre of the thallus: the buds are observed to expand into new fronds on the backs of the aged *apothecia*. A smoothness of the upper surface, and multifid lobes with short linear segments, is very characteristic of this species.


On rocks, on Dunkerron mountain, common; the *apothecia* rather rare. The hemispherical buds are somewhat whiter than the surface of the thallus; the central parts of the frond usually turn dark. In our specimens the *apothecia*, from their minuteness, are invisible to the naked eye.


On rocks at Glencar, with *apothecia*, Mr. Joseph Taylor. On Dunkerron mountain the *apothecia* were again repeatedly found. I suppose it is scarcely necessary to attach a mark of doubt to the synonymn of *L. dedalens* of Eng. Bot. The young *apothecia* are sometimes brown at the border, and even some way down the exterior surface; this also occurs in *P. saxatilis*, in *P. omphalodes*, in *P. proboscidia* and in *P. lavigata*; a state that probably caused our species to be considered a *Placodium*.

* * Extremities of the lobes inflated.

32. *P. physodes*, Ach. *Thallus* orbicular, stellate, glaucous-white, smooth; segments linear, multifid, subcylindrical, with

On mountain rocks, common; *apothecia* were found near Belfast by *Mr. Templeton*; afterwards at Powerscourt Waterfall on trees, by *Mr. G. S. Gough.* The thallus varies much in the breadth of the *laciniae*; it sometimes assumes a suberect growth.

33. *P. diatrypa,* *Ach.* *Thallus* orbicular, stellate, adpressed, greenish-white; the segments perforate, convex, linear, with expanded and inflated tops; *buds* in cup-shaped eruptions, their powder paler than the thallus; "*apothecia* light red, the border entire." *Ach. L. Un.* p. 493. *Eng. Bot.* t. 1248.

On wet rocks, on Dunkerron mountain. The perforations of the thallus in our specimens are on the tops of cylindrical elevations; and the edges are covered with buds in a ‘coarse’ powder; in this respect they are unlike foreign specimens in which the buds in finer and paler powder are borne in cup-shaped eruptions. The *apothecia* have not yet been met with in Ireland.


*Thallus* foliaceous, or coriaceous-cartilaginous, hirsute beneath, and there furnished with hollow or bare spots (*cyphelle*); *apothecia* orbicular, sessile, exteriorly beneath as well as their margins formed of the thallus; the disk concave, coloured.


On shady rocks, near Turk Cascade, and on Cromaglown, both near Killarney, *W. Wilson, Esq.* road side near Kenmare and Killarney, one mile from the tunnel eastward. Thallus tough when recent or moistened, in patches of two or more feet in diameter; the segments loosely overlapping, and then, sometimes, the upper adheres by its rootlets to the lower; those that are quite free, concave and channelled; the central and more fixed, flatter, and even convex; lobes subdichotomous, the terminating pair seldom equal, somewhat retuse, or the angles rounded. The surface of a glaucous grey, passing into dark brown when dry. Beneath the thallus is rough, with closely set fibres, that laterally united have a membranous appearance, expanding in a stellate form to attach themselves to subjacent matter. *Cyphelle* scattered, globular, with a narrow, circular opening at the top; exteriorly brownish, the mouth white, and somewhat jagged; within an interior, delicate, white membrane may be observed, the bottom of which, under a lens, appears minutely mammillated. *Apothecia* usually marginal, some-
times on the middle of the segments of the thallus; they first appear as pale-chesnut coloured elevations of the cuticle, then with a central depression, and more raised above the surface; finally, sessile on a conical elevation of the thallus; the disk at length convex. On the centre of the disk, a cup with a corrugated margin sometimes occurs; it is figured by Dillenius t. 29. f. 113. I have not been able to observe any disk within to justify the appellation of young apothecia. Under the microscope, the disk appears lentiform; the peritheciun like two layers of a chesnut-brown colour, enclosing a pale gelatious lamina. States occur with segments as linear and concave as in S. damacornis Ach. (as figured in Hoffm. Pl. Lich. t. 34. f. 1—7, and in Dillenius above quoted.) of which, I have little doubt, our plant is but a variety, and to which the specific name of damacornis should perhaps be immediately restored.


On basalt, at Fairhead, Mr. Templeton. On Pigeon Island, in the River Kenmare; in both instances without apothecia. The thallus above in cup-shaped eruptions contains the buds, in the form of a fine powder of a sulphur yellow; in this a strongly magnifying lens shows pale filaments, aggregate, attached by one end, overtopping the surface of the powder by the other: these must not be confounded with other bodies in the powder, having pale somewhat cylindrical stems on which are placed dark brown balls. The lemon coloured globules on the underside are not in any assigned cavities, and contain not the bodies just described, yet some are observed to turn of a dark olive colour.


In woods; common. The buds may be observed to expand into new fronds; and the older apothecia sometimes exhibit rudiments of younger growing upon their disk. Patches occur in the woods near Killarney 3—4 feet in diameter, accompanying Parmelia herbacea.

4. S. scrobiculata, Acu. Thallus coriaceous, smooth, deeply and broadly lobed, glaucous-green; the margin subcrenate; buds submarginal, at length confluent, in a fine ash-grey powder; cypelIellae pale, naked, convex spots; apothecia scattered; the disk flattish, brown; the border subcrenate. Ach. L. Un. p. 453. Eng. Bot. t. 497.

On rocks near Bantry, Miss Hutchins. The buds at first appear as rough, subrotund, brown grains; but at length a coarse granular dark powder is found among them, probably an incipient state of germination.

Near Belfast, *Mr. Templeton*; near Bantry, *Miss Hutchins*. The apothecia of this or of the preceding have never been found in Ireland. Our plant is strongly allied to *S. scrobiculata*, but at once distinguished by the characters of the *cyphellæ*.


On rocks and trees common: apothecia on the road side between Kenmare and Killarney, on thallus growing on moss on a rock. The buds extend more over the surface than in any of the preceding, and are of a darker colour. *Cyphellæ* with a thin somewhat waved or crenate margin. Perithecium thick, giving a ragged border to the apothecia, of a paler colour than the disk, which in fresh specimens is of a brownish-orange colour; the outside of the apothecia have a fringed appearance arising from *rootlets* or *sustentacula* emitted as lanceolate, flattish, incised processes: thus the perithecium although of a different colour from the thallus, and rising out of it as an insulated body, yet is quite analogous in its functions. The portion of the thallus on which the apothecium rests, viewed from beneath, is coloured exactly as the perithecium. The apothecia seem to prefer the edges of the fronds.


On moss on shaded trunks of trees, common. The apothecia have not yet been discovered in Ireland. A pale variety occurs at Blackwater Bridge, County of Kerry, with the *laciniae* of the thallus wide, and bears the same relation to our plant as *S. macrophylla* does to *S. damaecornis*, *Ach.*

8. *S. ciliata*. Thallus foliaceous, minute, dark olive-green when wet, glaucous-grey when dry; lobes rounded, nearly entire, ciliated; *buds* in dark-grey, minute granulations on the surface; *cyphellæ* immersed, concave; *apothecia* unknown.

On *Hypna* on the stems of trees in Askew wood, County of Kerry. The lobes scarcely exceed two-tenths of an inch in diameter, and are often much smaller; ascending through the moss, their edges are deflexed, and consequently the outline has a rounded appearance; ciliated with whitish, rather flat, linear, *tricæ*; entire, yet occasionally a minute, flat process issues suddenly from the edge, on which is borne a circular ciliate thallodial expansion, being the evolution of a bud. The upper surface is in part rough with contiguous buds. Beneath, the frond has
LICHENES.

153

elevated whitish veins, as in Peltidea, and in the interstices, a few scattered cyphellae immersed below the surface, whose mouths however are elevated.

27. Solorina. Ach.

Thallus foliaceous, coriaceous, lobed, free, beneath having fibrous veins; apothecia subrotund, sessile, not bordered.


On Brandon Hill, Ben Bulben, Mr. J. T. Mackay. The apothecia burst up from beneath the cortical layer of the thallus, and at first receive a border from it; finally, however the apothecium sinks in the thallus. By drying the surface becomes of a reddish-brown.


Thallus foliaceous, or coriaceo-membranaceous, lobed, having veins and fine soft fibres beneath; apothecia on proper lobules, orbiculate or oblongo-rotundate, the entire obliquely affixed on the thallus, by which, too, they are bordered.


On rocks, near Killarney. County of Derry, Mr. David Moore.


On rocks in moist situations: at Sallagh Braes, near Belfast, Mr. Templeton. County of Derry, Mr. David Moore. The brown buds may be observed expanding into new fronds, and even throwing out their rootlets on the surface of the thallus; the lobes are large and often oblong.


On moss, among grass, or on the ground, common. A state occurs at Dunkerron, never exceeding an inch in diameter, covering the wet side of a ditch for several yards in extent, bearing apothecia abundantly which agrees as well with the specimens of P. venosu in Mougeot and Nestler, and with some collected on Ben Lawers, by the late Mr. John
Mackay, as with the present species. The surface of the thallus is usually downy. A pruinose or downy membrane expanded across the involute surface of the apothecia at length bursts and displays the disk. It is sometimes sprinkled with minute granular buds, when it resembles too strongly *P. aphthosa*.


On moss, among grass and on banks; frequent. This species is very nearly allied to the preceding which sometimes has the apothecia as numerous and crowded.


Thallus foliaceous or coriaceous, lobed; apothecia borne on proper lobules, orbiculate or reniform, the entire affixed to the inferior surface of the thallus, by which, too, they are bordered.


On rocks and on old trees; not uncommon. A pubescence of the inferior surface of the thallus, noticed by authors is not always distinctly observable; but, what is more remarkable, if that surface be broken or abraded, a white cottony substance is found in the interior. The buds appear as subrotund granules on the upper surface, oftener affecting the edges, presently flattening, and expanding into new fronds.


Thallus foliaceous or cartilagineo-membranaceous, lobate, laciniated, naked beneath. *Apothecia* orbiculate, obliquely adnate to the margin of the thallus, partly unattached beneath; the disk coloured; the border of the substance of the thallus.


On rocks in the mountains; not uncommon. The aged thallus, in some states, is reticulato-lacunose. The buds usually marginal, are sometimes thinly scattered over the surface; they may be observed expanding into fronds. This plant varies much in colour of the upper as well as the edges of the lower surface, and remarkably in the degree of laciniation of those edges; they are entire in specimens from Mangerton, while in those from Carig mountain, they are more incised and finely cut than in the figure of English Botany.

On the top of Mangerton. It grows more tufted in colder situations, than with us. The cilia are dark, often with a subrotund blacker and wider top, which may be observed in certain states expanding into new fronds.

31. *Gyrophora*, *Ach*.

*Thallus* coriaceous or membranaceous, fixed by the centre. 

Apothecia orbiculate, sessile, with the border of their own substance, (not thallod al) the disk covered by a dark membrane, usually rough with gyrose plaits.

1. *G. pustulata*, *Ach*. *Thallus* coriaceous, with coarsely pruinose pustules at the centre, laciniated or pertuse towards the margin, greenish-grey; buds granular dark-brown, near the margin; apothecia broadly marginate, the disk even or tuberculate. *Ach. L. Un.* p. 226. *Eng. Bot.* t. 1283.

On rocks in the mountains; not uncommon, but without apothecia. The pustular appearance of the thallus is striking, but it likewise occurs in a lesser degree in *G. proboscidea*, *Ach.* in *G. vellea*, *Ach.* and even in some states of *G. heteroidea*, *Ach.* The degree of plication of the disk of the apothecia likewise varies in this genus. So, in *G. vellea* the disk is as in *Lecidea*; in *G. hirsuta*, *Ach.* out of the centre of the disk (which is that of a *Lecidea*) often rises a single young minute apothecium, sometimes two or more with margins gyrose by mutual pressure. The buds may be observed expanding into new fronds.


On Mangerton, on rocks; and on other high mountains not uncommon.


On rocks at Connavalla, *Dr. Whitley Stokes*; on Mangerton. The length of the cilia to the segments of the thallus is very remarkable; the cilia however appear to be truly buds, as their expansion into new fronds may, with a little care, be observed.

4. *G. pelita*, *Ach*. *Thallus* coriaceous, sinuato-lobate, smooth above, dark-grey or copper coloured, beneath with dark, rigid, branched fibres; buds mostly marginal in minute flat

On rocks on Toulagee, County of Wicklow. Our specimens are tufted, the lobes sinuate, nearly linear. The cuticle sometimes has a minute subrotund rupture on the upper surface, where clusters of fibres, such as are found beneath the thallus, occur; among them, sometimes a minute frond may be observed to expand, but such new fronds are oftener observed at the margins of the thallus.

The foregoing account of the Lichens of Ireland would have been still more incomplete, but for the extensive collection of my lamented friend, the late *Mr. John Templeton*, of Cranmore, near Belfast, which his relict, *Mrs. Templeton*, most liberally placed at my disposal. I believe that thirty years ago his acquirements in the Natural History of organised beings rivalled that of any individual in Europe: these were by no means limited to diagnostic marks, but extended to all the laws and modifications of the living force. The frequent quotation of his authority in every preceding department of this Flora, is but a brief testimony of his diversified knowledge.
Cellular plants, growing with very few exceptions in water very variable in form, texture, colour, and in the organs of fructification.—Plant either a single cellule, or a number of cellules united by their extremities into series, and thus forming simple or branched filaments; or by lateral as well as terminal cohesion extended into membranes, which often assume a foliaceous character; or formed into cylindrical fronds.—Texture either gelatinous, membranaceous, cartilaginous, coriaceous, ligneous or horny.—Colour varying through every shade of red, green, olive, brown, &c.—Fructification: granules in various states of perfection or arrangement, either dispersed over the whole plant, or collected into little groups (sori); or contained in distinct gelatinous receptacles, or membranaceous capsules, or forming moniliform filaments.

Synopsis of the Families and Genera.

Div. I.—Melanospermeæ. Plants marine, foliaceous, strap-shaped, or filamentous, of an olive-brown or olive-green colour. Fructification contained in definite capsules or receptacles, or in distinct sori.

Tribe I. Fucoideæ. Plants coriaceous, robust, much branched or leafy, mostly bearing vesicles; structure fibrous. Fructifi-
ocation: opaque seeds imbedded in distinct receptacles and finally escaping by superficial pores.—(None of the Irish genera have distinct leaves.)


2. Halidrys. Vesicles stalked, lanceolate, divided by transverse septa.

3. Fucus. Vesicles (when present) simple, immersed in the frond. Receptacles turgid, containing tubercles imbedded in mucus.


Tribe II. Lichineæ. Plants cartilaginous, flat, branched, (minute.) Fructification receptacles furnished with a terminal pore, containing pellucid seeds disposed in moniliform series.

5. Lichina. Character the same as the Tribe.

Tribe III. Laminarieæ. Fronds stipitate; stipes terminating in a foliaceous cleft or entire, occasionally midribbed expansion. Fruct. obscure.

6. Alaria. Frond membranaceous, with a cartilaginous percurrent midrib.

7. Laminaria. Frond simple or cleft, destitute of distinct midrib.

Tribe IV. Sporochnoideæ. Plants cartilaginous or membranaceous, much branched, inarticulate, bearing at some period of growth deciduous tufts of bright green filaments.

8. Desmarestia. Frond plane or compressed, distichously branched, when young furnished with marginal deciduous tufts of fine green filaments, the branches set with marginal spines. Grev.


Tribe V. Dictyotæ. Plants membranaceous, flat, or cylindrical, of a highly reticulated structure. Fructification opaque, seeds with pellucid cases, ranged in lines, sori, or covering the whole frond.

* Root minute, scutate, naked.

11. Chorda. Frond simple, filiform, cylindrical, furnished at intervals with distinct septa.

12. Asperococcus. Frond simple, tubular, (rarely compressed.)


15. Dictyosiphon. Frond tubular, branched; seeds scattered.

* * Root, a mass of woolly filaments.


19. Haliseris. Frond midribbed, subdichotomous. Seeds disposed in sori or groups, mostly arranged in longitudinal lines.


Tribe VII. Chordarieæ. Plants gelatinoso-cartilaginous, filiform or globose, composed of articulated filaments united together by a firm gelatine.

24. Chordaria. Frond filiform; axis firmly gelatinous,
cellular. Circumference composed of simple, clavate, torulose, verticillate filaments.

25. **Trichocladia.** *Frond* filiform; axis loosely gelatinous, filamentous. Circumference composed of branched, coloured, torulose, verticillate filaments.

26. **Corynephora.** *Frond* globose or tuberose, hollow (not filled with gelatine.)

Div. II. **Rhodospermeæ.** *Plants marine (except one or two species of Trentepohlia), foliaceous, cylindrical, or filamentous, of a rose-red, purple or red-brown colour.* Fructification in many genera double; primary, contained in capsules, receptacles, or immersed in the frond; secondary (when present) granules forming sori, or placed in distinct receptacles: seeds red or red-brown.

**Tribe VIII. Gloiocladeæ.** *Plants gelatinous, filiform, entirely composed of articulated filaments, united into fronds by a hyaline gelatine (except in Chætospora, in which genus only the ramuli have this structure.)* Fructification globules of red seeds imbedded in the filaments of the periphery, to which they are attached.

27. **Mesogloia.** *Frond* solid, gelatinous; the axis composed of longitudinal hyaline fibres; the periphery of radiating coloured filaments.

28. **Gloiosiphonia.** *Frond* tubular, gelatinous; the periphery composed of radiating coloured filaments.

29. **Chætospora.** *Frond* solid, subgelatinous; axis laxly cellular; the periphery membranaceous; ramuli composed of branched radiating filaments.

**Tribe IX. Gastrocarpeæ.** *Plants carnose or gelatinosomembranaceous. Fructification: globules of red-seeds immersed in the substance of the frond.*

30. **Catenella.** *Frond* filiform, contracted as if jointed, in a moniliform manner.

31. **Dumontia.** *Frond* cylindrical, tubular, membranaceous, gelatinous within. Fructification: globules of seeds attached to the inner surface of the membrane of the frond.

32. **Halymenia.** *Frond* cylindrical, compressed, or flat, gelatinosomembranaceous. *Globules* of seeds imbedded in the central substance of the frond.

33. **Iridæa.** *Frond* carnose, expanded, flat (not gelatinous.) *Globules* of seeds imbedded between the two coats of the frond.

34. Polyides. The only genus.


35. Furcellaria. The only genus.

Tribe XII. Florideae. Plants coriaceous, membranaceous, or cartilaginous; foliaceous or filiform, inarticulate. Fructification double; 1. Capsules; 2. granules, imbedded in the frond or indistinct receptacles.

36. Delesseria. Frond leafy, with a percurrent, distinct midrib.


40. Odonthalia. Frond subcartilaginous, plane, dark viinous-red, with an obsolete midrib, alternately toothed at the margin. Fructification marginal, double: 1. Capsules, containing pear-shaped seeds; 2. slender, pedicillate receptacles, containing ternate granules.

41. Rhodomela. Frond cylindrical, cartilaginous, dark-red, (apices often involute.) Fructification double: 1. subglobose capsules, full of pear-shaped seeds; 2. pod-like receptacles, with imbedded ternate granules.

42. Bonnemaisonia. Frond filiform, rose-red, delicate, much branched, branches pectinate, with distichous ciliae. Fructification: ovate capsules, containing a mass of pyriform seeds fixed by their base.

43. Laurencia. Frond cylindrical, filiform, gelatinosocartilaginous, yellowish or purplish-red. Fructification double: 1. ovate capsules, containing pear-shaped seeds fixed by their base; 2. ternate granules imbedded in the ramuli.
44. **Chylocladia.** *Frond* filiform, cylindrical, (often constricted as if jointed,) gelatinoso-cartilaginous, pinky-red.—**Fructification** double: 1. capsules, with angular seeds; 2. imbedded ternate granules.

45. **Gigartina.** *Frond* cartilaginous, filiform, of a dull red colour. **Fructification** double: 1. capsules, with minute roundish seeds; 2. simple granules imbedded in the ramuli.

46. **Chondrus.** *Frond* cartilaginous, dilating upwards into flat, dichotomously-divided segments of a purplish or reddish colour. **Fructification**: roundish capsules.

47. **Phyllophora.** *Frond* proliferous from the disk, furnished with an obscure midrib.

48. **Sphærococcus.** *Frond* cartilaginous, two-edged, linear, distichously branched. **Fructification**: mucronate, pedicellate capsules, produced along the margin; seeds ovate.

49. **Gelidium.** *Frond* horny or cartilaginous, linear, more or less regularly pinnated. **Fructification** double: 1. capsules, imbedded in the ramuli; 2. ternate granules.

50. **Ptilota.** *Frond* compressed, filiform, pectinato-pinuate. **Fructification**: minute aggregated capsules, surrounded by an involucre.

**Tribe XIII. Ceramiæ.** Plants filamentous, articulated.—**Fructification** double: 1. Capsules: 2. granules contained in receptacles, or in distorted ramuli.

51. **Polysiphonia.** Filaments longitudinally striated with internal parallel tubes. **Fructification**: 1. ovate capsules; 2. granules in swollen ramuli.

52. **Dasya.** Stems inarticulate, cellulose, the ramuli articulated. **Fructification**: 1. ovate capsules: 2. lanceolate receptacles, including granules in transverse fasciae.

53. **Ceramium.** Filaments reticulated, dissepiments opaque. **Fructification**: 1. roundish capsules, with membranous pericarps; 2. oblong granules imbedded in the ramuli.

54. **Griffithsia.** Filaments mostly dichotomous, dissepiments hyaline. **Fructification**: 1. clustered capsules with hyaline pericarps; 2. roundish, gelatinous, involucrated receptacles, including minute granules.

55. **Calithamnion.** Filaments mostly pinnated, dissepiments hyaline. **Fructification**: 1. scattered capsules with hyaline pericarps; 2. polymorphous receptacles, containing large granules.

56. **Trentipohlia.** Filaments minute, (mostly parasitical),
articulated, dissepiments hyaline. *Fructification* tufted, mostly terminal capsules; (one species inhabits fresh water.)

**Div. III. Chlorospermeae.** *Plants growing either in the sea, in fresh water or in damp ground, or in anomalous situations; filamentous, membranaceous, or amorphous; either hyaline, or (owing to the presence of an internal granular sporular mass) of a grass green, very rarely purple colour. Fructification green or purple sporules, either filling the frond, or collected into sporidia, rarely situated in external capsules.*

**Tribe XIV. Lemanieae.** *Plants growing in fresh water, filamentous, inarticulate, of a cellular substance. Fronds hollow, torulose at intervals. Fructification tufted, sporules affixed to the inner face of the tubular frond. (Inhabit alpine rivulets, rivers, &c.)*

57. *Lemania.* The only genus.

**Tribe XV. Batrachospermeae.** *Plants growing in fresh water, filamentous, gelatinous. Fronds composed of aggregated, articulate, longitudinal fibres, whorled at intervals with short horizontal moniliform ramuli. Fructification: globular masses, composed of minute, dichotomous, moniliform strings of sporules.*

58. *Batrachospermum.* The only British genus.

**Tribe XVI. Chætophoroidae.** *Plants growing in fresh water or in the sea; filamentous, gelatinous. Filaments articulated, either free or collected into bundles, bound together by a more or less firm gelatine, thus forming amorphous fronds.—Fructification, minute capsules attached to the ramuli.*

59. *Bulbochete.* Filaments free, articulated; each articulation bearing at its truncate apex either an elongated, inarticulate, deciduous seta, or a sessile sphaerical capsule.

60. *Draparnaldia.* Filaments free, gelatinous; stems subhyaline, emitting at the joints pencils of coloured ramuli.

61. *Chætophora.* Filaments collected into amorphous gelatinous fronds.

62. *Myrionema.* *Plants exceedingly minute, parasitical, consisting of a mass of simple, clavate, erect filaments, bound together by a firm gelatine.*

**Tribe. XVII. Conferveae.** *Plants growing in the sea or in fresh water, filamentous, articulate, destitute of distinct...*
gelatine. Filaments simple or branched; articulations more or less filled with a granular coloured (mostly green) sporaceous mass, which affects various forms in different genera.

63. Conferva. Filaments simple or branched, free (not connected by transverse tubes); articulations filled with a granular coloured mass (Endochrome.)

64. Mougeotia. Filaments simple, finally united by transverse tubes. Endochrome granular, at length forming roundish globules at the point of conjugation.

65. Tyndaridia. Filaments simple, finally inosculating by transverse tubes. Endochrome consisting of two roundish masses in each joint.


Tribe XVIII. Siphonae. Fronds tubular, filamentous, inarticulate; filaments a horny or membranaceous substance, hyaline, filled with a green colouring matter; either free or formed into sponge-like fronds. Fructification, external often stalked vesicles full of granular matter.


69. Vaucheria. Filaments irregularly branched. Fructification: dark green vesicles attached to the frond.—Mostly in fresh water, rarely in the sea.

Tribe XIX. Oscillatoriae. Plants of a gelatinous substance and filamentous structure. Filaments slender, tubular, continuous, filled with a coloured, granular, transversely striate matter, seldom branched, though often agglutinated together so as to appear branched, usually massed together in broad floating or sessile strata of a very gelatinous nature; occasionally erect and tufted; and still more rarely collected in radiating series, bound together by firm gelatine, and then forming lobed or crustaceous fronds.

70. Rivularia. Frond firmly gelatinous, globose or lobed; composed of filaments set in gelatine, radiating either from a fixed centre or base.

71. Stigonema. Filaments tufted, branched; branches transversely dotted.

72. Scytonema. Filaments brown, branched, flaccid, tough; transversely striate.
73. Calothrix. Filaments short, tufted, green or purple, simple or pseudo-branched.

74. Lyngbya. Filaments green or purple, decumbent, very long, flaccid.

75. Oscillatoria. Filaments rigid, acicular, radiating and oscillating from a slimy stratum.

Tribe XX. Ulvaceae. Plants of a membranaceous or gelatinous substance and simple structure. Frond either a tubular or flat, filiform or expanded membrane; or a gelatinous amorphous mass; or composed of an innumerable number of gelatinous globules; hyaline, or, owing to the presence of fructification, of a green, purplish, or pink colour. Fructification: minute granules, which are either scattered through the frond, or arranged in fours, or strung together in many moniliform, filamentous series.

* Plants membranaceous, not gelatinous.

76. Porphyra. Frond foliaceous, purple.

77. Bangia. Frond linear, capillary, transversely dotted.

78. Enteromorpha. Frond tubular, hollow, simple or branched, somewhat reticulated, green.

79. Ulva. Frond foliaceous, membranaceous, green.

** Plants gelatinous.


81. Palmella. Frond a polymorphous, gelatinous mass, filled with scattered granules (sometimes arranged in fours.)

82. Nostoc. Frond coriaceo-gelatinous, lobed, hollow or solid, filled with curled moniliform filaments.

83. Protococcus. Plant consisting of aggregated minute globules (filled with granules), and sessile on a gelatinous mass.

Tribe XXI. Byssoideae. Plants of doubtful affinity, related to the Fungi. Filaments articulated, hyaline, or coloured. Fructification very obscure. They are found on rotten wood, among mosses, on damp ground, on glass, or in chemical solutions and other anomalous situations.

84. Byssocladium. Filaments arachnoid, radiating from a centre, with scattered external granules.
85. **Chroolepus.** Filaments rigid, subsolid, opaque, torulose, falling to powder.

86. **Protonema.** Filaments subarticulated, rooting (among mosses.)

87. **Hygrocrucis.** Filaments hyaline, interwoven into a uniform membrane or gelatine.

88. **Leptomitus.** Filaments hyaline, erect, parasitical.

**Div. IV. Diatomaceae.** Plants growing in the sea or in fresh water, small, and for the most part very minute and parasitical; composed of rigid, fragile, more or less transparent corpuscles (frustula), variously united in parallel series, in circles, or in filaments; or scattered through a mucous mass; or disposed in longitudinal series, through gelatinous branched fronds.

**Tribe XXII. Desmidieae.** Filaments cylindrical or angular, at length separating into frustula.

89. **Meloseira.** Frustula forming simple, pseudo-articulated filaments, constricted at the articulation.

**Tribe XXIII. Fragilarieae.** Frustula plane, rectilinear, disposed in circles or filaments.

90. **Fragilaria.** Frustula forming densely striated, fragile filaments (not cohering at the angles.)

91. **Diatoma.** Frustula forming fragile plane filaments, at length separating and cohering at the angles; or sessile, and arranged in a fasciculate or flabellate manner.

92. **Frustulia.** Frustula linear, free or imbedded in a gelatinous mass.

**Tribe XXIV. Styllarieae.** Frustula plane, wedge-shaped, disposed in circles or fans.

93. **Licmophora.** Frustula stipitate, flabelliform.

94. **Meridion.** Frustula united into circles or segments of circles, sessile.

**Tribe XXV. Cymbelleae.** Frustula elliptical.

95. **Gomphonema.** Frustula subgeminate, terminating a very slender, simple or branched filament.

96. **Schizonema.** Frustula in longitudinal series, and enclosed in a simple or branched, filiform, mucous, membraneous frond.
DIV. I. MELANOSPERMEÆ.

Plants marine; foliaceous, strap-shaped or filamentous; of an olive-brown or olive-green colour. Fructification contained in definite capsules or receptacles, or in distinct sori.

Tribe I. FUCOIDEÆ.

Marine plants of an olive-brown colour, changing to black in the air; of a coriaceous or ligneous substance, densely fibrous, and tearing in a longitudinal direction. Root scutate; in some species accompanied by creeping fibres. Frond flat, compressed, or filiform, in many producing distinct leaves; and in most, furnished with vesicles or air-vessels. Fructification, spherical clusters of opaque seeds, surrounded by a pellucid limbus, imbedded in distinct gelatinous receptacles, and finally escaping by external pores.


Frond compressed or filiform, more or less foliaceous, but without distinct leaves. Vesicles simple, usually in series, innate in the substance of the branches. Receptacles small, cylindrical or lanceolate, terminal. Seeds in distinct cells.—Name, κυστις, a bladder, and σειρα, a chain; from the monili-form arrangement of the vesicles.


Rocks in the South and West of Ireland. Bantry Bay; Miss Hutchins. Miltown Malbay; W. H. Harvey.


Rocks, and rocky places left by the tide, in the west and south of Ireland. Bantry Bay; Miss Hutchins. Coast of Clare; J. T. Mackay. Black rocks, Portrush; Mr. D. Moore.

3. C. fœniculacea, Ag. Fennel-leaved Cystoseira. Frond compressed; stem destitute of tuberous knobs; branches more or less rough with little hard points, repeatedly pinnate, filiform; air vessels solitary, or about two together; receptacles

On the western and southern shores.


On the western and southern shores. Galway Bay; J. T. Mackay, Bantry Bay; Miss Hutchins, Malbay; W. H. Harvey, Black rocks, Portrush; Mr. D. Moore.


Frond compressed, coriaceous, linear, pinnated with distichous branches. Air-vessels lanceolate, stalked, divided by transverse septa. Receptacles lanceolate, stalked, compressed. Seeds in distinct cells. Grev. Name; αλς, αλς, the sea, and ἐρυς, an oak, or tree.


Common on all our shores. The beautiful Fucus Osmundaceus, Turn. t. 105, from the North-west Coast of America, is a second species of this genus.


Frond plane, compressed or cylindrical, linear dichotomous, coriaceous. Air-vessels (when present) innate in the frond, simple. Receptacles terminal (except in F. nodosus), turgid, containing tubercles imbedded in mucus, and discharging their seeds by conspicuous pores. Grev.—Name; φυκος, a sea-weed.


Sea shores, very abundant. A very variable species; many of the varieties destitute of vesicles. Dr. Greville’s variety “Caterifructus” is so completely intermediate with the following, that it may be debated to which species it most properly belongs.

On the eastern shores. Belfast Lough; Wicklow, &c.—More membranaceous than the preceding, and apparently very different; yet I am by no means convinced that this is specifically distinct. Though it does not produce regular vesicles, I have frequently seen the membranes of the frond become separated and irregularly vesicated, giving the branches a blistered appearance.


Rocky shores, abundant.


Rocky shores, abundant.


Sea-shores. Cunnamara; J. T. Mackay. A very remarkable looking plant, yet I fear scarcely specifically distinct from the preceding.


Rocky shores, abundant. The smallest of the British species, and easily distinguished by its channelled fronds.


Rocky shores, rather rare. North of Ireland; Dr. Scott. Bantry bay; Miss Hutchins. Very abundant on the west of the County of Clare.—Root accompanied by creeping fibres. The vesicles, which have not been noticed by preceding authors, are abundantly produced in the West of Ireland, where this plant is very common, and reaches a large size.

4. HIMANTHALIA. *Lyngb.* Himanthalia.

**Frond** coriaceous, orbicular, peziziform. **Vesicles** none. **Receptacles** (frond-like), elongated, strap-shaped, compressed, dichotomously divided, springing from the centre of the frond, containing immersed tubercles furnished with a pore. **Grev.**

—Name; ἵπας, ἀντός, a strap, and ἄλς, the sea.

Rocky shores. *Fronds* one or two inches high, perennial, emitting receptacles from two to ten feet in length, which fall off annually.

**Tribe II. LICHINEÆ.**

Marine plants of a blackish green colour, changing to black in the air; cartilaginous, minute, without distinct leaves. *Fruktification:* receptacles furnished with a terminal pore, "and filled with a colourless gelatinous mass of very fine filaments, among which pellucid oval or oblong seeds are disposed in many radiating moniliform series." Grev.—I am not at all satisfied about the true situation of this small tribe, but place it immediately after the Fucoideæ in compliance with the ideas of my valued friend Dr. Greville. In many respects, especially in the structure of the capsules or receptacles, it approaches some genera of *Lichenes.*

5. *LICHINA. Ag. Lichina.*

*Frond* cartilaginous, blackish-green, dichotomous. *Frukt.* roundish capsules (receptacles) of the same colour, containing radiating moniliform lines of pellucid seeds, imbedded in a gelatinous mass of filaments. Grev.—*Name;* an alteration of *Lichen,* to which tribe this bears a great resemblance.


Rocks uncovered at low water mark, common. Forms little roundish tufts, about half an inch in height. *Fronds* crisp, dark green.


Rocks, near high water mark, not rare. Smaller than the last, and of a darker colour. Dr. Greville has taken much pains to distinguish this from the preceding, and has figured both admirably in his beautiful *Crypt. Flora* (t. 219 and 221); but I rather incline to Dr. Hooker's opinion, that their distinguishing characters depend on difference of locality.

**Tribe III. LAMINARIEÆ.**

*Plants marine, of an olive-brown or olive-green colour, becoming rather darker on exposure; coriaceous or membranaceous, fibroscopicular, not reticulated. Root lobed or fibrous. Frond stipitate, terminating in a leaflike expansion which is often cleft, and occasion-
ally midribbed, or variously costate. Fructification obscure; “as far as hitherto known, either seeds mixed with a mass of vertical, jointed filaments or roundish granules, without filaments; forming, in both cases, dense-spreading spots or sori, on the surface of some part of the frond.” Grev.


Frond membranaceous, furnished with a percurrent, cartilaginous midrib, the stem pinnated with distinct leaflets. Fruct.: pyriform seeds, vertically arranged in the incrassated leaflets. Grev.—Name, ala, a wing, from the winged base of the frond.


Northern and western shores, abundant. A beautiful plant as it waves freely in the water. The frond is 3—10 or even 20 feet in length, and 1—6 inches in breadth, consisting of a membranaceous, very easily lacerated leaf, with a thick cartilaginous midrib. It is an annual.


Frond coriaceous (rarely membranaceous), plane, expanded, without a midrib. Fruct.: seeds or granules forming dense sori or spots, and imbedded in the thickened surface of some part of the frond. Grev.—Name; lamina, a thin plate.


Sea-shores, in deep water. 2—12 feet long, olive brown.


Sea-shores; not uncommon on any of our coasts.


Sea-shores, very common.

4. L. Phyllitis, Lamour. Thin-leaved Laminaria. Root fibrous; stipes somewhat compressed, short, expanding into a

Sea shores, rare. Larne; Mr. Templeton. Pantry bay; Miss Hutchins. Black rocks, Portstewart, County of Derry; Mr. D. Moore. Distinguished from the preceding by its thin membranaceous substance and lanceolate outline; characters which are, I fear, not to be depended on.

**Tribe IV. SPOROCHNOIDEÆ.**

Plants marine, olivaceous or yellowish-green, much branched, the branches mostly distichous, foliaceous, compressed, or filiform, inarticulate, becoming flaccid on exposure to the air, “in some cases acquiring, under such circumstances, a verdigris-green colour, and then possessing the property of rapidly decomposing other delicate *Algae in contact with them.” Fronds generally bearing, at some period of their growth, deciduous tufts of bright green filaments. Fructification imperfectly known; “composed of club-shaped, moniliform, radiating filaments, either forming sessile warts, or arranged concentrically in little stalked, club-shaped bodies, terminated by pencils of delicate fibres. Grev.—A small and natural family, in many respects allied to the *Laminariaee*, from which tribe it is, however, well distinguished by the much branched frond, which produces, in its young state, delicate tufts of fibres, and does not become darker in drying or decay.


*Frond* plane or compressed, distichously branched; when young, furnished with marginal deciduous tufts of fine green filaments, the branches set with marginal spines. Grev.—*Fruct. unknown.—Name; in honour of A. G. Desmarest, a French Naturalist.


Not uncommon on any of our shores from the Giant’s Causeway to Bantry bay. *Frond* 1—6 feet long.


Sea-shores, common. The marginal spines are not produced till the
second year, but, in place of them, the young plants are clothed with beautiful tufts of bright green fibres.


Frond cylindrical, filiform, cartilaginous, pinnated with opposite branches, becoming flaccid and of a verdigris-green colour on exposure to the air. Fruct. unknown. Grev.—Name; ξις, twice, and χλωρις, green, “in allusion to its singular change of colour.”


Sea-coast. Near Belfast; Dr. Drummond. Bantry bay; Miss Hutchins.—1—2 feet long. Frond excessively branched, capillary, all the divisions exactly opposite.

10. SPOROCHNUS. Ag. Sporochnus.

Frond filiform, cylindrical or compressed, cartilagineo-membranaceous. Fruct.: club-shaped, moniliform filaments, radiating in scattered warts, or concentrated in distinct (mostly clavate, stalked) receptacles, often terminated by a deciduous tuft of filaments. Grev.—Name; σπορος a seed or sporule, and χνους, wool, in allusion to the tufts of fibres terminating the fructifications.


Marine rocks, rare. Bantry bay; Miss Hutchins. Killiney, very rare; W. H. Harvey. Mouth of the river Bann, among rejectamenta; Mr. D. Moore.


Very rare. Wicklow; W. H. Harvey.


In the sea: parasitic on various algae. Bantry bay; Miss Hutchins. West of Ireland and at Wicklow; W. H. Harvey.

4. S. Cabrerae, Ag. Cabrera’s Sporochnus. Frond irregularly dichotomous, linear, narrow, flat; branches here and there
constricted, truncate; fruit "terminal, elliptical, solitary." (Turn.) Ag. Syst. p. 260.—Fucus Cabrere. Turn. Hist. t. 140.

At Youghal, among rejectamenta, very rare; Miss Ball. Root a shapeless tuber. Stems 6—8 inches high, much branched in an irregularly dichotomous manner, flat, nerveless, except near the base, where there is a faint trace of a central midrib, coriaceo-cartilaginous. Branches erect, with acute axilla, distichous, alternate, narrow below, rather broader upwards, here and there constricted, and often discoloured. Fructification, "placed upon the ends of the branches, which then expand into a small flat disk, supporting a single cylindrical tubercle scarcely a line long, of a pale flesh colour, slightly tinged with brown, destitute of any epidermis, and wholly consisting of very thin parallel white fibres, of a clavate shape, with a rounded tip, mixed with which lie oblong reddish seeds."—Turn. Hist. vol. iii. p. 14.—Miss Ball's specimens are unfortunately without perfect fruit, though many of the apices present imperfect indications of fructification.

Tribe V. DICTYOTÆ.

Plants marine, of an olive-green colour, and membranaceous flexible substance, rarely cartilaginous, and scarcely at all juicy, with a highly reticulated structure. Frond cylindrical or flat, simple or branched, nerveless (except in Haliscris), often divided in a flabelliform manner. Fructification, dark-coloured ovate or pear-shaped seeds, with pellucid cases, which are variously arranged in lines, sori, or covering the whole frond; very rarely enclosed in capsules.—A beautiful family, easily distinguished by the highly reticulated structure. Under the microscope, the frond appears like a delicate network.


Frond simple, filiform, cylindrical, with an interrupted cavity.
Root naked, scutate. Fruct.: external continuous masses of pear-shaped seeds, fixed by their base. Grev. Name; chorda, a cord.


Sea-shores, common. 1—20 or even 30 feet long, according to the depth of water; composed, as Captain Carmichael well expresses it, "of a simple fillet, one or two lines in breadth, spirally twisted into a filiform tube, formed by the cohesion of its edges."

Sea-shores, not rare. Kingstown, near Dublin, and on the west coast; W. H. Harvey.—Asperococcus castaneus proves, as my friend Mis. Griffiths first pointed out to me, to be the young of this species.


Frond simple, tubular, cylindrical or compressed, continuous, membranaceous. Root minutely scutate, naked. Fruct.: distinct spots of imbedded seeds, mixed with erect, club-shaped filaments. Grev. Hook.—Name; asper, rough, and kokkos, a seed.


Sea-shores, common. 6—12 inches long.


On Chorda Filum. Coast of Cork, Ballycotton; Miss Ball.—Autumn.—The fronds of this diminutive species are so closely aggregated, as to give to a section of the plant on which they grow, the appearance of a bottle-brush. They are from 1—2 inches long, simple, the thickness of a horse-hair, attenuated at both ends, transversely striated in imitation of joints, and closely beset with pellucid fibres. Carm. MSS.


Rare. Bantry bay; Miss Hutchins. Abundantly thrown up on the Murrough, Wicklow; W. H. Harvey. Miss Hutchins' specimens are very fine, the fronds being 2—3 inches in diameter.


Frond simple, membranaceous, flat, with a naked scutate root. Fruct. scattered over the whole frond in minute distinct spots, composed of roundish prominent seeds, intermixed with club-shaped filaments. Grev.—Name; punctum, a dot, from the dotted fructification.


Sea-shores. Wicklow and Killiney, near Dublin.


Rare. Belfast; *Dr. Drummond.* Kilkea, County of Clare; *W. H. Harvey.* This, I greatly fear, is nothing more than a pale variety of the preceding; both are extremely variable in outline, and, among numerous specimens with which Mrs. Griffiths' kindness has furnished me, I find every gradation of form and colour: some having the dark colour and substance of *P. plantaginea* with the outline of *P. latifolia*; while others unite the pale colour and delicate substance of *P. latifolia,* with the narrow outline and tapering base of *P. plantaginea.*—The same lady informs me that she has found both growing together in the same pool; a circumstance which seems to confirm the opinion that they are not distinct. But, however this may be, I feel no hesitation in referring *Laminaria debilis* of authors to this place, having minutely examined Chalmér's original specimens, and having found them to possess a reticulated and truly *dictyoteous* structure; in fact, having ascertained that they do not differ in any important particular from Devonshire specimens of *P. latifolia.*


*Frond* filiform, tubular, continuous, membranaceous, branched. *Root* naked and scutate. *Fruct.:* groups of roundish seeds, forming transverse lines. *Grev.—Name;* from the *striated* appearance, caused by the lines of fructification.


Very rare. Belfast Lough; *Dr. Drummond.* 3—12 inches high, much branched, a line in diameter; branches long, irregular, attenuated at base and apex, elegantly marked by the transverse lines of seeds. A beautiful plant, first discovered by Captain Carmichael at Appin, in Scotland, and lately found by Mrs. Griffiths at Torquay, Devonshire; it may, therefore, be expected in intermediate stations.


*Frond* filiform, tubular, continuous, branched. *Root* minutely scutate, naked. *Fruct.:* ovate scattered seeds, lying beneath the epidermis. *Grev.—Name;* ἕκτη, a net, and ἁφέω, a tube, from the tubular reticulated frond.

1. *D. fœniculaceus,* Grev. **Fennel-leaved Dictyosiphon.**—
On most of our coasts, both the eastern and western shores. 1—10 feet long or more, capillary, excessively branched and entangled. *Fruct.* very rare, and hitherto only described by Dr. Greville.


*Frond* flat, highly reticulated, membranaceous, dichotomous or irregularly cleft (palmato-flabelliform in *D. atomaria*). *Root* a mass of woolly filaments. *Fruct.* composed of scattered or variously aggregated, somewhat prominent seeds, on both surfaces of the frond. *Grev.*—Name: εἰκτυόν, a net, the fronds, as in all this tribe, appearing reticulated when magnified.


In the sea, on rocky shores, both varieties common.—*β.* greatly resembles the exotic *D. furcellata*, but differs in the segments becoming gradually attenuated; whereas, in that species, the frond is of one breadth throughout.


Marine rocks, Coast of Cork, near Ballycotton; *Miss Ball.*

17. **Cutleria.** Grev. *Cutleria.*

*Frond* plano-compressed, cartilagineo-membranaceous, subflabelliform, irregularly cleft. *Root* a mass of woolly filaments. *Fruct.*: minute tufts of capsules, scattered on both sides of the frond, the capsules pedicellate, containing several distinct grains.—*Grev.* Named by Dr. Greville in honour of my valued friend Miss Cutler of Sidmouth, a most acute and zealous algologist, and the discoverer in England of *Grateloupia filicina*.

Very rare. Bantry bay; Miss Hutchins. Ballycotton; Miss Ball. A single specimen found at Kilkee, County of Clare; W. H. Harvey. Frond 2—12 inches high, broadly flabelliform, cut, often nearly to the base, into many cuneate segments, which are again many times divided; the apices furnished with delicate confervoid fibres. Miss Cutler, who has favoured me with many beautiful specimens, remarks, in a letter, that, when fresh, "it is a stiff, rather thick, slightly curled plant, somewhat transparent, of a pale amber colour; so extremely brittle that the larger plants may be said to break with their own weight; on exposure to the air it becomes flaccid and turns brownish—in fresh water it changes to a greenish hue. As it is not very gelatinous it dries quickly under pressure, and leaves its impression, in a permanent brown colour, on the rags used to assist in drying it; a property common to many Algae. Of the fructification I have nothing to add to the remarks of Dr. Greville, except that on one or two specimens I observe the fructification is placed in wavy transverse lines, as in D. atomaria. I find the delicate conferva-like fibres not only fringe the edge in clusters, but clothe the fronds of the young plants generally. May not these, by their elasticity, form a protection to so brittle a plant?" Miss Cutler in litt.


Frond flat, highly reticulated, subcoriaceous, flabelliform, mostly undivided, marked with concentric lines. Root a mass of woolly filaments. Fruct. ovate, blackish seeds, fixed by their base, bursting through the epidermis in compact, concentric lines (rarely spots) mostly on one surface of the frond. Grev. —Name of uncertain origin. P. Pavonia, one of the most remarkable of British Algae, has not yet been found on our shores; but it may be expected to occur on the southern coasts of Cork or Waterford.


Rocks in the sea, rare. Miltown Malbay; W. H. Harvey. Fronds olivaceous, depressed, creeping over the rock, to which they are attached by white fibres from the under surface. I have compared my specimens with English ones communicated by Miss Cutler, and find them to agree exactly.


Marine rocks. Miltown Malbay; W. H. Harvey. Fronds an inch or two in diameter, closely adhering to the rock on which they grow, of a rich brown colour and thick fleshy cellular substance, not reticulated. I have no idea to what tribe of Algae this most properly
belongs; but that it has no relation to Padina, or even to Dictyota, is obvious to any one who will take the trouble of examining it with the aid of a microscope. Its resemblance to Padina is merely superficial.


Rocks in the sea, covered with sand, very rare. Quilty Strand, at extreme low-water mark, Miltown Malbay; W. H. Harvey. 6—12 inches high, delicately membranaceous, and turning in an oblique direction from the margin to the midrib. When fresh it has an extremely powerful disagreeable smell.

Tribe VI. Ectocarpaceæ.

Plants marine, of an olive-green or (rarely) full-green colour, filamentous, often capillary or crinoid, articulated, cartilaginous or flaccid, not very juicy, nor adhering strongly to paper. Frond much branched, mostly of a uniform structure throughout; articulations of the filaments mostly very short, (but very variable in the same filament, and not to be depended on in forming specific characters). Root minute, scutate. Fructification double, mostly monocious (both kinds produced on the same individuals), 1. Capsules containing dark-coloured seeds; 2. granules imbedded in the distended, often vesiculated apices of the ramuli.

20. Cladostephus. Ag. Cladostephus. Filaments cartilaginous, inarticulate, whorled with short articulated ramuli, olivaceous. Fruit double: 1. ovate capsules, furnished with a terminal pore, containing dark seeds; 2. granules imbedded in the apices of the ramuli.—Name; κλαδος, a branch, and στεφως, a crown; from the whorled ramuli.

On the western coasts, not rare. 2—9 inches high, slender, the whorls of ramuli rather distant, by which character it is chiefly distinguished from the following.


Marine rocks, common. 3—4 inches high, dark olive brown.


Filaments jointed, branches distichous, pinnated, rarely dichotomous, rigid. Fruct. double, on the same individual:
1. ovato-spherical capsules, furnished with a terminal pore; 2. a granular mass, inclosed in the hyaline vesicated apices of the branches.—Name; Σφακελος, gangrene; from the withered distended apices.


In the sea, very rare. Bangor, County of Down; Mr. W. Thompson.


Rare on our shores. Killiney and Wicklow; W. H. Harvey. The winter and summer states of this species are so very unlike each other, that I formerly mistook them for distinct species, and published them as such in Dr. Hooker's British Flora. Since that work was printed, I have received numerous specimens, in every state of transition, from my kind friends Mrs. Griffiths and Miss Cutler; and I am now fully convinced that the S. disticha of the British Flora is only the autumnal or winter state of S. scoparia.


Rocky coasts, rare. Wicklow; W. H. Harvey. 2—4 inches high, the branches resembling delicate feathers: colour greenish-olive.

On various marine Algae, very common. Tufts half an inch to an inch or two in height, olive-brown.


Sand covered rocks. Bantry bay; Miss Hutchins. A very doubtful species.


On rocks, and the larger Algae. Dunmore; Miss A. Taylor.


Parasitical on Himanthalia lorea. Filaments about a line in height, forming velvety patches. It has but a very feeble claim to be considered a member of the present genus, and would, in my opinion, range much better with Myrtionema.


Filaments capillary, olivaceous or brown, flaccid, without longitudinal striae. *Fruit,* sphaerical or siliquaeform capsules and granules in swollen ramuli.—Name; *ektos,* κέρτως, *external fruit,* equally applicable to many other genera.


On the larger Algae, very common. *Tufts* 1—6 inches long, brown, coarse.


Sea-shores, on Algae, corallines, &c. 2—12 inches high, pale yellow, distinguished by the siliquaeform fruit.

3. E. tomentosus, Lyngb. Woolly Ectocarpus. Filaments flexuose, very slender, woven into a dense sponge-like branch-

Sea-shores, not rare on the east coast. Bantry bay; Miss Hutchins. Ardnoore; Miss Ball. Habit something like that of Codium tomentosum.


On other Algae. Bantry bay; Miss Hutchins. Mangan's bay; Miss Ball. 3–10 inches long; delicate: capsules large, dark, seated in the ultimate branches.

5. E. sphaerophorus, Carm. Round-fruited Ectocarpus. Filaments slender, tufted; upper branches patent, opposite or in fours; capsules globose, opposite to each other or to a branch. Harv. in Hook. Br. Fl. v. ii. p. 326.—E. brachiatus, Ag. (not Conf. brachiata of E. Bot.)

On other Algae. Bantry bay; Miss Hutchins. The Bantry bay station for E. mertensii, given in Eng. Bot. and Hooker's Br. Flora, must be cancelled. I have examined Miss Hutchins' specimens so named, and find them to belong to this, and the preceding species. The true E. mertensii, which is an extremely rare and little known plant, is regularly distichous and beautifully bipinnate; the pinnae scarcely one-fourth the thickness of the branch in diameter.

23. MYRIOTRICHIA. Harv. Myriotrichia.

Primary filament olivaceous, flaccid (simple), beset with setiform, obtuse, quadrifarious ramuli; their apices bearing crinoid, hyaline, dichotomous, long articulated filaments. Fruct.: ovate capsules, including a mass of olivaceous seeds. —Name from μυταιος, a thousand, and ορηξ, a hair; from the innumerable hyaline, hair-like filaments which spring from the apices of the ramuli.


Parasitical on Chorda lomentaria. At Cable Island, near Youghal; Miss Ball. Fronds half an inch high, tufted, slender, flaccid, subgelatinous, olivaceous, lineari-clavate, (in outline,) surrounded with hyaline filaments. Frond articulated throughout, the articulations of the stem and ramuli very short; of the hyaline filaments many times longer than their breadth. This curious little plant was originally discovered at Torquay, in Devonshire, by Mrs. Griffiths, and has recently been added to our Flora by Miss Ball, an acute and zealous algologist, and the discoverer in this country of Sporochnus Cabrerae, and several other rare plants.
Plants marine, of an olive-green or olive-brown colour, becoming darker on exposure, of a cartilaginous or gelatinous substance, and celluloso-filamentous structure. Frond filiform (except in Corynephora, which is globose and tuberculous,) much branched, cylindrical; the centre or axis, composed either of longitudinal, aggregated, colourless, jointed filaments, or of a solid cellular substance; the periphery, consisting of coloured, simple or branched, somewhat clavate toruloso-articulated filaments, disposed in a verticillate manner round the axis. Fructification (so far as ascertained), ovoid or pyriform olive-coloured seeds (capsules?), enclosed in pellucid cases, imbedded among the filaments of the periphery, to whose rami they are laterally attached.—To Chordaria, a genus which Dr. Greville places by itself in this family, I have ventured to add another (Trichocladia), which is very nearly allied to it in structure and fructification, but which has till now been confounded with Mesogloia; and Corynephora, a plant perhaps of uncertain affinities, but which approaches in structure more nearly to Trichocladia than to any other. The family thus constituted is allied on the one hand to the Dictyotae, and on the other to the Gloiocladeae. From the latter it chiefly differs in colour, and in the structure of the fructification.


Frond filiform, much branched. Axis cartilaginous, firmly gelatinous, cellular. Periphery composed of simple, clavate, torulose, verticillate filaments. Fruct.: "ovate brown seeds (capsules?), mixed with the filaments of the periphery." Carm.—Name: Chorda, a cord.


Sea-coast, on rocks and stones, common. 3—12 inches long, slender, dark olive-brown. Captain Carmichael observes, that, "in young plants, there is little or no vestige of the filaments" of the periphery, and that "their development appears to keep pace with that of the sporidia." I am sorry that my own observations are directly at variance with this account, for I have found these filaments as perfectly formed in plants not two inches high as in those of full growth.


Frond filiform, much branched. Axis loosely gelatinous, composed of articulated, hyaline fibres. Periphery consisting of
branched, coloured, torulose, verticillate filaments. Fruct. ovate or elliptical, olivaceous seeds (capsules?) attached to the ramuli of the periphery.—Name; ἰς, a hair, and κλανος, a branch; the branches being composed of hair-like filaments.


Sea-shores, not uncommon. 1—2 feet high. Branches clumsy, attenuated toward each end. Capsules ovate, abundantly produced.


Sea-shores, rare. Bantry bay; Miss Hutchins. 8—16 inches high of a pale rather olive-green, becoming greener in fresh water. Branches long, subsimple, covered with long colourless byssoid fibres, similar to those found in Chordaria flagelliformis, a plant which this species strongly resembles in habit. Capsules pyriform.


Sea-shores. Bantry bay; Miss Hutchins. I have examined the M. gracilis of Captain Carmichael, and do not consider it specifically distinct from the present; and though I have not seen specimens of Mr. Berkeley's M. affinis, yet, judging from the figure and description of that author, I can consider it but as the young of this species.


Frond globose or lobed, carnoso-coriaceous, hollow (not filled with gelatine), composed of articulated dichotomous filaments, fasciculated at the apices, and issuing from a central point. Fruct.: oval capsules, seated in the terminal fasciculi.—Name; κορονη, a crown, and φοηεω, to bear; the apices of the filaments, which constitute the periphery, are clavate.


On rocks in the sea, very common. Frond carnose, forming many hollow lobed tubers, and spreading over a large space, olive-brown. In young plants the lobes are filled with wide hyaline dichotomous
fibres, originating from a centre point, which are analogous to the filaments that constitute the axis of Trichocladia. The axis of this genus must, therefore, be considered as punctiform, and this, indeed, forms the only really structural difference between the two genera.

**Div. II. RHODOSPERMEÆ.**

*Plants* marine (except one or two species of *Trentepohlia*), foliaceous, cylindrical or filamentous, of a rose-red, purple, or red-brown colour. *Fructification* in many genera double; *primary*, contained in capsules, receptacles, or imbedded in the frond; *secondary* (when present), granules forming sori, or placed in distinct receptacles.

**Tribe VIII. GLOIOCLADEÆ.**

*Plants* marine, of a rose-red or purple colour, giving out a red juice on immersion in fresh water, of a gelatinous, lubricious substance, and filamentous, rarely cellular structure. *Frond* filiform, branched, cylindrical, solid or tubular; the periphery (except in *Chatospora*, in which genus, no parts, except the ultimate ramuli, are composed of filaments,) consisting of coloured, branched, verticillate fibres. *Fructification*: clusters or globules of red seeds, imbedded among the filaments of the periphery, to which they are attached.—In the British Flora, I used the name *Gloiocladeæ* in a wide sense, applying it to all the Tribes of Algae, whose fronds are invested with a definite gelatine. I now wish to restrict it to a tribe, which is very conveniently placed at the commencement of this division, seeing it stands almost intermediate in affinities between the *Chordarieæ* and *Gastrocarpeeæ*, agreeing with the former in the formation of the frond, and with the latter in colour and in the structure of the fruit.

27. **Mesogloia.** *Ag.* Mesogloia.

*Frond* filiform, solid; the axis or central part gelatinous, formed of longitudinal, hyaline, jointed fibres; the *periphery* composed of radiating, coloured, branched, articulated filaments. *Fruct.:* globules of red seeds, imbedded in the filaments of the periphery, to which they are attached.—*Name*: μεσος, the middle, and ζυκησις, viscid, from the gelatinous axis.

On shells and stones near low-water mark, frequent. Frond 3—6 inches long, often sub-simple, or once or twice dichotomous, 1—2 lines in diameter, very elastic. Axis much denser than in the following, not clearly filamentous; but rather, as Captain Carmichael expresses it, "a medullary cord."


On rocks and Algae in the sea. Bantry bay; Miss Hutchins. Kilkee, County of Clare, and Killiney; W. H. Harvey. 4—8 inches long, excessively branched, slender, filiform, pale-red. Notwithstanding that the opinion of my valued friend, Mr. Walker Arnott, founded on a specimen from Sir Thomas Frankland, is against me, I am unwilling to omit the reference to the U. rubens of Hudson, as given above. In defence of this opinion I have, however, no better plea than that Hudson's description—U. gelatinosa filiformis ramosissima rubescens, ramis sparsis noris entalibres obtusis"—answers most correctly to the present species, and will not apply to any other.


Ireland's Eye; Mr. R. Ball. 1—2 feet high, robust, purple-red, staining fresh water pink. Stem subsimple, irregularly branched. Branches subalternate, distichous, long, simple, patent, constricted at the base, attenuated to a fine point.


Sea-shores, extremely rare. Bantry bay; Miss Hutchins. Frond 2—6 inches high, fine rose-red, very gelatinous and delicate. The branches and ramuli are moniliform in consequence of the whorls of filaments forming the periphery being sub-distant.


Frond cylintrical, filiform, tubular, somewhat gelatinous; the periphery composed of radiating, coloured, branched, articulated filaments. Fruct.: globules of red seeds, imbedded in the filaments of the periphery, to which they are attached.—Name; γλοιος, viscid, and σφῶν, a tube; from the gelatinous tubed frond.—This genus, founded on the Fucus capillaris of Turner, was originally proposed by the late Captain Carmichael, in his unpublished "Algae Appinenses," and has been adopted by Mr. Berkeley. Except in the tubular frond, it does not differ from Mesogloia.
Catenella.]  ALGÆ RHODOSPERMEEÆ.  187


Very rare. Bantry bay; Miss Hutchins.  Fronds 3—6 inches long, much branched, fine rose-red, often a line in diameter.  Branches mostly opposite, attenuated at the base.  Ramuli very numerous, short, slender, flexuose, subulate.  Globules of fructification large.


Frond cylindrical, filiform, solid, subgelatinous, rose-red; the centre (axis) laxly cellular; the periphery membranaceous.  Ramuli setaceous, fusiform, composed of articulated, branched, radiating filaments, and containing a mass of minute red seeds.  — Name; χαίτη, a bristle, and σπόρα, a seed or sporule; the filaments of the ramuli being supposed by some to be connected with the fructification.  Though the structure of this curious plant (except as regards the ramuli) is perhaps more that of the following tribe (Gastrocarpeæ) than of the Gloioicladeæ; yet in habit it so completely agrees with Mesogloia and Gloiosiphonia, that I do not wish to place them in different families.  The periphery, too, consists of exceedingly minute longitudinal fibres, firmly agglutinated into a membrane.  May not Chætospora, therefore, be regarded as a Mesogloia, wanting the verticillate filaments?


Very rare. Bantry bay; Miss Hutchins. Kilkee, County of Clare, extremely rare; W. H. Harvey.  Frond 6—12 inches long, much branched, fine rose-red.  Ramuli 1—2 lines long, fusiform, containing a dark mass of granules.

Tribe IX. GASTROCARPEÆ.

Plants marine, of a pink, purple, or dull red colour, of a carnose, gelatino-cartilaginous or membranaceous substance; “the structure consisting of a cellular external coat or membrane, and a pellucid, gelatinous, internal mass, mostly traversed by colourless jointed filaments arising from the outward membrane.”  Frond cylindrical, compressed, or flat, destitute of midrib or veins.  Fructification:globules or clusters of minute red seeds imbedded in the internal substance of the frond.


Frond filiform, somewhat compressed, creeping, throwing up
numerous branches, contracted, as if jointed, in a moniliform manner, composed internally of branched filaments radiating from the centre. *Fruct.* unknown. *Grev.*—Name; *catenella*, a little chain, which its fronds resemble.—A genus of a very questionable character, which I adopt entirely in deference to Dr. Greville, though by no means convinced of the propriety of so doing.


Marine rocks, near high-water mark. *Fronds* tufted from half an inch to an inch and half in height, dull purple.


*Frond* cylindrical, simple or branched, membranaceous, tubular, gelatinous within, of a red or purplish-red colour. *Fruct.*: globules of seeds, attached to the inner surface of the membrane of the frond. *Grev.*—Named in honour of M. Dumont, a French Naturalist.


Rocks and stones in the sea, common. 3—12 inches long, dull purple.


*Frond* cylindrical, compressed or flat, gelatinoso-membranaceous, of a pinky red colour, subdichotomously branched. *Fruct.*: globules of seeds, imbedded in the central substance of the frond.—*Name*; ḥals, ḥlis, the sea, and ṯρύν, a membrane; sea-membrane.


Sea-shores, rare. Bantry bay; *Miss Hutchins.*—*β*. at Miltown Malbay and Kilkee, County of Clare; *W. H. Harvey.* Very variable in size, in the breadth and thickness of the frond, and in the ramification. Sometimes it is nearly filiform and cylindrical. *β*. is a truly remarkable variety, which, at one time, I felt disposed to regard as a distinct species; but after comparing many varieties from the South of England, kindly furnished by my valued friends Mrs. Griffiths and
Miss Cutler, with my Irish specimens, I have feared that the distinguishing characters are too variable to be depended on. The frond in my largest specimen is about 18 inches long, and 4—5 inches wide in the broadest part; cloven into three principal segments, with a palmate outline. When fresh, it had a soft feel like fine kid leather; and was not thicker than the membrane of *Rhodomenia reniformis*, perfectly flat, and with a darker colour than in the more common variety.


Very rare on our coasts; Bantry Bay; *Miss Hutchins*. Quilty Strand, Miltown, Malbay; W. H. Harvey. Distinguished from the preceding by the regular dichotomous frond. *Miss Hutchins’s* specimens are remarkable for possessing a more or less distinct midrib: in one specimen this is so fully developed, that, were there not intermediate states from the strongest to the most imperfectly ribbed, I might have mistaken it for a distinct species. The branches (particularly in these Bantry specimens) are frequently constricted, so as in some instances to form regular septa at the strictures.

33. **Iridæa**. Bory. *Iridæa.*

*Frond* flat, expanded, carnose, more or less of a purple-red colour. *Fruct.*: globules of roundish seeds, imbedded between the two coats of the frond, or contained in little pedicillated processes.—Named from the *iridescent* hues of some of the species when recent.


Sea-shores, abundant. 2—18 inches long; dark purple.

**Tribe X. Spongiocarpeæ.**

*Marine plants*, of a dull dark-purple colour; of a cartilaginous or carnose substance, and fibrous structure. *Frond* cylindrical, dichotomous; the central part composed of very slender, closely packed, longitudinal fibres; the circumference formed of radiating dichotomous filaments. *Root* scutate. *Fruition* double (?) 1. naked spongy warts, composed of radiating filaments, among which are imbedded globules of red seeds; 2. minute granules immersed in the substance of the slightly swollen upper ramuli.
34. Polyides. *Ag.* Polyides.

*Frond* cylindrical, dichotomous; *root* scutate. *Fruct.*: naked spongy *warts*, composed of radiating filaments, among which are imbedded clusters of wedge-shaped *seeds*. Grev.—Name; *τολμεω* many, and *ἔκα*, form or appearance; not at all applicable. It is to be regretted that Dr. Greville’s excellent name, *Spongiocarpus*, not having the claim of priority, cannot be adopted.  


Sea coasts, not rare. *Fronds* 4—6 inches high, dark purple, several times dichotomous; the axils obtuse.

**Tribe XI. Furcellarieæ.**

*Marine plants*, of a dull dark purplish colour, of a carnosous or cellular structure. *Frond* cylindrical, dichotomous; the central part closely cellular; the circumference composed of radiating simple filaments. *Root* creeping. *Fructification*: terminal pod-like indehiscent receptacles, within which is imbedded, beneath the outer coat, a stratum of dark red-brown seeds.—Very similar to the preceding family in habit, but decidedly differing in structure and in the fructification.


*Frond* cartilaginous, cylindrical, dichotomous. *Root* creeping. *Fruct.*: terminal, elongated, pod-like receptacles, containing a stratum of dark, oblong, pear-shaped *seeds* in the circumference. Grev.—Name; *furcula* or *furcella*, a little fork; from the forked frond.  


Rocky shores, common. *Fronds* 6—8 inches long, purplish-brown, dichotomous; axils acute.

**Tribe XII. Florideæ.**

*Plants marine*, of a purplish-red or fine rose colour, of a coriaceous, cartilaginous or membranaceous substance and cel-
lular texture; cells often highly developed. Frond flat, foliaceous, compressed or cylindrical, occasionally filiform or filamentous, inarticulate. Fructification mostly double, and produced on distinct individuals of the same species. 1. Capsules, or tubercles, containing a mass of ovate or pear-shaped red seeds: 2. granules, scattered or collected into little groups, and situated either in the substance of the frond or in distinct processes.


Frond rose-red, flat, membranaceous, with a percurrent midrib. Fruct. of two kinds. Capsules containing a globular mass of seeds and ternate granules, forming definite sori in the frond or in distinct foliaceous leaflets. Grev.—This beautiful genus, distinguished from every other in the tribe by its percurrent midrib, is inscribed to M. Benjamin Delessert, a distinguished French naturalist and patron of Botany.


Sea-shores, frequent; particularly large at Larne; Dr. Drummond. Stem elongated, bearing leaves 6—8 inches long and 1—5 broad, delicate, waved and plaited, the margin quite entire. Fructification is only borne on the battered fronds in winter and spring. Miss Ball finds a curious variety at Youghal, in which small leaflets spring from the midrib of the larger ones, something in the manner of Del. Hypoglossum.


On the larger Fuci, very common; very fine at Larne; Dr. Drummond. Fronds 6—8 inches long or more, of a darker and duller colour than the preceding; the transverse veins much stronger.


On the larger Algæ, very abundant. 4—8 inches high; deep red, excessively branched, very variable in the relative breadth of the membrane. Dr. Turner’s var. β. is a very curious state of this plant, and has not yet (that I am aware) been found in Ireland.

4. D. Hypoglossum, Ag. Proliferous Delesseria. Frond (originally) linear-lanceolate, excessively branched in a proliferous manner; innovations lanceolate, attenuated and acute,

On rocks and the larger Algae, not rare; very fine at Bantry Bay; *Miss Hutchins.* And at Larne; *Dr. Drummond.* A beautiful species, distinguished by the lanceolate outline of its proliferous leaves; in other respects it approaches very near to the following.


Rocks in the sea, rather rare. Bantry bay; *Miss Hutchins.* Miltown Malbay, Kilkee and Wicklow, &c.; *W. H. Harvey.* Differs from the last in being of rather a darker colour and less delicate substance, with short obtuse leaves; but this latter character is far from invariable.

37. **Nitophyllum.** *Grev.* Nitophyllum.

**Frond** plane, delicately membranaceous, expanded, rose coloured, reticulated, wholly without veins, or with slight vague ones toward the base. **Fructification:** hemispherical capsules imbedded in the substance of the frond, and ternate granules forming distinct scattered spots.—Name; a Latin and Greek hybrid, from *nitor,* to shine, and *ϕωλλον,* a leaf.


Rare. Bantry bay; *Miss Hutchins.* 4—6 inches long, generally cut into numerous linear segments. Though this species appears, at first sight, very distinct, if we regard only *typical* specimens (such as are figured in *Dr. Greville's* plate), yet I have seen so many varieties, bordering more or less on *N. punctatum,* that, I greatly fear, this must only be considered a curious variety of that species.

2. N. *punctatum,* Grev. *Spotted Nitophyllum.* Frond very thin and delicate, destitute of nervures, cleft into two or three principal segments, which are more or less cleft into numerous, narrow forked laciniae; spots of granules scattered over the whole frond, large. *Hook. Br. Fl. v. ii. p. 287. Fucus punctatus. E. Bot. t. 1575.—Turn. Hist. t. 71.*

On various Algae. Larne (very fine); *Dr. Drummond.* Bantry bay; *Miss Hutchins.* Miltown Malbay, and Kilkee; *W. H. Harvey. 6—8 inches long, segments broad, cleft nearly to the base; spots of granules large and conspicuous.

3. N. *ulvoideum,* *Hook.* *Ulva-like Nitophyllum.* Frond thickish but tender, veinless, roundish but very irregular in
figure, somewhat cuneate at the base, variously cleft into oblong more or less broad segments, rounded at the extremity; spots of granules small, scattered over nearly the whole frond. Grev. Hook. Br. Fl. v. ii. p. 287. N. Histtica. Grev. Crypt. t. 351.—E. ulvoides, Turn. t. 80.—E. Bot. t. 2134.

Very rare. Bantry bay; Miss Hutchins. Distinguished by its broad slightly divided rounded fronds, thicker substance, and by the minute dot-like spots of granules. The "Miltown Malbay" station, given on my authority in the British Flora, is incorrect, and belongs to N. Bonnemaisonii.


Shores, rather rare. Bantry bay; Miss Hutchins. Larne; very fine; Dr. Drummond. Youghal; Miss Ball. Miltown Malbay and Kilkee; W. H. Harvey. Distinguished from N. punctatum by its elipitate palmato-flabellate frond; and from the following, by its different substance, and the position of the granular fructification.


In the sea. Bantry bay; Miss Hutchins. Larne; Dr. Drummond. Kilkee; W. H. Harvey. Fronds 2—4 inches long, roundish, when fresh curled and crisped, with a rather disagreeable smell and dark pink colour; when dry, delicately membranaceous.


Common on rocks and Algae. Dr. Drummond's specimens, gathered at Larne, near Belfast, are the largest and finest I have seen. The veins in this species are often very highly developed.

38. Rhodomenia. Grev. Rhodomenia. Frond plane, membranaceous, fine pink or red, quite veinless, sessile, or with a short stem, which expands immediately into the frond. Fruct.: 1. hemispherical, scattered capsules; 2. minute, ternoate granules, spreading over the whole or some part of the frond, (not in distinct spots or sori.) Grew.
—Name; *poçon, red, and *ίμπρα, a membrane. This genus is distinguished from *Nitophyllum, by the denser substance of the frond, and the general distribution of its granules through the whole, or irregular portions of the membrane.


On rocks, &c.; rare. Belfast; Mr. Templeton. Bantry bay; Miss Hutchins. Miltown Malbay, Kilk ee and Wicklow; W. H. Harvey. 1—3 inches high, thin and delicate, fine rose-red. Mr. Turner's variety β. (which I have not found in Ireland) differs so much from the usual form, that it might easily be mistaken for a different species. It is of a darker colour, with exceedingly narrow segments, which are much lacerated and entangled.

2. R. *laciniata, Grev. *Laciniated Rhodomenia. Frond thickish, subcartilaginous, more or less palmate or flabelliform, cleft into numerous broad, wedge-shaped segments, which are again divided in a subdichotomous manner; apices obtuse; margin in fructification fringed with minute laciniae, in which the capsules are imbedded. Hook. Br. Fl. v. ii. p. 289. Turn. Hist. t. 69. E. Bot. t. 1068.

Sea-shores, common. I have received superb specimens from Larne, near Belfast, through the kindness of Dr. Drummond. A fine species, 6—10 inches long, of a bright crimson colour.

3. R. *Palmetta, Grev. *Fern-shaped Rhodomenia. Stem short, cylindrical, quickly expanding into a roundish flabelliform frond, which is more or less cleft in a dichotomous manner, segments cuneate; axis rounded; apices (according to the state of fructification) either erose or rounded, obtuse; capsules mostly terminal; granules in the expanded apices. Hook. Br. Fl. v. ii. p. 290.—F. Palmetta. Turn. t. 73. E. Bot. t. 1120.

On rocks, or (more generally) on the stems of *Laminaria digitata. Fronds tufted, about 3 inches high, very variable in the length of the stipes; tolerably constant in its other characters. Substance cartilaginous. Colour, a full rose-red. Root accompanied by creeping fibres.

4. R. *ciliata, Grev. *Ciliated Rhodomenia. Frond thick, subcartilaginous, rising from a short stipes, lanceolate, irregularly pinnated, with lanceolate or cleft segments, attenuated at base; margin (and often the disk) furnished with simple, subulate cilia, which bear the capsules at their extremities; granules in the disk; root fibrous, creeping. Hook. Br. Fl. v. ii. p. 291.—Fucus ciliatus. E. Bot. t. 1069.

On rocky shores, not uncommon. 4—8 inches high, of a thick substance, and full red colour, which becomes much darker in drying.

5. R. *jubata, Grev. *Cirrhose Rhodomenia. Frond thickish, flaccid, subcartilaginous, linear-lanceolate, much attenuate,
vaguely pinnate with segments of the same form; the margin
(and often the disk) beset with subulate, often cirrhose ciliae, in
which both capsules and granules are produced; root fibrous,
*Crypt. t. 359.*

On rocky shores, in gravelly or shelly places. Bantry bay; **Miss
Hutchins.** West of Clare, common; **W. H. Harvey.** The capsules,
which are very rare, I was fortunate enough to gather in abundance at
Miltown Malbay, in the summer of 1831. **Fronds 4—8 inches high,**
dull pale red; ciliae often 5—6 inches in length.

6. **R. palmata,** Grev. **Dulse or Dillisk.** Frond coriaceous
or submembranaceous, broadly wedge-shaped, much and irre-
gularly cleft, segments subdichotomously divided; margin en-
tire (often winged with proliferous leaflets); granules distributed
over the whole frond in cloud-like spots. **Hook. Br. Fl. v. ii.**
p. 291.—**Fucus palmatus. E. Bot. t. 1306.**

Rocky shores, very abundant. **Fronds 2—18 inches long,** of a livid
purple colour. Well known to hawkers and schoolboys under the
name of **Dulse or Dillisk**; and eagerly collected by the poor on the
coast as an agreeable esculent. It is similarly used in most of the
northern countries of Europe.

7. **R. sobolifera,** Grev. **Proliferous Rhodomenia.** Frond
membranaceous, shortly stipitate; stem filiform, dividing into
branches, which expand into flat, dilated fronds, much deeply
and irregularly cleft; the segments linear, wedge-shaped, laci-
Hist. t. 45. E. Bot. t. 2133.**

On **Laminaria digitata** and on rocks. Glenarm; **Dr. Drummond.**
4—6 inches long, cleft into many laciniate, linear, wedge-shaped seg-
ments. Very nearly related to **R. palmata,** from some varieties of
which I find it sometimes difficult to distinguish it.

8. **R. reniformis,** Hook. **Kidney-shaped Rhodomenia.** Stipes
short, cylindrical, simple or branched, suddenly expanding into
a carnosous-membranaceous, roundish, subsimple or irregularly
cleft (occasionally proliferous at the margin), somewhat lobed
frond; capsules and granules scattered. **Hook. Br. Fl. v. ii.**
reniformis. Turn. t. 113. E. Bot. t. 2116.**

Sea-shores, rather rare. Bantry bay; **Miss Hutchins.** Miltown
Malbay and Kilkee; **W. H. Harvey.** Mouth of the river Baun;
**Mr. D. Moore.** **Fronds 2—8 inches long,** fine red, soft, roundish,
occasionally beset at the margin with proliferous lobes of similar
form.

39. **Plocamium. Lamour. Plocamium.**

**Frond** filiform, compressed, between membranaceous and car-
tilaginous, fine pink red, much branched, branches distichous,
(alternately secund and pectinate.) Fructification of two kinds: spherical sessile capsules, and lateral minute processes, containing oblong granules, transversely divided into several parts by pellucid lines. Grev. Name; πλοκαμός, intertwined hair; from the finely branched fronds. The exotic genus Thamnophora, Ag. f. Grev., closely accords with the present in habit, and merely differs in the structure of the granules of the secondary fructification; a character, in my opinion, by no means sufficient to separate plants otherwise so nearly related.


Sea-shores, very common. Fronds 5—6 inches long, much branched, bright rose-colour; ramuli regularly alternately secund and pectinate.


Frond plane, between membranaceous and cartilaginous, dark vinous-red, with an imperfect or obsolete midrib, alternately toothed at the margin. Fruct. marginal or axillary, or in the teeth; 1. Capsules, containing pear-shaped seeds, fixed by their base; 2. slender processes (stichidia), containing ternate granules. Grev.—Name; ὀδος, ὀδοτός, a tooth, and οἶκαμ, the sea; a marine plant, with a toothed margin.


Confined to our northern shores, where it is very common. Fronds 4—6 inches high, very dark.


Frond cylindrical or compressed, filiform, much branched, coriaceo-cartilaginous (the apex sometimes involute.) Fruct.: subglobose capsules, containing free pear-shaped seeds, and pod-like receptacles, with imbedded ternate granules. Grev. Name; ῥοδός, red, and μέλας, black; in allusion to the change the species undergo in drying, from red to blackish.

On our northern shores, rare. Antrim; Dr. Scott. Portstewart; Mr. D. Moore. 5—8 inches long, simple, shaggy, rope-like.


Bantry bay; Miss Hutchins. Youghal; Miss Ball. 4—8 inches high, much branched. Branches attenuate. Colour a dull reddish-brown. In the winter the branches are much broken, and quite destitute of the delicate ramuli which clothe them in summer.


Sea-shores, not rare. Near Dublin; Dr. Scott. Wicklow; W. H. Harvey. Distinguished by its secund, spuriously jointed, incurved ramuli.


On rocks in the sea, salt marshes, &c. At Portstewart, North of Ireland; Mr. D. Moore. Fronds 2—3 inches high, much branched in a distichous manner. Branches very patent, with involute apices. The capsules of this plant are a desideratum.

42. Bonnemaisiona. Ag. Bonnemaisiona.

Frond membranaceous, compressed or plane, filiform, much branched, the branches pectinate with distichous cilia. Fruct.: sessile or pedicellate capsules, containing a cluster of pyriform (compound?) seeds, fixed by their base. Grev.—Named in honour of M. Bonnemaision, a French Algologist.


Not rare in Ireland. Bantry; Miss Hutchins. Near Belfast; Dr. Drummond. Miltown Malbay; Joshua Fennell, Esq. Kilkee, frequent; W. H. Harvey; and var. β. at Kingstown, near Dublin, and Wicklow. One of the most beautiful of British Florideae, of a fine rose red colour, and most delicately branched.
43. Laurencia. Lamour. Laurencia.

Frond cylindrical, filiform, between gelatinous and cartilaginous, mostly yellowish or purplish-red. Fruct. of two kinds: 1. ovate capsules with a terminal pore, containing a cluster of stalked, pear-shaped seeds, fixed by their base; 2. ternate granules, imbedded in the ramuli. Grev.—Named in compliment to a French Naturalist, M. de la Laurencie.


Rocky shores, very common. 1—10 inches high, dull purple.


On the larger Algæ, rare. Ireland’s Eye; Mr. R. Ball.


On sand-covered rocks and the larger Algæ, not rare. Bantry bay; Miss Hutchins. Coast of Clare; W. H. Harvey. Colour a pale pinky-brown.


On rocks and on the larger Algæ. On the Coast of Waterford, near Ballycotton; Miss Ball. Summer.—6—8 inches high. Readily distinguished by its very slender, uniform, ultimate ramuli or pinnules.


Frond cylindrical, filiform (often constricted as if jointed), between gelatinous and cartilaginous, of a pinky-red colour.
Fruct. of two kinds: 1. spherical, ovate or conical capsules, with wedge-shaped or angular seeds; 2. imbedded, ternate granules.—Name; κυλός, juice, and κλαδόν, a branch; from the succulent nature of the frond.

* Frond without constrictions.


Sea-shores, rather rare. Bantry; Miss Hutchins. Kilkee; W. H. Harvey. Black rocks, Portrush; Mr. D. Moore. Very variable in ramification, and best distinguished from our native species by its unconstricted frond and slender ramuli.

** Ramuli elliptical, rarely somewhat elongated and constricted.


On rocks in the sea, not rare. 4—6 inches high, slightly branched, beset in the upper part with elliptical, rarely elongated ramuli, resembling the leaves of a Sedum.

*** Frond constricted as if jointed.


Sea-shores; particularly fine in Bantry bay; Miss Hutchins.


Parasitic on the larger Algae. Bantry; Miss Hutchins. Miltown Malbay; W. H. Harvey. Black rocks, Portrush; Mr. D. Moore.
Surely very distinct from the preceding. I have received specimens from the Coast of North America, near New York, precisely agreeing with our Irish plant in every character.


On rocks and the larger Algae, very common. Fronds 4—12 inches in length, dark-red, excessively branched in a dichotomous manner, and catenulato-constricted throughout.


Frond more or less cartilaginous, filiform, cylindrical or compressed, irregularly branched, of a dull-red colour. Fruct.: capsules containing a mass of minute roundish seeds, and (in many of the species, perhaps in all,) roundish or oblong simple granules, imbedded in the fronds of distinct plants. Grev. Hook.—Name, from γαρπατος, a grape stone, which the seeds somewhat resemble, as seen through the capsule. (!) Hook.


Rocky shores, very common.


Sea-shores, not rare. Bantry; Miss Hutchins. Miltown Malbay, and near Dublin; W. H. Harvey. Black rocks, Portrush; Mr. D. Moore.


Sand-covered rocks. Bangor, County of Down; W. Thompson, Esq. 4. February, March. It is slender, erect, rigid, 2—4 inches
high, and bears, besides the true capsules, lanceolate pod-like receptacles, containing oblong and scattered granules imbedded in the circumference.


Very rare. Belfast; Mr. Templeton.


Rather rare. Bantry; Miss Hutchins. Dalbriggan; Dr. Scott. Dark-red, rigid, entangled, 2—4 inches high.


Rocky shores, common. 4—8 inches high, remarkably wiry and entangled.

46. CHONDRUS. Stackh. Chondrus.

*Frons* cartilaginous, dilating upwards into flat, nerveless, dichotomously divided segments, of a purplish or reddish colour. *Fruct.*: subsphaerical capsules, in the substance of the frond (rarely supported on little stalks), containing a mass of minute free seeds. (Grev.)—Name: χονδρός, cartilage; in allusion to the substance of the frond.


Rocky shores, very common.

Rocky shores, common. Very variable in size, shape, and colour, (often of a full green); yet the accustomed eye will find little difficulty in recognising it under all its varieties. On our western shores it is collected in large quantities by poor women and children, and sold under the name of Blanc-mange-weed, (or, as they pronounce it, Bullamonge.) At one time it sold in Dublin at two shillings per pound, but latterly the price has greatly fallen away. It may now be bought, washed and dried, on the west of the County of Clare, at from one shilling to one shilling and six pence per stone, of sixteen pounds.


Rocky shores, rare. Bantry; Miss Hutchins. Youghal; Miss Ball. Miltown Malbay; W. H. Harvey. Fronds 2—3 inches high, purplish-red, thinner than those of *C. crispus*. This species is omitted by mistake in Dr. Hooker's British Flora.


Rocky shores, not uncommon. Youghal; Miss Ball.


Found only among rejectamenta on our northern shores. Mouth of the river Bann, County of Derry; Mr. D. Moore. Larne, County of Antrim; Dr. Drummond. Strangford Lough, County of Down; Mr. W. Thompson.


*Frond* cartilaginous or membranaceous, of a purple rose-red colour, plane, proliferous from the disk, furnished with a more or less imperfect or obscure midrib. *Fruct.*: 1. *Capsules*, containing a mass of minute, roundish, free seeds; 2. *Sori* of simple *granules*, in little foliaceous processes. *Grev.*—Name; φύλλον, a leaf; and φορέω, to bear; the frond being proliferous.

1. *P. rubens*, Grev. *Red Phyllophora.* Stipes very short, expanding into a sublinear, obscurely ribbed frond, which is repeatedly branched in a proliferous manner; innovations re-
sembling the primary frond; capsules sessile, wrinkled. *Hook.
E. Bot. t. 1053.

Rocky shores, not uncommon. Belfast; *Dr. Drummond. West
of Ireland, very common, where it reaches a large size. Fronds 2—8
inches long, of a dull full red colour.


*Frond* cartilaginous, compressed, two-edged, linear, distich-
ously branched. *Fruct.*: mucronate capsules, containing a
mass of ovate, shortly pedicellate, red seeds. *Grev.*—Name;
σφαύρα, a sphere or globe, and κόκκος, fruit; the capsules are
globose.

1. *S. coronopifolius*, Ag. *Swinè's-cress leaved* *Sphèrococcus.*
*Frond* cartilaginous, much branched in a distichous and alter-
nate manner, compressed and two-edged below, nearly flat up-
wards; the branches acute at the apex; capsules sphærical,
mucronate in little stalks fringing the smaller branches. *Grev.*
E. Bot. t. 1478.

Sea-shores, not rare. Bantry; *Miss Hutchins. Belfast; Mr. Tem-
pleton and Dr. Drummond. Miltown Malbay; W. H. Harvey.
4—8 inches long, bright red, becoming darker in drying.


*Frond* between cartilaginous and horny, compressed, linear,
more or less regularly pinnated. *Fruct.*: 1. *Capsules*, im-
bedded in the substance of the ramuli, containing a mass of
minute roundish seeds; 2. ternate or otherwise compound
*granules* in the ramuli, on distinct individuals. *Grev.*—Name,
in allusion to the gelatinous nature of some species when
macerated.

cartilaginous and horny, nearly flat; distichously branched;
branches linear, attenuated at each end, pinnate and bipinnate;
pinnules mostly opposite, patent, obtuse, bearing within their

Rocky coasts, everywhere. A most variable plant, of which fifteen
distinct varieties are enumerated as natives of our shores. The most
remarkable of these is the var. *latifolium* of Dr. Greville, which is not
uncommon at Miltown Malbay. In this the main stem is very broad,
(1—2 lines,) quite flat, and more or less bipinnate; the ultimate pin-
nules very short; colour a bright rose-red.

Frond compressed or flat, pectinato-pinnate, of a red colour, between membranaceous and cartilaginous. Fruct.: minute, aggregated capsules, surrounded by an involucre. Grev.—Name; πτιλωτος, pinnated; from the delicately pinnated fronds.

1. P. plumosa, Ag. Feathered Ptilota. Frond compressed, filiform, much branched; the branches repeatedly pectinato-pinnate; pinnae and pinnulae exactly opposite; the latter minute, subulate, and bearing the clustered capsules. Hook. Br. Fl. v. ii. p. 307.—Fucus plumosus. Turn. Hist. t. 60. E. Bot. t. 1308.—β. capillaris; frond very narrow, flaccid; ramuli jointed. Turn. l. c.

Rocky shores. a. on the stalks of the larger Algae. β. on the faces of perpendicular rocks. 6—18 inches long, many times pinnated, of a full red or brownish colour, (in β.)

Tribe XIII. CERAMIEÆ.

Plants marine (except some species of Trentepohlia), of a red, purple or reddish-brown, rarely brown colour, staining fresh water with more or less of a red hue, of a cartilaginous or membranaceous substance and cellular texture. Frond filamentous, cylindrical or compressed, articulate. Fructification double: 1. Capsules, containing a mass of seeds; 2. granules, contained in proper receptacles or in distorted ramuli.


Frond filamentous, partially or generally articulate; the articulations longitudinally striate, with internal parallel tubes. Fruit double: 1. ovate capsules, furnished with a terminal pore, and containing pyriform seeds; 2. granules, immersed in swollen ramuli.—Name; πολως, many, and σφων, a tube; from the structure of the frond.—The species of this genus are numerous, and very difficult of determination; and I freely confess, that I by no means fully understand all our native ones. Many new ones will, doubtless, be discovered on our shores by future observers, (for our rich coasts have been but very imperfectly explored); and some, which I even possess in my Herbarium, I have feared to introduce, until I can have better opportunities of tracing them in their places of growth.
A. Main filaments inarticulate.


Bantry bay; Miss Hutchins. Black rocks, Portrush; Mr. D. Moore. In the British Flora I confounded the two following under this species, and the "Miltown Malbay" station, given in that work, belongs to P. thuyoides. The true P. fruticulosa is readily distinguished by its diffuse growth, different ramification, and by the horizontal multifid ramuli which clothe the stems.

2. P. thuyoides, Harv. MSS. Arbor-Vitae Polysiphonia. Stems tufted, rising from creeping filaments, erect, terete; below simple, and set with short spine-like ramuli; above, much and fasciculately branched; branches crowded round the apices, very erect, bipinnate; pinnae pinnato-multifid; axils rounded; articulations of the ramuli shorter than broad; dissepiments opaque; veins anastomosing. P. fruticulosa, Harv. in Hook. Br. Fl. l. c. (in part.)

Rocky shores. Very abundant at Miltown Malbay. Portrush bay; Mr. D. Moore. 3—4 inches high, dull brown. Capsules very rare. Granules and antheridia very frequently produced. The habit of this is very different from that of the preceding; indeed, at first sight, it might readily be mistaken for P. nigrescens, a plant of a totally different structure. I am not aware that it has been previously described.

3. P. cristata, Harv. MSS. Crested Polysiphonia. Stem erect, compressed, subsimple below, decomposite above; branches erecto-patent, more or less regularly bipinnate (as is also the stem to the base); lower pinnae very short, their pinnules simple and broadly subulate; upper longer, with pinnato-multifid pinnules; axils all acute; ramuli, as well as branches, inarticulate, reticulated with veins. Fucus cristatus.—γ. Miss Hutchins in Herb. (not of Turner.)

Very rare. Bantry bay; Miss Hutchins. If specimens, which I possess through the kindness of Dr. Hooker, be correctly named, (which I have no reason to doubt,) this is not the var. γ. of Turner's Fucus cristatus (Rhodomenia cristata, Grev.) and, consequently, not the Rytiphlaea complanata of Agardh. Indeed, if the genus Rytiphlaea be characterized by a transversely striate frond, this has no claims to admission into it. This species is alluded to in the British Flora, under P. fruticulosa, as a beautiful variety of that species, found at Whitsand bay by Mr. Walter Arnott.

Rocky shores; common on our western coasts.


At Rosse’s bay, North of Ireland; *Mr. D. Moore*. 6—12 inches high. *Filaments* as thick as those of *P. elongata*, inarticulate, marked with flexuose veins, dull red. *Ramuli* long, bright crimson, few in the winter state, but, as spring advances, abundantly clothing the upper branches, and spreading in broad fascicles. To *P. elongata* this species bears a very strong external resemblance, but the inarticulate stems, and the long-jointed bistriated ramuli, which are, moreover, not in the least attenuated at the base, will always serve to keep it distinct.

**B. Filaments articulate throughout.**

* Articulations marked with two striae.


Rocky shores. Bantry; *Miss Hutchins*. Malbay; *W. H. Harvey*. Portrush, black rocks; *Mr. D. Moore*. 2—10 inches long, very delicate, flaccid and gelatinous, forming loose tufts. *Articulations* very variable in length.


Rocky shores. Bantry; *Miss Hutchins*. Black rocks, Portrush; *Mr. D. Moore*. A very confused species, which I regret I have no opportunities at present of clearing up. Many distinct species appear to be confounded under this name, both by authors and herbarists.

Filaments rising from a mass of creeping fibres, tufted and interwoven, short, very slender, flexuose, sparingly and irregularly dichotomous, more or less furnished with very patent or recurved simple ramuli; articulations variable in length, bi-striate; capsules urceolate, very large (in proportion to the diameter of the filament), scattered.

On rocks and Algae in the sea; probably not uncommon. At Portstewart; Mr. D. Moore. Miltown Malbay; W. H. Harvey. Tufts dense, intricate, about an inch in height, composed of very slender, capillary, flexuose filaments, brownish-red. I have long known this species on the western coast, but have hitherto feared to introduce it. It resembles *P. urceolata* or *P. patens* in miniature, but is of a very flaccid substance, and not one-fourth the size of either of those species; and is, moreover, well distinguished by the very large size of the capsule in proportion to the diameter of the filament. Like *P. strieta*, and several exotic species, the stems rise from a mass of interwoven fibres.


On rocks and the larger Algae. Closely allied to the following, from which it chiefly differs in its less squarrose ramifications.


** Articulations multistriate.

† *Rigid; stricæ 3, ramuli spineæform.*


On the larger Algae and on rocks, not uncommon. Bantry bay; Miss Hutchins. Kilkee; and under "the Black Castle," Wicklow, very fine. 1—2 inches high, full red, slender; delicately and beautifully bipinnate.
†† Rigid; dark-red or brown, striæ numerous.


Rocky shores; not uncommon. 2—6 inches high, dark red, densely tufted. With the consent of my friend, Dr. Greville, I gladly refer his P. Agardhiana to this species; and I feel no hesitation in adopting a similar course with P. badia and denudata.


Found among rejectamenta on the strand near Ballymacarret, April 10th, 1836; Dr. Drummond. Sparingly branched at the base, much and fasciculately branched upwards; branches long, patent, subdichotomous, the secondary ones very erect, almost appressed, with roundish axillæ. Ramuli elongated, virgate, straight, simple, or with a few ramular processes near the apex, often fibrilose. Articulations 5—7 striæ, the basal ones very short, but rapidly elongating. Colour a dull red. Substance flaccid, adhering to paper.—Doctor Drummond’s specimens are from 6—10 inches long, but destitute of fruit, which is described by Dr. Hooker as being shortly pedicellate, ovate or suburceolate, with an elongated but not contracted neck; scattered over the ramuli.


Rocky shores, common. A very variable plant, and, perhaps, more than one species is confounded under this name. Mrs. Griffiths has communicated a beautiful variety (?), from Larderham, which she is inclined to consider a distinct species; and I gathered a similar plant at the Black Castle, Wicklow. In this all the branches are perfectly distichous and remarkably patent, the stem is subcompressed, and the whole plant has a decompoundo-pinnate character. Future observations may prove it truly distinct.

Parasitic on Fucus nodosus and F. vesiculosus, very common. Dark brown, rigid, forming round bushy tufts.

††† Stems rigid, cartilaginous; ramuli flaccid, delicate.

16. P. elongata, Grev. Lobster-horn Polysiphonia. Stems robust, cartilaginous, irregularly branched, beset, especially toward the apex, with slender, broadly fasciculate ramuli, attenuated at the base; articulations about as long as broad, those of the stem reticulated with veins. Harv. l. c.—Conf. elongata, Dillw. t. 38. E. Bot. t. 2429.

Sea-shores, common. The largest of our native species, with very robust stems. It varies both in the ramification, and in the more or less crowded ramuli (in some varieties they are entirely wanting); yet the student will readily recognise it under all its appearances. The stems are of a dull red colour; the ramuli are brilliant crimson.


Bantry bay; Miss Hutchins. Very common on our eastern and rare on our western shores. A delicate species, fine red when quite recent, but rapidly changing to a dull brown in fresh water, or on exposure to the air. It is easily distinguished from all our native species by its single-tubed ramuli: indeed this character, together with its peculiar habit, would lead one to suspect that it belonged more properly to Dasya than Polysiphonia, but it does not produce the stichidia peculiar to that genus.

52. Dasya. Ag. Dasya.

Frond filamentous; main filaments inarticulate, cartilaginous, beset with articulated, penicellate or pinnate, single-tubed ramuli. Fructification double: 1. coriaceo-acuminate capsules, furnished with a terminal pore, and containing pear-shaped seeds: 2. lanceolate receptacles (stichidia), containing granules set in transverse fascia.—Name; catus, hairy; in allusion to the slender ramuli.

1. D. coccinea, Ag. Scarlet Dasya. Stems elongated, robust, irregularly branched; branches bipinnate; pinnulae fasciculato-multifid; articulations of the ramuli as long as broad.

2 c

Sea-shores, common. 6—8 inches high, bright red, and beautifully pinnate. Stems thick, densely villose.


Very rare. Black Castle, Wicklow; W. H. Harvey.


Rocky shores, not uncommon. Bantry bay; Miss Hutchins. Mil-town Malbay; Kingstown Harbour; Killiney, and Wicklow; W. H. Harvey. Arran; Mr. R. Ball. Stems tufted, 2—4 inches high, much branched, and well distinguished from the preceding by the form of its receptacles. As stated in the British Flora, this species was once confounded with the very different Callithamnion Arbuscula; and Dillwynn figure, (t. G.) which represents its fruit, being referred by him to the latter species, has caused no small perplexity to botanists imperfectly acquainted with either.


Frond filamentous: filaments articulated, mostly dichotomously branched, reticulated with veins; disseipements opaque. Fructification double: 1. Capsules with a membranaceous pericarp, containing numerous angular seeds; 2. simple oblong granules, imbedded in the ramuli.—Name; κέραμος, a little pitcher; from the form of the capsules; but as the genus now stands, the resemblance is not striking.


On rocks and Algae, very common.

2. C. diaphanum, Roth. Variegated Ceramium. Filaments thickish, irregularly branched, set with lateral, slender, dichotomous ramuli; disseipements swollen, opaque; articulations hyaline, those of the principal stems 3—4 times as long as broad, of the ramuli very short. Harv. in Hook. Br. Fl. v. ii.
Sea-shore, on various Alge, common.


Sea-shores. At the instance of my valued friend, Mrs. Griffiths, I have ventured to separate this species from C. diaphanum, with which all previous authors have confounded it. It has, however, a very different habit and ramification, and is, at least, as distinct as some other species of the genus. Mrs. Griffiths has so well pointed out, in a letter to me, the characters which peculiarly distinguish it from C. diaphanum, that I cannot do better than quote her words: “Pray observe that C. fastigiatum has no principal stem or branches; that it is uniformly and constantly dichotomous and level-topped, and that the threads of which the tuft is composed are of an equal diameter from the base to the summit; and this holds good in plants from all parts of the coast. Now C. diaphanum has a principal stem and branches, divides irregularly, almost distichously, the extremities almost fan-shaped, and very unequal at the top; the joints are also more distant and irregular.” Mrs. G. in litt.


On rocks, corallines, &c. A very variable plant, both in general appearance and in the nature and number of the prickles; and, perhaps, future observations may show the propriety of resolving it into several species. But without a careful examination of specimens from all parts of the coast, such a proceeding would, in all probability, serve no other purpose than that of burdening the science with useless synonyms.


Frond filamentous; filaments articulated throughout, mostly dichotomous; ramuli single-tubed, often whorled; dissepiments hyaline. Fructification double: 1. clustered capsules with hyaline pericarps; 2. roundish, gelatinous, involucrated receptacles (flavellae), including minute granules.—Named by Agardh, in honour of Mrs. Griffiths of Torquay, a most acute and indefatigable Algologist, to whose exertions the British Flora stands indebted for many of its most beautiful species.

1. G. equisetifolia, Ag. Equisetum-like Griffithsia. Fila-

On our western shores, common. Stems 6—12 inches high, very robust and much branched. Branches tapering to a point. Fructification imperfectly known.


At Ardinary Point, County of Wicklow, among rejectamenta; and growing very sparingly on rocks underneath Black Castle, Wicklow; W. H. Harvey. 4—8 inches high, slender, (compared with G. equisetifolia,) much branched. Branches long, mostly simple, the smaller ones often bare of ramuli, the larger closely whorled with straight branchlets forked at the base. This rare and beautiful species is closely allied to the preceding, but is well distinguished by its straight and nearly simple whorled ramuli. Fruit unknown.


Rocky shores, not very uncommon. Bantry; Miss Hutchins. Kilkee and Miltown Malbay; W. H. Harvey. 2—6 inches high, slender. Capsules minute, scattered on the whorled ramuli.


Sea-shores, not uncommon. 3—8 inches long, forming dense, often inextricable tufts. Filaments slender, naked, throwing out occasional creeping fibres. Involucres raised on lateral clavate peduncles.


Very rare. South Bull; W. H. Harvey. Black rocks, Portrush; Mr. D. Moure.

55. CALLITHAMNION. Lyngb. Callithamnion.

Frond filamentous; filaments articulate, mostly pinnate, one-tubed; disseipments hyaline. Fructification: 1. trisporous capsules with hyaline pericarps, scattered on the ultimate ramuli; 2. roundish or lobed gelatinous receptacles (flavellæ),
containing large granules, seated on the main branches.—

Name; καλός, beautiful, and δαμφος, a shrub. A most difficult genus, forming endless species and varieties. In the following descriptions, the term “plumula” is applied to a penultimate-branchlet, when pinnate or bipinnate.

A. Filaments erect, much branched, not rising from creeping fibres.

a. Ramuli opposite.


Sea-shores, not common. Bantry; Miss Hutchins. Killiney; W. H. Harvey. Black rocks, Portrush; Mr. D. Moore. 2—4 inches high, much branched, fine rose-red. This is well marked by its very peculiar and symmetrical ramuli.


Very rare. Miltown Malbay; W. H. Harvey. About an inch high, distantly branched, forming small tufts; each articulation furnished with a pair of very short pinnated ramuli.

b. Ramuli alternate; pinnate or dichotomous.

1. Secondary branches pinnate or plumulate.

† Main stems inarticulate.


On rocks and shells, on our northern and western shores, very common; but not found, that I am aware, on the east coast. 3—5 inches

* By main articulations will be understood, the articulations of the stem or branches, in contra-distinction to those of the ramuli.
high, deep claret colour. *Stems* as thick as a crow quill, simple below, much branched above.

4. C. lanosum, Harv. *Woolly Callithamnion*. Stem slender, inarticulate (or very indistinctly jointed), much branched; branches jointed, excessively divided, entangled, flexuose, spreading; plumules crowded, quadricharious, broadly ovate, obtuse; lower pinnules simple, divaricate; upper spreading and subpinnulate; articulations of the branches 2—3 times longer than broad, of the pinnæ shorter; capsules subsolitary. *Harv. in Hook. Br. Fl. v. ii.* p. 341.

At Killiney and Wicklow; *W. H. Harvey*. 1—3 inches high, rose-red, much entangled. In drying it fades to a dull pink, wholly without gloss; and on re-immersion is extremely fragile, and quickly loses colour. Its nearest affinity is with *C. roseum*.

†† *Main stems* more or less distinctly articulate.

*Plumules* lax, ovate, lanceolate or irregular, subsimply pinnate.

5. C. roseum, Ag. *Rosy Callithamnion*. Stems much and loosely branched; secondary branches long, flexuose, subdistichously plumulate; plumules lax, with a roundish outline, crowded toward the tops of the branches; pinnules long, patent, subsimply and flexuose; main articulations 4—5 times, those of the pinnæ 2—3 times, longer than broad; capsules elliptical, scattered, near the base of the pinnæ. *Harv. in Hook. Br. Fl. v. ii.* p. 341.— *Conf. rosea*, *E. Bot. t.* 966. *Dillw. t.* 17.? ?— *Cer. roseum*, Roth.

On the larger Alge. Bantry; *Miss Hutchins*. Arran; *J. T. Mackay*. 2—4 inches high, excessively branched; branches long and flexuose, distichous or quadricharious. *Plumules* fasciculate toward the summit. 4—6 lines long, the lower pinnules simple, the upper sparingly pinnulate about the apices. *Colour* purple-red. *Main articulations* somewhat opaque, filled with jointed veins.

6. C. polyspernum, Ag. *Many-fruited Callithamnion*. Filaments slender, delicate, loosely branched, somewhat naked below, distichously plumulate above; plumules linear-oblong (in outline); pinnæ short, simple, patent, acute, spine-like; articulations of the branches 4—5 times, of the ramuli twice as long as broad; capsules lining the inner faces of the pinnæ. *Harv. in Hook. Br. Fl. v. ii.* p. 342.

Bantry bay; *Miss Hutchins*. Youghal; *Miss Ball*. Portrush; *Mr. D. Moore*. 1—3 inches high, somewhat naked or with short branches at the base, much and sub-flabellately branched upwards; lower part of the branches set with spine-like ramuli, upper alternately plumulate. *Plumules* simply pinnate, the pinnæ nearly of equal length throughout. *Colour* full dark red. *Main articulations* swollen at the joints, with a very narrow tube.

branches densely ramulose, hairy below, plumulate above; plumules crowded, quadrifarious, oval, simply pinnate; pinnae acute, basally attenuate, erecto-patent; articulations 2—3 times longer than broad; capsules elliptical, minute, on short lateral processes of the pinnule. Harv. in Hook. Br. Fl. v. ii. p. 342. Conf. tetragona, Dillw. t. 81. E. Bot. t. 1915.

Rocky shores; common on our western and southern coasts. 2—8 inches long, forming dense ropy tufts, of a dull red-brown colour.

8. C. tetragonum, Ag. Square-stalked Callithamnion. Stem robust, naked below, decomposito-pinnately branched; branches patent, set with short, alternate, spreading plumules, which are pinnate below, and fasciculately multifid above; apices obtuse, with a mucro; articulations once and half as long as broad; joints contracted. Harv. in Hook. Br. Fl. v. ii. p. 343.—Conf. tetragona, Dillw. t. 65. E. Bot. t. 1690.

On the larger Algae, not uncommon. 3—8 inches high, dull red, becoming brownish in the herbarium. The robust, cartilaginous, and many times pinnate stems, with the short articulations, and ramuli contracted at the apex, (thus suddenly acuminate,) distinguish this species.

9. C. granulatum, Ag. (?) Warted Callithamnion. Stem robust, naked below, pinnately branched; branches erecto-patent, set with short, subquadri Jeffarious, erect plumules, which are pinnate below, and multifid and level-topped above; pinnules subulate, very erect and close pressed; articulations of the ramuli twice as long as broad. Harv. in Hook. Br. Fl. v. ii. p. 343. Ag. Sp. Alg. v. ii. p. 177. ?

At Kilkee, County of Clare, on Codium tomentosum. 2—4 inches high. Stems mostly simple, set with alternate branches; each frond with a lanceolate outline. Colour brownish-red.—It must be confessed that this borders very closely, indeed, on the preceding, from which it is best distinguished by its more erect and level-topped plumules, subulate pinnules, and rather longer joints. But, after all, perhaps, it is not sufficiently entitled to specific rank. Having seen no authentic specimens of Agardh's plant, I am unable, with certainty, to quote his work, but his description agrees pretty fully with our Irish specimens.

10. C. Grevillii, Harv. Greville's Callithamnion. Slender, sparingly and distichously branched; plumules linear-ovovate, round-topped; pinnæ erect; the lower ones short and spine-like the upper long, branched at top; articulations of branches 2—3 times, of pinnules once and half as long as broad. Harv. in Hook. Br. Fl. v. ii. p. 345.—C. roseum, Grev., Fl. Edin. p. 311. (not of Roth.)

On rocks and Algae in the sea. Bantry bay; Miss Hutchins. 1—2 inches high, forming small tufts. Branches long, their lower part furnished with short irregular ramuli, their upper half distichously plumulate. Plumules long, narrow-ovovate; upper pinnæ alternately branched at top. Colour purplish-red.
* * Plumules dense, lanceolate or narrow-oblong, bipinnate.

11. C. gracillimum, Ag. Graceful Callithamnion. Filaments capillary, decomposito-pinnate, distichous; upper plumules long, narrow-ovate or sublanceolate, patent, bi-tripinnate; main articulations cylindrical, 3—4 times, those of the pinnæ 2—3 times longer than broad; capsules terminal on the plumes. Harr. in Hook. Br. Fl. v. ii. p. 345.

Very rare. Black Castle, Wicklow; W. H. Harvey. Filaments 1—4 inches high, distichously branched, many times pinnate; the outline of the principal branches broadly ovate, and resembling most delicate ferns in miniature. Colour rose-red.

2. Secondary or smaller branches alternately dichotomous. Capsules elliptical, solitary, mostly axillary; favella binate.


Rare. Bantry bay; Miss Hutchins. South Bull, Dublin; W. H. Harvey. 1—3 inches high, excessively delicate and tender, much branched, secondary branches byssoid, rose-red. I have been favoured with an extensive series of this variable plant by my kind friends, Mrs. Griffiths and Miss Cutler; and now fully agree with these acute botanists in considering the C. byssoidæum of the Br. Fl. only as a variety, whose peculiar characters probably depend on age. The position of the capsules, which I had hoped constant, is very variable; and they are often lateral and axillary in the same individual.


Very rare. South Bull, Dublin, (a single specimen); W. H. Harvey. 3—4 inches high, as thick as hog's bristle at base, distichously branched, of a fine rose-red colour. A larger and coarser plant than C. corymbosum, the branches pinnate and naked at base.—β. is a very remarkable variety discovered at Torquay by Mrs. Griffiths, in which the ultimate ramuli seem resolved into chain-like strings of capsules; each joint having the appearance and structure of a capsule. This variety
of fructification I have never seen produced in any other species of the genus.


On perpendicular rocks on our eastern shores; as at Kingstown, Killiney, Wicklow, &c. where it occupies the place that C. Arbuscula and tetricum hold on the western; W. H. Harvey. 2—4 inches high, flaccid. Stems shrubby. Branches spreading in every direction, and densely clothed with short secondary branches. Colour a red-brown.


Rare. Bantry; Miss Hutchins. Miltown Malbay; W. H. Harvey. Stems 2—6 inches high, as thick as horse hair. Branches sparingly divided, springing near the base, irregularly set with short ramuli, which are crowded round the apices in a penicellate manner; apices always very blunt. Capsules dark pyriform, seated on hyaline pedicels. Colour full pink, which is almost instantly discharged in fresh water, when the plant assumes a dull brown hue and rapidly decomposes.

B. Small parasitical species, rising from creeping filaments; branches erect. Receptacles pedicellate, involucrate.


On the larger Algae, not uncommon. Tufts 1—2 inches high.


On the stems of Laminaria digitata. Bantry; Miss Hutchins. Malbay; W. H. Harvey. Stems half an inch high, resembling beautiful minute feathers.
18. C. repens, Lyngb. Creeping Callithamnion. Stems rising from creeping filaments, erect, sparingly branched; branches alternate, patent, with a few short ramuli; articulations of the stem 3—6 times longer than broad. Harv. in Hook. Br. Fl. v. ii. p. 348.—Conf. repens, Dillw. t. 18. E. Bot. t. 1608. (the young plant.)

On the larger Algae. I fear this is not sufficiently distinct from some states of C. Turneri.

56. TRENTEPOLHIA. Ag. Trentepohlia.

Frond filamentous; filaments (minute, mostly parasitical,) erect, coloured, articulated; dissepiments hyaline. Fructification tufted, mostly terminal capsules.—Named in honour of a German Botanist.—This appears to me a very natural little group, though in essential character scarcely differing from Callithamnion. The species are mostly minute parasites.

* Growing in the sea, or on maritime rocks.


Marine rocks, near high-water mark. Tufts $\frac{1}{2}$—1 inch high, dense, deep red or purple. Capsules clustered, borne on short terminal subdichotomous ramuli.


Rocks near low-water mark, Galway Coast; J. T. Mackay. Antrim; Dr. Scott. This, I imagine, is only C. Rothii, altered by growing in deeper water.


On rocks by the sea-coast, beyond high-water mark. Perhaps I am incorrect in introducing this species, (a native of the West of Scotland and England,) to the Irish Flora, without having a certain knowledge of its existence on our shores, though it is more than probable that it abounds on the trap rocks of our northern and western coasts. My apology for so doing is a desire to contrast it with T. Rothii and
floridulum, in order to show how very slight are its distinguishing characters.

4. T. sparsa, Harv. Scattered Trentepohlia. Filaments minutely tufted, scattered, sparingly branched; branches spreading, unequal; articulations twice or thrice as long as broad; "capsules obovate, sessile, mostly axillary." (Carm.) Callith. sparsum, Harv. in Hook. Br. Fl. v. ii. p. 348. — C. floridulum, Lyngb. ?

On various marine Algae. On Conf. rupestris, at Miltown Malbay; W. H. Harvey. Scarcely a line high. Distinguished from T. purpurea by its scattered habit and different habitat.


On Ceramium rubrum, at Bantry; Miss Hutchins and Mr. R. Ball. 2—4 lines high, elegantly tufted.


On Porphyra laciniata, Alaria esculentia, &c. A line or less in height, forming minute tufts or spreading in continuous velvety patches. Capsules tufted, terminal, on abbreviated ramuli.


On decaying filamentous Algae, especially Cer. rubrum, very common. The most minute of the genus.

** Growing in fresh water.


In mountain streams; growing on the naked rock, or on aquatic mose. About Killarney, Glengariff, &c. ¼—½ inch long, much
branched. In \( \alpha \) rose-red, in \( \beta \) dull bluish-grey. This closely resembles the marine *T. virgatula*.

**DIV. III. CHLOROSPERMEÆ.**

Plants growing either in the sea, in fresh water, on damp ground, or in anomalous situations; filamentous, membranaceous, or amorphous; either hyaline or (owing to the presence of an internal granular mass), of a grass green, very rarely purple colour. Fructification: green or purple sporules, either filling the frond or collected into sporidia, rarely forming external capsules.

**TRIBE XIV. LEMANIEÆ.**

*Plants growing in fresh water, filamentous, inarticulate, of a cartilagino-coriaceous substance and cellular structure. Fronds hollow, furnished at irregular distances with whorls of papille, or moniliform. Fructification: fasciculate, simple or dichotomous, moniliform filaments, attached to the inner surface of the tubular frond, and finally dissolved into elliptic sporules.*


*Frond* filiform, tubular, coriaceous, cellular, torulose. *Fructification*: hyaline sporules, aggregated into moniliform, simple or branched penicellate filaments, attached to the inner face of the tubular frond.—Name in honour of a French Allogologist, M. Leman.


Rocky beds of rivers, in subalpine districts. Common in the rivulets about Killarney, &c.

**TRIBE XV. BATRACHOSPERMEÆ.**

*Plants growing in fresh water, filamentous, articulate, invested with gelatine. Fronds composed of aggregated, articulate, longitudinal fibres, whorled at uncertain intervals with short, horizontal, moniliform ramuli. Fructification: dense globular*
masses attached to the verticillate ramuli, and consisting of minute, radiating, dichotomous, moniliform filaments.

58. **Batrachospermum.** Roth. *Batrachospermum.*

Main filaments invested with gelatine, hyaline, tubular, longitudinally striated, composed of colourless jointed fibres, agglutinated together, beset with distant whorls of moniliform ramuli. *Fructification:* globules of dense filaments attached to the ramuli.—Name: βατραχόσ, a *frog,* and σπέρμα, *frog-spawn*; which the species, when removed from the water, resemble. This genus is in structure allied to *Trichocladia* and *Mesogloia,* but essentially differs in the structure of its fructification. Indeed the *Batrachospermea* are much in the same way related to the *Gloiocladea,* as the *Alismaceae* are to the *Ranunculaceae.*


In alpine bogs and lakes. This beautiful species varies in colour, from dull to bright and even aeruginose green; under the microscope it is hyaline.


In sub-alpine rivulets. Scarcely differs from the former, but by its rather more distant whorls.

**Tribe XVI. Chætophoroidæ.**

Plants growing in the sea or in fresh water, invested with gelatine, either filiform, or (a number of filaments being collected together) formed into gelatinous amorphous fronds. Filaments articulate; articulations hyaline in the middle, coloured at the dissepiments. *Fructification:* so far as known, minute capsules attached to the ramuli.

59. **Bulbochæte.** Ag. *Bulbochæte.*

Filaments free, articulated, branched; each articulation bearing at its truncate apex either an elongated, inarticulate, deciduous seta, or a sessile, sphaerical capsule; base of the seta scutate, amplexicaul.—Name: βόλβας, a *bulb,* and χαίτη, a
bristle; in allusion to the setaceous ramuli with swollen bases.


On fresh water plants, in lakes, &c. About half an inch long, densely tufted, dull greenish-brown.

60. DRAPARNALDIA. Bory. *Draparnaldia.*

*Filaments* free, gelatinous; stems subhyaline, emitting, at the joints, pencils of coloured ramuli. *Fructification* not certainly known.—Named in honour of *J. P. R. Draparnaud,* a French Naturalist.


In streams and wells.


In streams and wells. This scarcely differs from the preceding.


In rivulets. This has quite the habit of *Conferva,* and very different, indeed, from that of the two former species.

61. CHÆTOPHORA. Ag. *Chætophora.*

*Frond* gelatinous, globose or lobed, rarely plane and crustaceous, composed of numerous filaments aggregated together, and issuing from a common base. *Filaments* articulated, branched; articulations of the branches subhyaline, those of the ramuli coloured. *Fructification:* capsules attached to the ramuli.—Name; χατώτη, a bristle, and φορέω, to bear; the ramuli are, in some stage of growth, tipped with long setaceous points or bristles. *Fructification* has only been discovered on *C. pisiformis* and *C. pellita.*

1. Grow in fresh water.

1. C. endiviæfolia, Ag. *Stag’s-horn Chætophora.* Frond elongated, filiform, somewhat compressed, subdichotomously

In lakes and streams, attached to stones.


In boggy pools.


In stagnant pools.


Rocks and stones in the sea. Miltown Malbay; W. H. Harvey.


**Mass** gelatinous (exceedingly minute), effused, composed of very short, clavate, erect, mostly simple filaments, “fixed at their base to a thin expansion” (Grev.) *Fruit:* capsules at the base among the filaments.—Name; μυριος, a thousand, and νημα, a filament.


On various Algae, parasitical. 1—2 lines in diameter, brown.

**Tribe XVII. Conferveæ.**

*Plants growing in the sea or in fresh water, filamentous, articulate, without definite gelatine. Fronds very variable in appearance, simple or branched; articulations more or less filled with a green, very rarely brown or purple, granular mass, which affects various forms, and is supposed to be of a sporaceous nature.*
63. Conferva. Ag. Conferva.

Filaments articulated, free, distinct, uniform, simple or branched. Fruit (?) an internal, coloured, granular mass (endochrome). Colour green, rarely purple or orange.—Name, from confer-ruminare, to consolidate.

A. Filaments simple.

a. Filaments decumbent, arachnoid, forming strata of a purple colour. Inhabit alpine bogs.


On dry heaths, frequent: occasionally in wet spots.

2. C. purpurascens, Carm. Purple Conferva. Filaments very slender, simple, forming a cloudy, floating, purple stratum; articulations once or twice as long as broad; endochrome collapsed, pale, rarely filling the tube. Harv. in Hook. Br. Fl. v. ii. p. 350.

In old turf pits, bogs, &c.

b. Filaments elongated, floating, rarely attached, flaccid, forming green strata. Inhabit fresh water.


In stagnant waters, infesting aquatic plants.

4. C. floccosa, Ag. Floccose Conferva. Filaments very fine, forming pale-green floating strata; articulations once or twice as long as broad. Harv. in Hook. Br. Fl. v. ii. p. 351.—C. fugacissima, Dillw. Suppl. t. B.

In ditches and pools, with the preceding.


On stones in rivulets.

6. C. vesicata, Ag. Inflated Conferva. Filaments very

In stagnant water.


In streams and rivers, common.


In stagnant water, rare. Bantry; Miss Hutchins.


In streams and ditches. Glendine-wood; Miss Ball. I am not well acquainted with this plant; may it not prove a true *Desmidium?*


In streams and rivulets, not rare.

c. Filaments forming crisped, entangled strata, green. Inhabit the sea or salt water ditches.


In salt water ditches, along the muddy sea-shore, or in the sea. At Wicklow; W. H. Harvey. Portstewart; Mr. D. Moore.


In salt water ditches. Abundant in ditches by the North Wall, Dublin.

13. C. tortuosa, Dillw. *Twisted Conferva.* Filaments rigid,

On marine rocks, abundant.


On marine rocks. Bantry; Miss Hutchins. Filaments half the diameter of *C. tortuosa,* with shorter joints.


In rocky pools, attached to small Algae. Bantry; Miss Hutchins, whose specimen is mixed with *C. impexa,* from which this species is solely distinguished by its shorter joints.


On rocks, near the verge of high-water mark. Miltown Malbay. This may, perhaps, be only a variety of *C. tortuosa.* It has lately been discovered on the Coast of Devonshire by Mrs. Griffiths.


On the flat shore, about half-tide level. Bantry bay; Mr. R. Ball. Filaments very long and slender, forming wide strata.

d. Filaments tufted, with a scutate root, straight, green. Inhabit the sea.


On rocky shores, rare. Miltown Malbay, &c. Portrush; Mr. D. Moore.

Sand-covered rocks in the sea. 3—12 inches long, as thick as hog's bristle, yellow-green, harsh.

e. Filaments rising from disciform tubercles, and forming penicillate tufts, olivaceous, parasitical. Inhabit the sea.


On Fuci, especially F. nodosus and vesiculosus, common.


Parasitical on Cystoseira fibrosa.


On sundry Fuci.

23. C. scutulata, Sm. Target Conferva. Olive-brown; filaments branched at the base, densely combined into a depressed peltate mass, rooted in the centre; joints as long as broad. Sm. —Dillw. t. 76. Harv. in Hook. Br. Fl. v. ii. p. 355.

On Himanthalia lorea; on which it forms broad wart-like tubercles.

B. Filaments branched.

a. Inhabit fresh water. (C. glomerata often grows in the sea.)


In ditches of salt or fresh water.


In ditches and lakes, common. This floats on the surface, in vast matted, dull green strata.

In streams and rivulets and in the sea, common. If all the supposed marine varieties of this species really appertain to it, none can be more polymorphous. But I incline to think that more than one species is confounded under this name. The branched marine Conferva, indeed, require great revision, and I earnestly recommend them to the attention of those whose residence gives them an opportunity of watching these plants in their places of growth.


In lakes, very rare. Cunnamara; *J. T. Mackay*. This curious plant forms a compact ball, varying in diameter from half an inch to 3—4 inches. It is said to be used as a pen-wiper.

b. *Inhabits* maritime rocks, wet with fresh water, and only occasionally exposed to the tide.


On wet rocks at a cave near Dunrea, Ireland; *R. Brown*, *Esq.* On shady rocks at the entrance of a small cave beyond Black Castle, Wicklow, where it is exposed to the dripping of fresh water, and the occasional overflow of the tide. *Tufts* spreading, ½—1 inch high, dark glossy green. *Filaments* densely matted together, appearing to originate in a mass of creeping roots. This has a good deal the appearance of a *Vaucheria*, but the structure and substance is totally different. It is not allied to any species I know of, except, perhaps, *C. agagropila*.

c. Marine.

Rocks near low-water mark, not uncommon. Miltown Malbay and Wicklow. _Stems_ subsolitary, simple below, above repeatedly trichotomous, thick, rigid, full-green. The _filaments_ are rarely articulated, except in the axils.

30. C. _Hutchinsiae_, Dillw. _Miss Hutchins' Conferva_. Filaments cartilaginous, rigid, glaucous-green, flexuose, tufted, bristly; ramuli curved, simple or furnished on the interior face with processes of one articulation; articulations twice as long as broad. _Dillw. t. 109. Harv. in Hook. Br. Fl. v. ii. p. 357._

Rare. Bantry bay; _Miss Hutchins_. _Filaments_ thicker than horse hair, flexuose, 5—8 inches long, much branched.


Rocks in the sea, very common.

32. C. _nuda_, Harv. MSS. _Brownish bare-branched Conferva_. Filaments subrigid, slender, very straight, dull-green or olivaceous (when dry), sparingly dichotomous; ramuli few and scattered, appressed, the uppermost often opposite; articulations many times longer than broad.

On basalt rocks, Portstewart; _Mr. D. Moore_. _Filaments_ loosely tufted, 2—3 inches high, sparingly branched, very straight, set with a few, scattered, very erect and appressed ramuli, the uppermost ones often opposite, which makes the apices of the branches appear three-forked. _Articulations_ very long. This differs from any species with which I am acquainted, but may, perhaps, be the _C. aspera_ of Agardh, which, in the _British Flora_, I have doubtfully referred to _C. nigricans_. To avoid confusion I think it better to give a new name to our present plant. In the straight filaments and appressed ramuli it resembles _C. rupesstris_, but differs in colour and in the great length of the joints.

33. C. _diffusa_, Roth. _Diffuse green Conferva_. Filaments slender, rigid, dark-green, flexuose, subdichotomous; branches distant, elongated, furnished towards the top with a few short patent, secund ramuli; articulations 3—4 times longer than broad. _Dillw. t. 21. E. Bot. t. 2289. Harv. in Hook. Br. Fl. v. ii. p. 358._

Marine rocks, rare. Bantry; _Miss Hutchins_. Miltown Malbay; _W. H. Harvey_. Black rocks, Portrush; _Mr. D. Moore_. This resembles _C. rupesstris_ in microscopic structure, but has a very different habit, being loosely tufted, bristly, with distant and almost naked branches.

34. C. _albida_, Huds. _Whitish cottony Conferva_. Filaments very slender, capillary, flaccid, pale yellow-green, forming dense silky tufts; branches crowded, irregular, the uppermost patent and mostly opposite; ramuli opposite or secund; articu-

On the larger Algae. Bantry; *Miss Hutchins.* Filaments exceedingly slender, pale green, which soon fades to a dirty white.

35. *C. lanosa,* Roth. *Woolly cottony Conserva.* Filaments slender, short, yellow-green, forming dense tufts; branches virgate, erect, subdistant, straight, alternate or opposite, with a few alternate or secund ramuli, axes very acute; lower articulations twice, upper six times as long as broad. *Dillw. Suppl. t. E.—E. Bot. t. 2099. Harv. in Hook. Br. Fl. v. ii. p 358.*

On rocks and the larger Algae. *Tufts* an inch long, pale yellow-green.


On various Algae. Bantry; *Miss Hutchins.* Kilkee, County of Clare. *Filaments* 3—6 inches long, brilliant green, flaccid. Branches straight. The joints are very variable in length; in some specimens which I have seen they are uniformly short, whence I presume that this, or *C. centralis,* may be the doubtful *C. eruginosa* of Hudson.


Youghal; *Miss Ball.* At Wicklow; *W. H. Harvey.* *Filaments* 6—12 inches high, forming beautiful tufts of a rich yellow-green colour, glossy when dry; main filaments remarkably angularly curved, covered with long, slender, delicate, pectinate ramuli, which taper to a fine point. This beautiful plant (which was lately discovered at Torquay by Mrs. Griffiths and Mrs. Wyatt) approaches, in some of its characters, the *C. flexuosa* of Dillw., a native of salt marshes, and by Agardh made a variety of *C. fracta.* The appearance, however, of *C. gracilis* is very different, and I would hope, it is sufficiently characterized. Whether or not it be the *C. sericea* of Continental authors, I have no means of judging, and dare not decide without reference to authentic specimens. My Irish specimens, while they agree with those from Torquay in all essential particulars, fall short of them in size and beauty.

On sand-covered rocks, near high-water mark. Bantry; Miss Hutchins. Filaments very slightly branched, the lower branches root-like and sparingly articulated, the upper patent, with remarkably rounded axils.

64. MOUGEOTIA. **Ag.** Mougeotia.

Filaments articulated, simple, finally united by transverse tubes. *Endochrome* granular, at length forming roundish globules at the point of conjugation.—Named in honour of J. B. Mougeot, an excellent German botanist.


In ditches and pools, forming vast yellowish strata.

65. TYNDARIDEA. **Bory.** Tyndaridea.

Filaments simple, finally inosculting by transverse tubes. *Endochrome* consisting of two sub-rotund masses (*stella*), which after conjugation unite and form a roundish globule (*sporodium*), lodged either in one of the articulations, or in the connecting tube.—Name; *Tyndaridea*, the constellations of *Castor* and *Pollux*, in allusion to the twin, star-like globules of the *Endochrome*.


In ditches and pools.


In ditches, &c. with the preceding.

66. ZYGEMA. **Ag.** Zygema.

Filaments articulated, simple, finally united by transverse tubes. *Endochrome* forming dotted spiral rings, which after conjugation are condensed into a globule in one of the filaments.—Name; *ζυγός*, a yoke, and *νήμα*, a thread; the filaments being yoked together.

1. *Z. nitidum*, **Ag.** Shining Zygema. Filaments dark
green, parallelly joined; articulations with numerous arching spires. Harv. in Hook. Br. Fl. v. ii. p. 362.—C. nitida, Dillw. t. 4. f. c. (bad.)

In ditches, &c.


In ditches, &c. Spires double, crossing each other, like a continual multiplication of the Roman numeral X, whence the specific name.


In ditches, &c. very common. This is marked with a spiral line, resembling a multiplication of the numeral V. If the length of the joints, and the diameter of the filaments, be considered specific characters in this genus, it would be easy (as some authors have done) to multiply the species to any extent. Their characters are eminently variable; indeed, in a single specimen, all gradations are often to be found.

Tribe XVIII. Siphoneæ.

Plants found in the sea, in fresh water, or on damp ground, of a membranaceous or horny hyaline substance; filled with a green granular matter. Frond tubular, filamentosus; the filaments free, or collected into spongy difform fronds, which are either crustaceous, globular, cylindrical, or flat. Fructification: vesicles (conioscystae) external, often stalked, containing a granular mass.


Frond spongy, dark green (crustaceous. globular, cylindrical, or flat), composed of an interwoven mass of tubular, continuous filaments. Fructification: opaque vesicles, attached to the filaments near the surface of the frond.—Name; κοκίνον the skin of an animal; from the soft nature of the frond.


On rocks in the sea, frequent. 6—12 inches long, much branched. Since the publication of the British Flora, my friend, Mrs. Griffiths, has been so fortunate as to add another species of this interesting genus to our native list. This is C. adherens, Ag. Syst. p. 178, which forms spreading crustaceous masses of indefinite form or size. Her specimens were gathered at Torquay.

Very rare. Belfast; Mr. Templeton.


Frond membranaceous, filiform, tubular, cylindrical, glistening, branched; the branches imbricated, or distichous and pinnated, filled with a fine green, minutely granuliferous fluid. Grev.—Name; βpωv, a moss, and ωφίς, an appearance.


Rocks, &c. in the sea, not rare.


On the sides of rocky pools, left by the receding of the tide. Near Portrush; Mr. D. Moore. ©. Summer and Autumn. Nearly allied to the preceding, depending chiefly for its characters upon the nearly erect irregular ramuli.


Fronds aggregated, tubular, continuous, capillary, coloured by an internal green pulverulent mass. Fructification: dark-green homogeneous vesicles (conioecystae) attached to the frond. Grev.—Named in honour of the Rev. T. P. Vaucher of Geneva, author of an admirable treatise on Fresh-water Converæ.—Nine species of this genus are enumerated in Dr. Hooker's British Flora, all of which are probably to be found in Ireland; but I regret, that, never having paid much attention to these plants, I am unable to introduce more than the following five, and for the characters of these I must rely on Greville and Carmichael.

* Vesicles solitary.

Pools and ditches. About Limerick, &c.


On the muddy sea-shore. At Miltown Malbay.


On the ground, in damp places, common.


On the ground, in moist shady places.

**Vesicles two or more together.**


On damp earth, or by the side of ditches, &c.

**Tribe XIX. OSCILLATORIEÆ.**

Plants growing in the sea, in fresh water, or on damp ground, of a gelatinous substance and filamentous structure. Filaments slender, tubular, continuous, filled with a coloured, granular, transversely striate matter, seldom branched, though often agglutinated together so as to appear branched, usually massed together in broad, floating, or sessile strata of a very gelatinous nature; occasionally erect and tufted, and still more rarely collected into radiating series, bound together by firm gelatine, and then forming globose, lobed, or plane-crustaceous fronds. Fructification: an internal mass, divided by transverse septa, finally separating into roundish or lentil- cular sporidia.


Frond globose or lobed, rarely incrusting, green or olivaceous, carnose or gelatinous, composed of continuous filaments, annulated within, and surrounded by, or set in, gelatine.—Name, in allusion to the habitat of some of the species.
Sect. 1. (Rivularia, Roth. Linkia, Lyngb.) Frond verruciform, rarely incrusting. Filaments close set, sparingly annulated within, mostly dichotomously branched, radiating from a common fixed base.


On marine rocks, Algae, &c. very common.


On aquatic plants, in sub-alpine streamlets.


On rocks and stones in the sea; first observed by Captain Carmichael on the Coast of Scotland.


On the sea-shore, near high-water mark. Innischerrig Island, Clare.

Sect. 2. (Scytochloria, Harv.) Frond gelatinoso-coriaceous, lobed and bullated or incrusting. Filaments close, densely and conspicuously annulated, set in a firm gelatine, and pointing towards the periphery (not radiating.)


On rocks in the sea. Miltown Malbay; W. H. Harvey.

71. Stigonema. Ag. Stigonema.

Filaments tufted, cylindrical, cartilaginous, branched, inarticulate, including granules ranged in transverse dotted rings.—Name; στενω, dotted, and νημα, a thread.


Wet rocks in alpine situations, common. Forms broad, rigid, very dark, loose tufts.


Bottoms of alpine rivulets. At the Eagle's Nest, Killarney.—This forms extensive stratified tufts, and is of a softer and more flaccid substance than the preceding. Under the microscope it is at once recognised by the very peculiar papillate branches.

72. Scytonema. Ag. Scytonema.

Filaments branched (very rarely simple), flaccid, tough, continuous, tubular. Endochrome brown or olivaceous, transversely striate, "at length separating at the striae into lenticular sporidia." Carm.—Name; σκοτος, a skin, and νημα, a thread; the filaments are tough.


Rocks in alpine districts. At Carrigataha, near Caher, and at Killarney. This forms dark irregular patches: the filaments are about a line in height.

2. S. myochrous, Ag. Mouse-skin Scytonema. Filaments elongate, mostly decumbent, sub-rigid, flexuose, slender, yellow-brown; branches issuing in pairs, at right angles with the stem. Harv. in Hook. Br. Fl. v. ii. p. 365.—Conf. myochrous, Dilw. t. 19. E. Bot. t. 1555.—β. crinalis; filaments tufted. Conf. mirabilis, E. Bot. t. 2219. (according to the original specimens, but not C. mirabilis, Dilw. t. 96.)

Alpine bogs and rivulets. β. near Bantry, on Orthotrichum rivulare; Miss Hutchins. The geminate divaricating branches and dark brown colour (when dry) well distinguish this species.

3. S. contextum, Carm. Interwoven Scytonema. Filaments mostly simple, interwoven into a tough olivaceous stratum,
which turns to a dull green in drying. \textit{Carm.}—\textit{Harv. in Hook. Br. Fl. v. ii. p. 366.}

On moist shady rocks, at the foot of Turk Mountain, Killarney.

73. \textit{Calothrix}. \textit{Ag.} Calothrix.

Filaments (destitute of a mucous layer), erect, tufted or fasciculate, fixed at the base, somewhat rigid, without oscillation. \textit{Tube} continuous; \textit{endochromic} green, densely annulated, at length dissolved into lenticular sporidia.—\textit{Name}; \textit{kalo\epsilon}, beautiful, and \textit{op\epsilon}, a hair.


On marine filamentous \textit{Algae}, common.


On rocks in the sea, near high-water mark, common.


Marine rocks. Miltown Malbay; rare. Perhaps this is only a more fully developed state of the preceding.


On mosses and lichens. Killarney, not rare. 1—2 lines high, forming remarkably tough and rigid tusfts.


In ditches, &c. investing aquatic plants. Bantry; Miss Hutchins. \textit{Tusfts} an inch long. Filaments slender, fine bluish-green.


Marine rocks, very rare. Miltown Malbay. \textit{Tusfts} convex, $\frac{1}{2}$—1
inch in diameter, blackish-green. Striae closely set, and strongly marked.

74. Lyngbya. Ag. Lyngbya.

Filaments destitute of a mucous layer, free, flexible, elongated, continuous, decumbent. Endochrome (green or purple), densely annulated, and finally separating at the annuli into lenticular sporidia.—Named, in honour of H. C. Lyngbye, a Danish Algologist, and author of an excellent work on the Algae of Denmark.


On damp walls, very common; and particularly obvious after a shower of rain.


In the sea. Bantry bay; Miss Hutchins. Skerries, Portrush; Mr. D. Moore.


Filaments invested by a common mucous matrix, rigid, elastic, oscillating, simple, continuous. Endochrome divided by close, parallel, transverse striae.—Named from the curious oscillatory motions of the filaments.—The species, which are exceedingly numerous and difficult of definition, have hitherto been much neglected by British, and but very slightly touched on by Irish botanists. The late Capt. Carmichael, who studied the genus with great care and success, has added many new and curious species to the Scottish Flora, most of which may probably be found in our own country, if carefully looked after. In the following descriptions the colour of the strata always refers to the appearance presented to the naked eye: that of the filaments, to what they appear when viewed with a microscope.

* Fasciculæ; filaments collected into close, rigid, agglutinated fascicles.

1. O. Friesii, Ag. Fries’ Oscillatoria. Stratum bright-green, bristling with the elongated, rigid, erect, tooth-like fas-
*Scytonema Bangii,* Lyngb.


On the muddy sea-shores, or on naked soil by road-sides, &c.

**Virolese ; stratum of an aeruginose or blue-green colour.**


Ditches and pools.


In muddy ditches, first spreading over the mud; finally rising in scum-like strata to the surface. *Filaments* half the diameter of those of *O. limosa,* and the stratum thinner.


Damp walls, rotten timber, &c.

**Nigrose ; stratum of a dull indistinct green, or inclining to purple, black or brown.**


Ditches and ponds, common.


On damp walls, very common in autumn and winter.

On the rocky bottoms of alpine rivulets.


On rocks and stones in sub-alpine rivulets.


In boggy pools. Agardh considers this to be some other species in decay; in which opinion he is, perhaps, correct.

**Tribe XX. ULVACEÆ.**

*Plants growing in the sea, in fresh water, or on damp ground, of a membranaceous or gelatinous substance and simple structure. Frond either a tubular or flat, filiform or expanded membrane, or a gelatinous amorphous mass; hyaline, or, owing to the presence of fructification, of a green, purple, or pinkish colour. Fructification: minute green or purple granules, scattered through the frond, or arranged in fours, or in many moniliform, filamentous series.* To this family (as understood by Dr. Greville), I have ventured to add the "Nostochinæ" of the British Flora. Any one acquainted with these plants must be aware, that though there is much apparent difference between the extreme genera (*Porphyra* and *Protopoccus*), yet the line, even of generic distinction, cannot clearly be defined in the medial ones. Thus, *Ulva* insensibly passes to *Tetraspora*, this into *Palmella*, this again into *Flaematococcus*, which is scarcely different from *Protopoccus*. *Nostoc*, I allow, in its moniliformly disposed sporules, presents a somewhat different organization, and perhaps, notwithstanding its strong affinity to *Palmella*, it might with propriety form the type of a distinct family. In structure it appears exactly intermediate between *Palmella* and *Oscillatoria*.

76. *Porphyra*. Ag. Porphyra or Purple Laver.

*Frond* plane, exceedingly thin, and (owing to the fructification) of a purple colour. *Fructification*: 1. scattered sori of oval
seeds; 2. roundish granules, mostly arranged in a quater-
nate manner, and covering the whole frond. Grev.—Name; 
παπρέπος, purple.

1. P. laciniata, Ag. Torn Purple Laver or Slouk. Fronds 
deePLY and irregularly cleft, with broad segments; margin va-
umbilicalis, E. Bot. t. 2296.

On rocks in the sea, common.

2. P. vulgaris, Ag. Simple-waved Purple Laver. Frond 
simple, broadly lanceolate, the margin much waved. Hook. Br. 
Fl. v. ii. p. 310.

Rocks in the sea with the last, but (in Ireland) much less
common.

or linear-lanceolate, acute, the margin rarely flat. Grev.—

Marine rocks; reaching perfection in the winter months. Dunmore, 
near Waterford; Miss A. Taylor. Miltown Malbay.—A beautiful 
and distinct species, 3—5 inches high, and rarely half an inch broad.


Frond flat, capillary, membranaceou$e$, of a green, reddish or
purple colour. Fructification: granules arranged more or
less in a transverse manner. Grev.—Named in honour of 
Hoffman Bang, a Danish Naturalist.

Filaments elongated, decumbent, nearly straight, equal, forming a
brownish or purple stratum, glossy; granules few (about 5)
in each fascia. Hook. Br. Fl. v. ii. p. 316. —Conf. fusco-pur-
purea, Dillw. t. 92. E. Bot. t. 2055. also C. atro-purpurea, 
Dillw. t. 103. E. Bot. t. 2085.

Marine rocks, rare. Bantry; Miss Hutchins.

minute, tufted, flexuose, attenuated to a sub-obtuse point, 
bright-green; fasciæ close, composed of innumerable minute 

On old fronds of Enteromorpha intestinalis, near high-water mark, 
Miltown Malbay.

simple, cæspitose, equal, olive-green; granules minute, arranged 

Parasitical on Alaria esculenta at Arran; Mr: R. Ball and Mr. 
W. Thompson.

Frond tubular, hollow, membranaceous, of a green colour and reticulated structure. Fructification: three or four roundish granules, aggregated in the reticulations. Grev.—Name; 
ευτροπων, the entrail, and μορφη, a form or appearance.—This genus chiefly differs from Ulva in its tubular and much branched frond.


On the shore, and in ditches and pools, both of salt and fresh water.


Sea-shores, common.


Sea-shores. This is distinguished by its latticed frond, and attenuated branches.

79. Ulva. Linn. (part of.) Ulva, or Laver.

Frond membranaceous, of a green colour, plane (in some cases saccate, and inflated in the young state.) Fructification: minute granules, mostly arranged in fours. Grev.—Name; supposed to be from Ul, water; in Celtic.

* Marine.


Rocks and stones in the sea, very common.


Rocks, &c. in the sea. Substance very delicate, adhering firmly to paper.

Rocks and stones in the sea. The double membrane of this species closely allies it to the genus *Enteromorpha*; from which, indeed, it rather differs in habit than by any distinct character.

**★★ Found in fresh water.**


In stagnant fresh-water pools and ditches. This species scarcely differs in its frond and fructification from *Tetraspora*, and, indeed, there are some varieties very difficult to be distinguished from *T. lubrica*. Dr. Hooker hints, that it may be only *U. Lactuca*, altered by growing in fresh water. It is impossible to say whether or not this opinion be correct, for in plants of such low organization, when place of growth constitutes a specific character, the difference between species and varieties is often so vague, that we are forced, in many cases, to rest content with a random guess.

**★★ Grow on damp ground, walls, rocks, paling, &c.**


On damp walls, the thatched roofs of cottages, &c. very common.


On damp stones, walls, &c. On a damp window-stone in the City of Limerick, gathered in abundance in the month of February; W. H. Harvey. A highly beautiful and curious plant. Frond 3–4 lines long, rising from a filiform, cylindrical, (?) often elongated stipes, from which it suddenly expands into a strap-shaped or narrow oblong membrane. Dr. Greville does not notice this stipes, except in calling the fronds “attenuated at the base.” In many instances I allow they are gradually attenuated, but in others I have distinctly seen them suddenly expand from a filiform and apparently cylindrical stem, which is transversely fasciate, and, indeed, strongly resembles the filament of *Lyngbya speciosa*. If this stem be truly cylindrical, *U. calophylla* is brought still closer to *U. velutina*. I may also remark, without wishing to favour the opinion, that the supposed transmigration of this species into *Lyngbya moralis*, (which Agardh ridicules in the second vol. of his *Species Algarum, Introd.* p. xliv.) may be accounted for
by supposing that this stipes has been noticed by those who hold such opinions.


On damp walls, &c. in several places about Limerick; W. H. Harvey.

80. TETRASPORA. Link. Tetraspora.

Frond tubular, inflated or plane, gelatinoso-membranaceus, of a green colour. Fructification: minute granules, mostly arranged in fours.—Name; τετρα, four, and σπόρα, a seed; from the arrangement of the sporules.


Fresh water stream at Mucruss, Killarney. Fronds exceedingly lubricous and gelatinous, but firm, delicately waved and plaited, of an ovate outline, attached to water plants. Sporules arranged in fours, or irregularly scattered.


In running fresh water. Castlemartyr; Miss Ball. Larger than the preceding, less gelatinous, with a more distinct membrane.

81. PALMELLA. Lyngb. Palmella.

Plant a polymorphous gelatinous mass, filled with scattered globular or elliptical granules.—Name; παλμός, vibration; from the loosely gelatinous nature of these plants.—The granules are sometimes arranged in fours, in which case the line of distinction between Palmella and Tetraspora vanishes.


Moist rocks, among mosses.


On moist limestone or white-washed walls, frequent in cellars.

3. P. botryoides, Lyngb. Small clustered Palmella. Minute; fronds densely crowded, globose, somewhat lobed, green,

In heathy places, in moist situations.


In fresh water streams, &c.

82. *Nostoc.* *Vauch.* *Nostoc.*

*Frond* gelatinous, or coriaceous, lobed, hollow, or solid; filled with crisped, moniliform *filaments,* which are finally dissolved into sporules.—Name, of unexplained meaning.—This genus differs from *Palmella,* solely in the filamentous arrangement of the sporules. To Berkeley's genus *Monormia* (Gr. Alg. p. 46. t. 18.) it is still more closely allied, but appears sufficiently distinct.

1. Olive-green, terrestrial.


Gravelly soils, among rocks, &c. after rain.


On clayey, moist ground.


On rocks, and among mosses. At the "Wilderness," Clonmel. *Fronds* exceedingly minute, hyaline or pale olive, of various shapes, containing a few, lax, moniliform filaments.

2. Olive-green, submersed.


On stones in alpine rivulets.

83. *Protococcus.* *Ag.* *Protococcus.*

*Plant* consisting of aggregated, naked *globules,* filled with mi-
nute granules, and sessile on a transparent gelatinous mass.—Name; πρωτος, first or primary, and κοκκος, fruit; from its elementary organization.


On slightly inundated rocks in various places; as about Dublin, Limerick, and near Miltown Malbay. This forms stain-like patches on the surface of the rock, or spreads over decaying leaves and sticks. In the Arctic regions, and on several of the high mountains of Europe, it covers the surface of the snow in vast strata, in some places penetrating to the depth of twelve feet. I have carefully compared specimens sent by Professor Agardh from Sweden with those gathered in this country, and find them to agree in every particular.

**Tribe XXI. BYSSOIDEÆ.**

*Plants of doubtful affinity, related to the Fungi.* Filaments articulated, hyaline or coloured. Fructification very obscure. They are found on rotten wood, among mosses, on damp ground, on glass, or in chemical solutions, and in other anomalous situations.


Filaments arachnoid, radiating from a centre, with scattered external granules.—Name; βυσσος, a fungus, and κλαδος, a branch.


Very common on window-panes and damp glass, on which it forms orbicular whitish spots.


Filaments rigid, subsolid, opaque, erect, minute, falling to powder; joints often contracted.—Name; χρως, a skin, and λεπτος, to decorticate.—This genus, as defined by Agardh, contains two very distinct tribes, one of which, at least, ought to be removed to the Fungi.

1. *Orange or yellow-green; fruit roundish capsules. (Amphi-

conium, Spr.)*

1. C. aureus, Harv. Orange Croolepus. Filaments forming

On rocks and old trees, common.


On rocks, in woods, &c.


On Lichens and old trees. To me the three species of this section appear to be merely varieties of one species.

2. Black, torulose; bearing clavate bodies resembling sporidia.—(Helmisporium?)


On rocks and trees, in alpine districts.

86. Protonema. Ag. Protonema.

Filaments sub-articulated, branched, rooting, mostly green.— Name; πρωτος, first or primary, and νήμα, a thread. These obscure plants are probably rudimentary mosses.


On moist ground.


In caves in the North of Ireland; R. Brown, Esq. and Mr. Templeton.

3. P. Orthotrichi, Ag. Parasitical Protonema. Filaments olivaceous, minute, branched, obtuse, erect; articulations about

On the leaves of various *Orthotricha*, common.


*Filaments* hyaline, interwoven into an uniform membrane or gelatine. (Inhabit chemical solutions.)—Name; ὑγρός, belonging to water, and κρόκος, a little tuft.


On the surface of ink, very common. The remaining British species, which are found in solutions of muriate of barytes, of gum dragon, and of isinglass size, in rose-water and in Madeira wine, may probably be found in this country, but, as I have not seen *native specimens* (!!), I decline introducing them.

88. Leptomitus. Ag. Leptomitus.

*Filaments* hyaline, erect, parasitical, growing in fresh water or in the sea.—Name; λεπτός, slender, and μυτός, a thread.—These minute organizations usually grow on decaying animals.


In ditches and rivulets, on stones, wood, &c. I have observed it in ditches near the College Botanic Garden, Dublin, and about Mountmellick, Queen's County.


On rotten fishes and dead flies (!).
**DIV. IV. DIATOMACEÆ.**

Granules (frustula) of various forms, plane or compressed, more or less hyaline or transparent, rigid and fragile, in parallel series or circles, free, naked, or imbedded in a mucous mass or gelatinous frond, at length separating into definite segments.—Small, often very minute plants, in the sea or in fresh water, mostly parasitic, or forming floating masses, or mixed with other aquatic vegetables. Grev.

**Tribe XXII. DESMIDIEÆ.**

*Filaments cylindrical or angular, at length separating into segments (frustula.)* Grev.

89. *Meloseira.* Ag. Meloseira.


—Name; *μελοσ*, a membrane, and *αικα*, a chain; in reference to the form of the filaments.

1. *M. lineata,* Ag. Striated *Meloseira.* Filaments fragile, contracted at the articulations, transversely striated with one or two fine lines, the joints 2—3 times longer than they are broad. Grev.—Grev. in Hook. Br. Fl. v. ii. p. 402.—Conf. lineata, Dillw. p. 44. t. B.

In streams and ditches, floating in dark-brown masses. At Plassey, near Limerick; *W. H. Harvey.* The *Endochrome,* a brown colouring matter of the joint, becomes finally parted into two distinct masses of a roundish oblong figure.

**Tribe XXIII. FRAGILARIEÆ.**

*Filaments plane, extremely fragile, composed of rectilinear frustula.* (Frustula sometimes apparently radiating from a centre, and not presenting the appearance of a filament.) Grev.

*Irish Botanists have scarcely attended to this minute but curious tribe of Plants, (we have yet had no Carmichael or Greville amongst us); and I am ashamed to say, that out of fifty-seven British species—most, if not all, of which are probably natives of Ireland—I can only claim eighteen as having a right to a place in our Flora. Of the following *British genera* no species has hitherto been noticed in our rivers, or on our shores: *Desmidium, Achnanthes, Styllaria, Homoeocladia, Berkeleya, Micromega,* and *Cymbella.* Not being very conversant with these plants, I have, in the following descriptions, adhered to Dr. Greville's words in *Hook. Brit. Flora,* vol. ii. p. 401, et seq.
90. **Fragilaria.** *Lyngb.* Fragilaria.

*Frustula* forming plane, pseudo-articulated, densely striated, fragile filaments, separating at the striae (not cohering at their angles.)—Name, from their fragile character. *Grev.*


Rivers and stagnant waters. Near Limerick; *W. H. Harvey.*

91. **Diatoma.** *Ag.* Diatoma.

*Frustula* forming pseudo-articulated, plane filaments, at length separating and cohering at their angles.—Name; διατομή, incision; from the divisions as far as the angles, which cohere. *Grev.*

* * Frustula (or joints) rounded.


Very rare. At Youghal parasitic on *Cal. polyspermum; Miss Ball.*


Parasitic on marine Algae: very rare. Ardinary Point, Wicklow, on *Griffithsia simplicifilum; W. H. Harvey.*

* * * Frustula (or joints) square, (not rounded.)


Parasitic on marine Algae, particularly *Cladostephus spongiosus and verticillatus*; not uncommon. A very handsome species, with curved glossy filaments half an inch or more in length.

4. *D. marinum, Lyngb.* Tenia-like Diatoma. Filaments unequal, the joints longer than they are broad, with a trans-

Parasitic on small Algae in the sea, very common; investing them with a dense pulverulent covering.


In pools and ditches, scattered among various Confervæ. Near Limerick; W. H. Harvey.


Pools, ditches, &c.; parasitic on various Confervæ.

*** Frustula fasciculate or flabelliform.


On marine Algae, frequent.


Pools and ditches, on various Confervæ, common.

92. FRUSTULIA. Ag. Frustulia.

Frustula linear, free or imbedded in a shapeless mass, solitary or binate. Grev.—Name, frustula, fragments, of which this plant is wholly composed.


In fresh water, mixed with other Algae. Plassey; W. H. Harvey.


In fresh water, mixed with other Algae. Plassey, near Limerick; W. H. Harvey. The frustula are often of an uniform ochraceous colour, except the apices, which are always hyaline.
Tribe XXIV. Styllarieæ.

Frustula plane, wedge-shaped.

93. Licmophora. Ag. Licmophora.

Frustula wedge-shaped, flabelliform, stipitate. Grev.—Name; αλκυμοφόρος, fan-bearer.


Parasitic on marine Algae and Zostera. Bantry bay; Miss Hutchins. One of the most beautiful microscopic objects in the whole order of Algae, and admirably represented in Dr. Greville’s figure in the Scot. Crypt. Flora. It forms glistening tufts, half an inch in height.


Frustula wedge-shaped, in plain sessile circles or segments of circles.—Name; μερός, ἄρσ, a portion or particle; in allusion to the minute fragments which compose it. Grev.


Stagnant waters, among other Algae. Plassey, near Limerick; W. H. Harvey.

Tribe XXV. Cymbelleæ.

Frustula elliptical.


Frustula subgeminate, terminating a very slender, simple or branched filament.—Name; γομφός, a wedge, and νημα, a thread; from the shape of the frustules of the filaments. Grev.


In streams, &c. investing the leaves of grasses, common.

Parasitic on small marine Algae; common. Scarcely of this genus, and, perhaps, more allied both in habit, and in the shape of the frustula, to Licmophora.

96. Schizonema. Ag. Schizonema.

Frustula in longitudinal series, and enclosed in a simple or branched filiform mucous, or membranaceous frond.—Name, σχίζω, to divide, and νήμα, a thread; in allusion to the separation of the frustules. Grev.


On rocks and corallines in the sea. Malbay; W. H. Harvey. I confess myself imperfectly acquainted with this species—I may say with the whole genus—and refer my Irish specimens, with much hesitation, to the above figure.


On rocks &c. in the sea. Bantry Bay; Miss Hutchins.

I wish to take this opportunity of introducing to the notice of Irish Botanists a most useful collection of dried specimens of Algae, now in course of publication by Mrs. Mary Wyatt, at Torquay; and I have pleasure in stating, that my valued friend, Mrs. Griffiths, (whose name is a sufficient guarantee for the correctness of the synonyms,) has kindly taken on herself the naming and arranging of all the species. Three quarto volumes, containing One hundred and fifty species, have already made their appearance under the title of "Algae Danmonienses; or dried specimens of Marine Plants, principally collected in Devonshire." a fourth may be expected in the course of next year. The specimens are not only beautifully preserved and displayed, but in most cases, where a species produces a secondary or dicoccous fructification, individuals are given presenting each mode of fruit; and so great has been the care bestowed on the selection of species, that a very large number of the rarest and least known of British Algae may be found in these volumes. Amongst others, the following may
be noticed: *Fucus tuberculatus*; *Sporochnus villosus, pedunculatus*; *Asperococcus compressus, pusillus, Turneri*; *Punctaria latifolia*; *Cutleria multifida*; *Nitophyllum ulvoideum, ocellatum, Gmelini*; *Rhodomenia polycarpa*; *Gigartina compressa, Teedii, erecta, Microcladia glandulosa*; *Grateloupia filicina*; *Chætospora Wiggii*; *Codium adhaerens*; *Ectocarpus Mertensii*; *Myriotrichia claviformis*; *Spyridia filamentosa*; *Callithamnion roseum, gracillimum, spongiosum, lanosum, polyspermum*; *Polysiphonia elongella*; *Bryopsis hypnoides*; *Conferva gracilis, centralis, uncialis, rectangulæris: Mesogloia coccinea, purpurea, Hudsoni*; *Trichocladia Griffithsiana, virescens*; *Lyngbya majuscula*; and many others. The work may be had on application to Mary Wyatt, Dealer in Shells, &c. Torquay, Devonshire. 

*W. H. Harvey.*
ADDITIONS AND CORRECTIONS IN PART FIRST.

Page 21, after Draba incana, insert—
Blarney Castle, Cork; Mr. J. Drummond.

Page 62, after Sedum, where it was accidentally omitted, insert—

Rhodiola. Linn. Rose-root.
Wet rocks on Brandon and other mountains in Kerry, south Isles of Arran, Ben Bulben, and Donegal mountains. Island of Rathlin; Mr. Templeton.

Page 70, after Lythrum hyssopifolium, insert—

Found by Doctor Coulter in a field a mile north-west of Dundalk, in 1819; but, as he only found a single plant, it has probably been introduced.

Page 84, after Lathyrus palustris, insert—

For Hab. see p. 82, under Pisum maritimum. Doctor Hooker, upon a careful examination of the style, in this species, now feels assured that it ought to be referred to Lathyrus.
Page 171, after *Myosotis arvensis*, insert—


Sand-hills, resting on limestone between Portrush and Glenluce Castle, 22d April, 1836; *Mr. D. Moore*. It has subsequently been found in a dry sandy field at Portmarnock by *Mr. F. Whitla* and *Mr. J. Johnston.*

---

Page 3, line 2 from the bottom, for *Gymnosperæ*, read *Gymnospermae.*
--- 19, —— 15 from the bottom, for *Turvitis alpina*, read *Turritis alpina.*
--- 23, —— 6 from the bottom, for *συμβίον*, read *συμβίον.*
--- 57, —— 8 from the bottom, for *E. martimum*, read *E. maritimum.*
--- 86, —— 6 from the top, for *Icosandria Monogynia*, read *Icosandria Pentagynia.*
--- 107, —— 6 from the top, for *Icosandria Monogynia*, read *Icosandria Pentagynia.*
--- 107, —— 15 from the bottom, for *Icosandria Monogynia*, read *Icosandria Pentagynia.*
--- 130, —— 3 from the top, for *Pentandria Monogynia*, read *Tetrandria Monogynia.*
--- 234, in the specific characters of the three species of *Reseda*, for *Involucre*, read *Calyx.*
ADDENDA TO PART SECOND.

Page 36, after Fontinalis antipyretica, insert—

It is not intended that the leaves are never complicato-carinate, but that this often occurs only in appearance.

Page 55, after Turgonia hypophylla, insert—

The loculus situated beneath the top of the frond, is subcompressed, and opens downwards. The seeds are in quaternions.

Page 59, after Jungermannia Orcadensis, insert—

I have lately observed the presence of stipules: these are minute, ovate, purplish, anteriorly ciliate; the cilia sometimes radicating.

Page 61, after Jungermannia nemorosa, insert—

A variety occurs on the summit of Brandon, County of Kerry, growing through tufts of Hypnum loreum, and accompanied by Jung. Orcadensis and Jung, ciliaris; with the stems elongated, the leaves of nearly an equal size and evenly set on the stem from top to bottom, the inferior lobe subacute; the upper scarcely attached to the lower, a part embracing the stem, the rest subsquarrose; both lobes rather distantly ciliate, the cilia few, elongate; the colour of the plant a reddish-brown. This will probably prove a distinct species, when we are acquainted with its fructification.

Page 91, before Verrucaria plumbea, insert—

Verrucaria lucens. Thallus tartareous, thin, purplish-brown or mouse-coloured, minutely cracked, black-edged. Apothecia sessile, very prominent, black, shining, conico-hemispherical, with a pore on the summit, numerous, rather evenly scattered.

On siliceous slate, side of Lough Finnehy, County of Kerry; May 1836. The thallus spreads usually some inches in diameter; its colour reminds one of V. plumbea; it is little altered by the application of moisture; the surface of aged portions sometimes turns greyish-brown; the black limit is very general, and always to be seen round young portions of thallus. The prominent, black, shining, almost glistening apothecia give our plant a beautiful and peculiar character. These are sometimes clustered into threes or fours; commonly, however, they are pretty evenly scattered, very visible to the naked eye, but their pore is discoverable only with the assistance of a lens. The perithecium is double; the exterior hard, thick, and black, deficient
buds; when two or more nuclei are clustered, passing over them all, and so including them in one shell; the interior is soft, of a very pale brown, enveloping the nucleus on all sides; this is white, pellucid, swelling when moist, and then exhibiting, if highly magnified, a dotted gelatinous round substance, at whose base is fixed a bundle of cylindrical, filiform vessels, slightly curved and attenuated at both extremities.

Page 94, after Verrucaria umbrina, insert—

The black crust nearly envelopes, but does not pass beneath the nucleus.

Page 101, before Porina, insert—

11. Endocarpon macrocarpon. Substratum of the thallus black, subtartareous, thin; scales very minute, scattered or aggregate, subfoliaceous, sublobate or subcrenate, adpressed, coarsely wrinkled, pale dusky olive when dry, light green when wet. Apothecia much larger than the scales, resting on the substratum, their summits porous.

On Dunkerron mountain; on transition slate, April 1836: associated with Collema nigrum and Lecidea aromatica, Hooker; all these having a blackish substratum to the thallus. Scales less than $\frac{1}{2}$ of a line in a diameter, affecting the crevices of rocks exposed to the south; the young smooth and nearly entire, the older coarsely wrinkled; often crowded around the neck of the apothecia, which thus appear emergent, but these are sometimes found without any contact with the scales; and so the generic character does not strictly apply. Our plant bears to Endocarpon the same relation as Psora of Hoffian to Lecidea. The apothecia are many times wider than the scales, globular, pierced above; having a double perithecium, the exterior hard, black, resting on the substratum or surface of the rock; the interior pale flesh-coloured, minutely cellular, rather thick; the nucleus is colourless, transparent, containing oblong bodies which are slightly opaque and vary in size and position.

12. Endocarpon rugosum. Thallus subtartareous, with tumid, waved, aggregate pruinose warts, glaucous grey, not altered when wet; buds in a coarse whitish powder on the summits of the warts. Apothecia minute, few, scattered, oblong, quite immersed, with dark-brown depressed summits.

On transition slate, Dunkerron mountain, April 1836. Patches often 2 or 3 feet in diameter, dusky glaucescent, without a definite border. Central warts sometimes a line in diameter, the others much less; all crowded, rounded, waved, sprinkled with a glaucescent or brown pruina. These protuberances originate from unequal collections of white cortical matter, over which the green parenchymatous layer passes, of an equal thickness, and is continued over adjoining warts. The older buds become concolorous with the thallus. The apothecia are few, not observable with the naked eye; they have no distinct pore on their thickened dark summits; they are linear-oblong, immersed, reaching into the cortical part of the wart; the tegument not distinguishable from the nucleus, which is pale-brownish, smipellucid, gelatinous when wet. The warts of the thallus assume so much the ap-
pearance of scales, that perhaps this Lichen is better arranged under *Endocarpon* than *Verrucaria*.

Page 106, before *Opegrapha scripta*, insert—

O. saxigena. *Thallus* leproso-tartaraceous, thin, rust-brown, slightly cracked when dry, subgelatinous when moist, indeterminate; *buds* pale-green, leproso-pulverulent. *Apothecia* sessile, prominent, grouped; the disk narrow; the border tumid, uneven, somewhat broken, shining.

On mural rocks, in moist situations, Dunkerron. Although several *Opegrapha* that usually occur on trees are found on rocks likewise in the County of Kerry, and in such case somewhat modified in appearance, yet to no other known species can the characters, especially those drawn from the buds of the present plant, be referred. The thin brownish patches are often 3 or 4 inches in diameter, and conspicuous from the green powder about the apothecia; this which constitutes the *buds* is absent in apparently aged portions of the thallus, and most abundant in spring about the newer apothecia. The *lirellae* are at first punctiform and roundish, at length elongate, waved, and not frequently branched. The disk is less shining than the ragged border, whose continuity is repeatedly broken. A transverse section, under a good lens, shows the disk to be covered with a black *pruina*, the *lamina* pale, semipellucid, striated, occupying but a narrow groove in the upper part of the black tartaraceous matter of which the *lirellae* are principally composed.

Page 107, after *Collema nigrum*, insert—

Decandolle, in his Flora Française, doubts the generic character. I have recently observed states that indicate an identity with *Parmelia plumbea*, var. 3. *microphylla*, of this work.

Page 109, after *Collema fragile*, insert—

Very lately I have met with apothecia more aged than those described. In a dry state they appear sessile, but thoroughly moistened, the thallodal covering swells so as nearly to close over the disk, and the border of the apothecia gradually subsides into the level of the *thallus*. The disk is brownish-olive, *pruinose*; the *lamina* striated, whitish above, of a pale rose-colour beneath.

Page 119, before *Lecidea premnca*, insert—

L. latens. *Thallus* indeterminate, very thin, leproso-tartaraceous, slightly cracked, somewhat uneven, of a pale *aeruginous* green, pale-brown about the centre. *Apothecia* minute, scattered, purplish-black, flat, at length convex, and excluding the border.

On stones, in dark recesses of a bank facing the north, in the wood at the Dargle, County of Wicklow. A few black points scarcely visible on the stone, apparently discoloured by powdered clay, constitute all that this Lichen presents to the naked eye. Moistened and under the lens, it exhibits a very thin pale verdigris green crust, which is mottled with brown, and altogether brown about the apothecia, where too it is somewhat thickened. The apothecia are of different sizes—the largest, however, scarcely distinct to the naked eye, except by their brilliant
black or purplish colour. The border is hardly apparent, and quite obliterated by age or the application of moisture. Dissection shows the colour of the apothecia arises from the blackish-brown *substratum* seen through the pellucid *lamina*; this is in a very thin layer, is striated, and surmounted by a glaucous disk.

Page 137, before *Lecanora varia*, insert—

*L. albo-flavida*. *Thallus* tartareous, indeterminate, rugosogranulate, uneven, cracked; *buds* in a coarse greenish-ochre powder. *Apothecia* sessile; the disk concave, at length flat, brown-flesh coloured; the border swollen, smooth, inflexed, granulato-crenate.

On transition rocks, facing the south, Dunkerron; not uncommon, the apothecia very rare. The habit is of *Endocarpon sulphureum*, and so the patches are closely adpressed to the rock, often 12—24 inches in diameter; but it is the proper *thallus* that gives the yellow tinge to the surface of the former, while in our plant the pale ochraceous hue is altogether borrowed from the *buds*: these are constantly present, and by their flat subcircular aggregations resemble a *Variolaria*. The *thallus* is sometimes in scattered subglobular white grains, which are waved or sublobate, often appearing carious with pits: again the grains are so approximated that the entire surface appears as a rimose crust of a sordid white. The apothecia are large in proportion to the thaloidal grains. By dissection we find beneath a pale subopaque disk, a transparent, colourless, striated *lamina* of considerable thickness, and under it an opaque layer of a brick-red, which gives to the surface of the apothecia a flesh-coloured appearance. Acquainted with this plant for several years, I have been enabled to determine it only within a few days by the tardy discovery of the apothecia.

Page 140, before *Lecanora gelida*, insert—

*L. linearis*. *Thallus* of minute, linear, bright-yellow, scattered or substellato-aggregate, soft scales, waved and somewhat thickened at one end, on a very thin, pale-brownish *substratum*.

On the faces of crumbling slaty stones in dark recesses, Dunkerron mountain. At first sight this minute species might be supposed a *Lepraria*; under the lens it has stronger claims to rank among the acharian *Placodia*, for the apparent golden yellow powder scattered on the surface of the stone is found to be composed of linear elevated scales, often clustered and stellate. The apothecia are unknown.
**INDEX**

OF THE

ORDERS, GENERA, AND SPECIES IN PART FIRST.

<table>
<thead>
<tr>
<th>PAGE</th>
<th>PAGE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACERINEAE, Juss.</strong> 53</td>
<td>Anagallis, Linn. 194</td>
<td>serpyllifolia, Linn. 47</td>
</tr>
<tr>
<td><strong>Acer, Linn.</strong> 54</td>
<td>anagalis, Schreb. 195</td>
<td>trisera, — 46</td>
</tr>
<tr>
<td>carpestré, — 54</td>
<td>tenella, Linn. 195</td>
<td>verna, — 47</td>
</tr>
<tr>
<td>Pseudo-platanus, — 54</td>
<td>Anchusa, — 169</td>
<td>AROIDEÆ, Juss. 261</td>
</tr>
<tr>
<td><strong>Achillea,</strong> 153</td>
<td>Aesculapius, — 170</td>
<td>Artemisia, Linn. 151</td>
</tr>
<tr>
<td>Millefolium, — 153</td>
<td>Andromeda, — 179</td>
<td>Absinthium, — 158</td>
</tr>
<tr>
<td>Pharnica, — 153</td>
<td>polifolia, — 179</td>
<td>maritima, — 151</td>
</tr>
<tr>
<td>tomentosa, — 153</td>
<td>Anemone, — 6</td>
<td>vulgaris, — 151</td>
</tr>
<tr>
<td><strong>Adiantum,</strong> 244</td>
<td>aepmina, — 6</td>
<td>Arum, — 561</td>
</tr>
<tr>
<td><strong>Capillus Veneris,</strong> — 244</td>
<td>—</td>
<td>Macelatum, — 263</td>
</tr>
<tr>
<td><strong>Adoxa,</strong> 63</td>
<td>—</td>
<td><strong>Arundina,</strong> — 315</td>
</tr>
<tr>
<td>moschatellina, — 63</td>
<td>—</td>
<td><strong>Epigecos,</strong> — 297</td>
</tr>
<tr>
<td><strong>Egopodium,</strong> — 63</td>
<td>—</td>
<td><strong>Phragmites,</strong> — 313</td>
</tr>
<tr>
<td><strong>Podagraria,</strong> — 63</td>
<td>—</td>
<td>Arrenatherum, Beauv. 302</td>
</tr>
<tr>
<td><strong>Achillea, — 43</strong></td>
<td>—</td>
<td>Asperula, Linn. 32</td>
</tr>
<tr>
<td><strong>Millefolium, — 43</strong></td>
<td>—</td>
<td>Cynanchica, — 132</td>
</tr>
<tr>
<td><strong>Aegopodium, — 43</strong></td>
<td>—</td>
<td>oiora, — 122</td>
</tr>
<tr>
<td><strong>Aegopodium, — 43</strong></td>
<td><strong>Adoxa, — 43</strong></td>
<td>Asphodellic, Br. 249</td>
</tr>
<tr>
<td><strong>Githago, — 43</strong></td>
<td>—</td>
<td>Aspidium, Sw. 338</td>
</tr>
<tr>
<td><strong>Agrostis, — 268</strong></td>
<td>—</td>
<td>aculeatum, Sw. 339</td>
</tr>
<tr>
<td><strong>Agrimony, — 53</strong></td>
<td>—</td>
<td>angularare, Wild. 339</td>
</tr>
<tr>
<td><strong>Agrimony, — 53</strong></td>
<td>—</td>
<td>cristatum, Sw. 346</td>
</tr>
<tr>
<td><strong>Eupatorium, — 53</strong></td>
<td>—</td>
<td>dictatum, Sw. 340</td>
</tr>
<tr>
<td><strong>Epigecos, — 53</strong></td>
<td>—</td>
<td>dumbetum, Sm. 341</td>
</tr>
<tr>
<td><strong>Eupatorium, — 53</strong></td>
<td>—</td>
<td>Filius fumina, Sw. 342</td>
</tr>
<tr>
<td><strong>Erigeron, — 53</strong></td>
<td>—</td>
<td>Filius maus, Sw. 342</td>
</tr>
<tr>
<td><strong>Erigeron, — 53</strong></td>
<td>—</td>
<td>fragilis, Hook. 341</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Spolonutrum, Sm. 341</td>
</tr>
<tr>
<td><strong>Agrostis, — 53</strong></td>
<td>—</td>
<td>Lobatum, Sw. 338</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Lonchitis, Sw. 338</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Oreoctheris, Sw. 339</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>spinulosum, Wild. 340</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Thelypteris, Sw. 340</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Asplenium, Linn. 341</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Adiantum-nigrum, L. 342</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Ceterach, Linn. 337</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Filius fumina, Bern. 342</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>maritimum, Linn. 341</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Ruta-muraria, — 342</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Scolopendrum, — 342</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Trichomanes, — 341</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Vircaria, Huds. 341</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Aster, Linn. 144</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Triplium, — 144</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Atragalus, — 76</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>hypoglossis, — 76</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Atriplex, — 229</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>angustifolia, Sm. 230</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>erecta, Huds. 230</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>baciniata, Linn. 230</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>littoralis, — 230</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>patula, — 230</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>pedunculata, — 231</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>portulacoides, — 230</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Atropa, — 191</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Belladonna, — 191</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>Avena, — 312</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>fatua, — 312</td>
</tr>
<tr>
<td><strong>Ageratum, — 53</strong></td>
<td>—</td>
<td>flavescens, — 313</td>
</tr>
<tr>
<td>INDEX.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Galeobdolon, Huds. 216</td>
<td>Heracleum, Linn. 115</td>
<td></td>
</tr>
<tr>
<td>Juteum, Huds. 216</td>
<td>Sphondylum, — 115</td>
<td></td>
</tr>
<tr>
<td>Galeopsis, Linn. 217</td>
<td>Hesperis, — 23</td>
<td></td>
</tr>
<tr>
<td>Ladanum, 217</td>
<td>Petunia, — 23</td>
<td></td>
</tr>
<tr>
<td>Tetrahit, 217</td>
<td>matronalis, — 23</td>
<td></td>
</tr>
<tr>
<td>Versicolor, Curt. 218</td>
<td>Hieracium, — 162</td>
<td></td>
</tr>
<tr>
<td>Galium, Linn. 129</td>
<td>Lawsoni, — 162</td>
<td></td>
</tr>
<tr>
<td>Arcine, 131</td>
<td>Molinia, — 162</td>
<td></td>
</tr>
<tr>
<td>Boreale, 131</td>
<td>Pulsatilla, — 163</td>
<td></td>
</tr>
<tr>
<td>Erectum, Huds. 131</td>
<td>Premna, — 163</td>
<td></td>
</tr>
<tr>
<td>Molugo, Linn. 131</td>
<td>Pulsatilla, — 163</td>
<td></td>
</tr>
<tr>
<td>Palustris, 130</td>
<td>Pulmonaria, Sm. 163</td>
<td></td>
</tr>
<tr>
<td>Pusillus, 131</td>
<td>Sabaudum, Sm. 164</td>
<td></td>
</tr>
<tr>
<td>Saxatile, 130</td>
<td>Sylvaicum, Sm. 163</td>
<td></td>
</tr>
<tr>
<td>Uliginosum, 130</td>
<td>Sylvicolum, Sm. 163</td>
<td></td>
</tr>
<tr>
<td>Verum, 130</td>
<td>Witheringi, Sm. 130</td>
<td></td>
</tr>
<tr>
<td>Genista, Linn. 74</td>
<td>Hippuris, — 113</td>
<td></td>
</tr>
<tr>
<td>Tincoria, — 74</td>
<td>vulgaris, — 113</td>
<td></td>
</tr>
<tr>
<td>Gentiane, Juss. 185</td>
<td>Holcus, — 301</td>
<td></td>
</tr>
<tr>
<td>Gentiana, Linn. 187</td>
<td>Labiate, Juss. 209</td>
<td></td>
</tr>
<tr>
<td>Amairella, — 187</td>
<td>Lamiun, — 216</td>
<td></td>
</tr>
<tr>
<td>Campestris, — 187</td>
<td>Hordeum, — 314</td>
<td></td>
</tr>
<tr>
<td>Centaurium, — 186</td>
<td>morium, — 314</td>
<td></td>
</tr>
<tr>
<td>Verna, 187</td>
<td>maritimum, — 314</td>
<td></td>
</tr>
<tr>
<td>Geraniaceae, Juss. 54</td>
<td>pratense, Huds. 314</td>
<td></td>
</tr>
<tr>
<td>Geranium, Linn. 55</td>
<td>Lapsana, — 160</td>
<td></td>
</tr>
<tr>
<td>Eucalytrum, — 57</td>
<td>palustris, — 194</td>
<td></td>
</tr>
<tr>
<td>Coloumbium, — 57</td>
<td>Lathyrus, — 234</td>
<td></td>
</tr>
<tr>
<td>Dissectum, — 56</td>
<td>Lupinus, — 234</td>
<td></td>
</tr>
<tr>
<td>Lucidum, — 55</td>
<td>Lupulus, — 234</td>
<td></td>
</tr>
<tr>
<td>maritim, — 57</td>
<td>Lychnis, — 234</td>
<td></td>
</tr>
<tr>
<td>Molle, — 56</td>
<td>Lycopersicum, Sm. 345</td>
<td></td>
</tr>
<tr>
<td>Moschatum, — 57</td>
<td>Hydrocharis, — 272</td>
<td></td>
</tr>
<tr>
<td>Pyrenacium, — 55</td>
<td>Hydrocharis, Juss. 272</td>
<td></td>
</tr>
<tr>
<td>Pusillus, — 56</td>
<td>Morsus Ranae, — 273</td>
<td></td>
</tr>
<tr>
<td>Robertianum, — 56</td>
<td>Hydrocotyle, — 129</td>
<td></td>
</tr>
<tr>
<td>Rotundifolium, — 56</td>
<td>Hypericum, Juss. 273</td>
<td></td>
</tr>
<tr>
<td>Sanguineum, — 55</td>
<td>Hymenoxys, Sm. 345</td>
<td></td>
</tr>
<tr>
<td>Sylvicolum, — 55</td>
<td>Linn. 166</td>
<td></td>
</tr>
<tr>
<td>Geum, — 94</td>
<td>Linn. 166</td>
<td></td>
</tr>
<tr>
<td>Rivala, — 94</td>
<td>Linn. 166</td>
<td></td>
</tr>
<tr>
<td>Urbanum, — 94</td>
<td>Linn. 166</td>
<td></td>
</tr>
<tr>
<td>Glauces, Juss. 14</td>
<td>Lepidium, — 26</td>
<td></td>
</tr>
<tr>
<td>Gentiane, Linn. 145</td>
<td>Hypericum, Linn. 38</td>
<td></td>
</tr>
<tr>
<td>Glauces, — 14</td>
<td>Hypericum, Sm. 38</td>
<td></td>
</tr>
<tr>
<td>Glauces, — 145</td>
<td>Hypericum, Linn. 38</td>
<td></td>
</tr>
<tr>
<td>Glaux, — 192</td>
<td>Hypericum, Sm. 38</td>
<td></td>
</tr>
<tr>
<td>Maritima, — 192</td>
<td>Hydrocharis, — 192</td>
<td></td>
</tr>
<tr>
<td>Glechoma, — 211</td>
<td>Hydrocharis, Juss. 192</td>
<td></td>
</tr>
<tr>
<td>Bederacea, — 211</td>
<td>Hydrangea, — 192</td>
<td></td>
</tr>
<tr>
<td>Glumes, Lindl. 294</td>
<td>Hydropiper, — 192</td>
<td></td>
</tr>
<tr>
<td>Gnaphalium, Linn. 145</td>
<td>Hypericum, Juss. 192</td>
<td></td>
</tr>
<tr>
<td>Diocicum, — 145</td>
<td>Hypericum, Sm. 192</td>
<td></td>
</tr>
<tr>
<td>Granicum, Huds. 145</td>
<td>Hypericum, Juss. 192</td>
<td></td>
</tr>
<tr>
<td>Margaritaceum, Linn. 145</td>
<td>Hypericum, Sm. 192</td>
<td></td>
</tr>
<tr>
<td>Minimum, Sm. 145</td>
<td>Hypericum, Juss. 192</td>
<td></td>
</tr>
<tr>
<td>Rectum, Huds. 146</td>
<td>Hypericum, Sm. 192</td>
<td></td>
</tr>
<tr>
<td>Sylvaticum, Linn. 145</td>
<td>Hydrocharis, — 192</td>
<td></td>
</tr>
<tr>
<td>Ulguinosum, — 146</td>
<td>Hydrocharis, Juss. 192</td>
<td></td>
</tr>
<tr>
<td>Gramineae, Juss. 291</td>
<td>Hydrocharis, Sm. 192</td>
<td></td>
</tr>
<tr>
<td>Gramminis, Sw. 337</td>
<td>Hydrocharis, Juss. 192</td>
<td></td>
</tr>
<tr>
<td>Ceterach, Sw. 337</td>
<td>Hydrocharis, Sm. 192</td>
<td></td>
</tr>
<tr>
<td>Gymnelage, D. C. 108</td>
<td>Hydrocharis, Juss. 192</td>
<td></td>
</tr>
<tr>
<td>Gymnadenia, Br. 276</td>
<td>Hydrocharis, Sm. 192</td>
<td></td>
</tr>
<tr>
<td>Conopsea, Br. 277</td>
<td>Hydrocharis, Juss. 192</td>
<td></td>
</tr>
<tr>
<td>Habernaria, Br. 277</td>
<td>Hydrocharis, Sm. 192</td>
<td></td>
</tr>
<tr>
<td>Abida, Br. 277</td>
<td>Hydrocharis, Juss. 192</td>
<td></td>
</tr>
<tr>
<td>Bifolia, Br. 277</td>
<td>Hydrocharis, Sm. 192</td>
<td></td>
</tr>
<tr>
<td>Chlorantha, Hook. 277</td>
<td>Isatis, Linn. 277</td>
<td></td>
</tr>
<tr>
<td>Viridis, Br. 277</td>
<td>Isatis, Linn. 277</td>
<td></td>
</tr>
<tr>
<td>Halopaeage, Br. 112</td>
<td>Isatis, Linn. 277</td>
<td></td>
</tr>
<tr>
<td>Hedera, Linn. 135</td>
<td>tinctoria, — 27</td>
<td></td>
</tr>
<tr>
<td>Heich, — 135</td>
<td>Isotes, — 348</td>
<td></td>
</tr>
<tr>
<td>Hederaeaceae, A.C. 135</td>
<td>Lycopus, — 348</td>
<td></td>
</tr>
<tr>
<td>Hedysarea, D.C. 83</td>
<td>Lycopus, Juss. 348</td>
<td></td>
</tr>
<tr>
<td>Helianthemum, Tourn. 33</td>
<td>Lycopersicum, Sm. 348</td>
<td></td>
</tr>
<tr>
<td>Volgare, Gart. 34</td>
<td>Lycopersicum, Juss. 348</td>
<td></td>
</tr>
<tr>
<td>Helianthus, Linn. 9</td>
<td>Lycopersicum, Sm. 348</td>
<td></td>
</tr>
<tr>
<td>Helix, — 10</td>
<td>Lycopersicum, Juss. 348</td>
<td></td>
</tr>
<tr>
<td>Helminthia, Juss. 161</td>
<td>Lycopersicum, Sm. 348</td>
<td></td>
</tr>
<tr>
<td>Echioides, Gart. 162</td>
<td>Lycopersicum, Juss. 348</td>
<td></td>
</tr>
<tr>
<td>bufoanlus, Linn. 290</td>
<td>Lycopersicum, Sm. 348</td>
<td></td>
</tr>
<tr>
<td>campestris, Rich. 290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>caesius, Rich. 290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>congergeratus, Linn. 290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>compressus, Jacq. 290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>effusus, Linn. 290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>glaucus, Sibth. 290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lycopodium, Ehrh. 290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>martius, Sm. 290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>obtusifolius, Ehrh. 290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ptilosis, Linn. 293</td>
<td></td>
<td></td>
</tr>
<tr>
<td>squarrosum, Steud. 296</td>
<td></td>
<td></td>
</tr>
<tr>
<td>subverticillatus, Sm. 292</td>
<td></td>
<td></td>
</tr>
<tr>
<td>uliginosum, Sibth. 291</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juniperus, Linn. 293</td>
<td></td>
<td></td>
</tr>
<tr>
<td>communis, — 295</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kautia, Linn. 142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>arvensis, Coutl. 142</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**ENGLISH INDEX**

**TO THE**

**GENERA AND THE MOST POPULAR SPECIFIC NAMES IN PART FIRST.**

<table>
<thead>
<tr>
<th>ENGLISH</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abele</td>
<td>254</td>
</tr>
<tr>
<td>Adder’s-tongue</td>
<td>346</td>
</tr>
<tr>
<td>Agrimony</td>
<td>96</td>
</tr>
<tr>
<td>Alder</td>
<td>242</td>
</tr>
<tr>
<td>Alexanders</td>
<td>127</td>
</tr>
<tr>
<td>Alkanet</td>
<td>168</td>
</tr>
<tr>
<td>Andromeda</td>
<td>179</td>
</tr>
<tr>
<td>Anemone</td>
<td>6</td>
</tr>
<tr>
<td>Angelica</td>
<td>116</td>
</tr>
<tr>
<td>Apple</td>
<td>161</td>
</tr>
<tr>
<td>Arrow-grass</td>
<td>271</td>
</tr>
<tr>
<td>Arrow-head</td>
<td>271</td>
</tr>
<tr>
<td>Ash</td>
<td>178</td>
</tr>
<tr>
<td>Aspen</td>
<td>254</td>
</tr>
<tr>
<td>Avenus</td>
<td>94</td>
</tr>
<tr>
<td>Awilwort</td>
<td>30</td>
</tr>
<tr>
<td>Barberry</td>
<td>11</td>
</tr>
<tr>
<td>Barley</td>
<td>314</td>
</tr>
<tr>
<td>Bartisia</td>
<td>292</td>
</tr>
<tr>
<td>Beaked-Parsley</td>
<td>125</td>
</tr>
<tr>
<td>Beak-rush</td>
<td>319</td>
</tr>
<tr>
<td>Bearberry</td>
<td>183</td>
</tr>
<tr>
<td>Bed-straw</td>
<td>129</td>
</tr>
<tr>
<td>Beech</td>
<td>234</td>
</tr>
<tr>
<td>Beet</td>
<td>229</td>
</tr>
<tr>
<td>Bell-flower</td>
<td>137</td>
</tr>
<tr>
<td>Bent-grass</td>
<td>298</td>
</tr>
<tr>
<td>Betony</td>
<td>245</td>
</tr>
<tr>
<td>Bilberry</td>
<td>136</td>
</tr>
<tr>
<td>Bindweed</td>
<td>172</td>
</tr>
<tr>
<td>Birch</td>
<td>242</td>
</tr>
<tr>
<td>Bird-cherry</td>
<td>87</td>
</tr>
<tr>
<td>Bird’s-foot</td>
<td>85</td>
</tr>
<tr>
<td>Bird’s-foot Trefoil</td>
<td>77</td>
</tr>
<tr>
<td>Bird’s-nest</td>
<td>184</td>
</tr>
<tr>
<td>Bird’s-nest Orchis</td>
<td>279</td>
</tr>
<tr>
<td>Bistort</td>
<td>222</td>
</tr>
<tr>
<td>Bitter-sweet</td>
<td>131</td>
</tr>
<tr>
<td>Bitter-vetch</td>
<td>84</td>
</tr>
<tr>
<td>Black-thorn</td>
<td>87</td>
</tr>
<tr>
<td>Bladder-fenn</td>
<td>341</td>
</tr>
<tr>
<td>Bladder-wort</td>
<td>197</td>
</tr>
<tr>
<td>Blinks</td>
<td>59</td>
</tr>
<tr>
<td>Blue-bottle</td>
<td>157</td>
</tr>
<tr>
<td>Blysmus</td>
<td>319</td>
</tr>
<tr>
<td>Bog-Apodanthera</td>
<td>250</td>
</tr>
<tr>
<td>Bog-Orchis</td>
<td>281</td>
</tr>
<tr>
<td>Bog-rush</td>
<td>320</td>
</tr>
<tr>
<td>Borage</td>
<td>189</td>
</tr>
<tr>
<td>Brake</td>
<td>343</td>
</tr>
<tr>
<td>Bramble</td>
<td>88</td>
</tr>
<tr>
<td>Brattle-fenn</td>
<td>344</td>
</tr>
<tr>
<td>Brome-grass</td>
<td>210</td>
</tr>
<tr>
<td>Brookline</td>
<td>159</td>
</tr>
<tr>
<td>Brook-weed</td>
<td>195</td>
</tr>
<tr>
<td>Broom</td>
<td>75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ENGLISH</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broom-rake</td>
<td>206</td>
</tr>
<tr>
<td>Buck-bean</td>
<td>188</td>
</tr>
<tr>
<td>Buckthorn</td>
<td>71</td>
</tr>
<tr>
<td>Buckwheat</td>
<td>224</td>
</tr>
<tr>
<td>Bugie</td>
<td>210</td>
</tr>
<tr>
<td>Bugloss</td>
<td>169</td>
</tr>
<tr>
<td>Bullace-tree</td>
<td>87</td>
</tr>
<tr>
<td>Bull-rush</td>
<td>322</td>
</tr>
<tr>
<td>Burdock</td>
<td>156</td>
</tr>
<tr>
<td>Burnet.Saxifrage</td>
<td>122</td>
</tr>
<tr>
<td>Bur-marigold</td>
<td>154</td>
</tr>
<tr>
<td>Bur-reed</td>
<td>263</td>
</tr>
<tr>
<td>Bur-weed</td>
<td>153</td>
</tr>
<tr>
<td>Butter-bur</td>
<td>148</td>
</tr>
<tr>
<td>Butter-wort</td>
<td>195</td>
</tr>
<tr>
<td>Cabbage</td>
<td>28</td>
</tr>
<tr>
<td>Calamint</td>
<td>219</td>
</tr>
<tr>
<td>Campanium or Catchfly</td>
<td>43</td>
</tr>
<tr>
<td>Canarie-grass</td>
<td>251</td>
</tr>
<tr>
<td>Caraway</td>
<td>129</td>
</tr>
<tr>
<td>Carex</td>
<td>325</td>
</tr>
<tr>
<td>Carlina-thistle</td>
<td>156</td>
</tr>
<tr>
<td>Carrot</td>
<td>115</td>
</tr>
<tr>
<td>Catchfly</td>
<td>41</td>
</tr>
<tr>
<td>Cat-mint</td>
<td>217</td>
</tr>
<tr>
<td>Cat’s-car</td>
<td>152</td>
</tr>
<tr>
<td>Cat’s-tail</td>
<td>202</td>
</tr>
<tr>
<td>Cat’s-tail-grass</td>
<td>296</td>
</tr>
<tr>
<td>Celandine</td>
<td>14</td>
</tr>
<tr>
<td>Celery</td>
<td>124</td>
</tr>
<tr>
<td>Century</td>
<td>186</td>
</tr>
<tr>
<td>Chauffeas</td>
<td>192</td>
</tr>
<tr>
<td>Chamomille</td>
<td>132</td>
</tr>
<tr>
<td>Cherry</td>
<td>87</td>
</tr>
<tr>
<td>Chervil</td>
<td>125</td>
</tr>
<tr>
<td>Chesnut</td>
<td>235</td>
</tr>
<tr>
<td>Chirock</td>
<td>29</td>
</tr>
<tr>
<td>Chickweed</td>
<td>49</td>
</tr>
<tr>
<td>Ciceley</td>
<td>126</td>
</tr>
<tr>
<td>Cinquefoil</td>
<td>92</td>
</tr>
<tr>
<td>Cisry</td>
<td>269</td>
</tr>
<tr>
<td>Cleavers</td>
<td>131</td>
</tr>
<tr>
<td>Cloud-berry</td>
<td>91</td>
</tr>
<tr>
<td>Clover</td>
<td>77</td>
</tr>
<tr>
<td>Clas-moss</td>
<td>347</td>
</tr>
<tr>
<td>Club-rush</td>
<td>322</td>
</tr>
<tr>
<td>Cockie</td>
<td>43</td>
</tr>
<tr>
<td>Cock’s-foot-grass</td>
<td>367</td>
</tr>
<tr>
<td>Colt’s-foot</td>
<td>148</td>
</tr>
<tr>
<td>Columbine</td>
<td>10</td>
</tr>
<tr>
<td>Confrey</td>
<td>168</td>
</tr>
<tr>
<td>Cornnell</td>
<td>135</td>
</tr>
<tr>
<td>Corn-flag</td>
<td>164</td>
</tr>
<tr>
<td>Corn-silcid</td>
<td>128</td>
</tr>
<tr>
<td>Corydalis</td>
<td>15</td>
</tr>
<tr>
<td>Cotton-grass</td>
<td>323</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ENGLISH</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow-bane</td>
<td>124</td>
</tr>
<tr>
<td>Cow-slip</td>
<td>193</td>
</tr>
<tr>
<td>Cow-Parsnip</td>
<td>115</td>
</tr>
<tr>
<td>Cow-wheat</td>
<td>207</td>
</tr>
<tr>
<td>Crab-Apple</td>
<td>107</td>
</tr>
<tr>
<td>Cran-berry</td>
<td>136</td>
</tr>
<tr>
<td>Cranes-bill</td>
<td>55</td>
</tr>
<tr>
<td>Cress</td>
<td>17</td>
</tr>
<tr>
<td>Crocus</td>
<td>274</td>
</tr>
<tr>
<td>Crow-berry</td>
<td>238</td>
</tr>
<tr>
<td>Crowfoot</td>
<td>26</td>
</tr>
<tr>
<td>Cuckow-pint</td>
<td>261</td>
</tr>
<tr>
<td>Cudweed</td>
<td>145</td>
</tr>
<tr>
<td>Currant</td>
<td>108</td>
</tr>
<tr>
<td>Cylisus</td>
<td>75</td>
</tr>
<tr>
<td>Daffodil</td>
<td>233</td>
</tr>
<tr>
<td>Dandelion</td>
<td>160</td>
</tr>
<tr>
<td>Daisy</td>
<td>149</td>
</tr>
<tr>
<td>Dame’s-Violet</td>
<td>23</td>
</tr>
<tr>
<td>Darnel</td>
<td>316</td>
</tr>
<tr>
<td>Dead-nettle</td>
<td>216</td>
</tr>
<tr>
<td>Dewberry</td>
<td>91</td>
</tr>
<tr>
<td>Dock</td>
<td>121</td>
</tr>
<tr>
<td>Doffer</td>
<td>173</td>
</tr>
<tr>
<td>Dog-rose</td>
<td>100</td>
</tr>
<tr>
<td>Dog’s-tail-grass</td>
<td>207</td>
</tr>
<tr>
<td>Dog’s-wood</td>
<td>135</td>
</tr>
<tr>
<td>Dryas</td>
<td>49</td>
</tr>
<tr>
<td>Duckweed</td>
<td>269</td>
</tr>
<tr>
<td>Dutch-clover</td>
<td>77</td>
</tr>
<tr>
<td>Dwale</td>
<td>191</td>
</tr>
<tr>
<td>Dwarf-Elder</td>
<td>134</td>
</tr>
<tr>
<td>Earth-nut</td>
<td>121</td>
</tr>
<tr>
<td>Elder</td>
<td>134</td>
</tr>
<tr>
<td>Eleicampane</td>
<td>143</td>
</tr>
<tr>
<td>Elm</td>
<td>240</td>
</tr>
<tr>
<td>Enchanter’s Nightshade</td>
<td>111</td>
</tr>
<tr>
<td>Eryngo</td>
<td>128</td>
</tr>
<tr>
<td>Eye-bright</td>
<td>202</td>
</tr>
<tr>
<td>False-Brome-grass</td>
<td>315</td>
</tr>
<tr>
<td>Fenemel</td>
<td>119</td>
</tr>
<tr>
<td>Fereus</td>
<td>336</td>
</tr>
<tr>
<td>Fescue-grass</td>
<td>307</td>
</tr>
<tr>
<td>Fever-few</td>
<td>149</td>
</tr>
<tr>
<td>Field-madder</td>
<td>132</td>
</tr>
<tr>
<td>Figwort</td>
<td>295</td>
</tr>
<tr>
<td>Fir</td>
<td>258</td>
</tr>
<tr>
<td>Flux</td>
<td>51</td>
</tr>
<tr>
<td>Flux-seed</td>
<td>52</td>
</tr>
<tr>
<td>Flea-bane</td>
<td>143, 144</td>
</tr>
<tr>
<td>Flix-weed</td>
<td>24</td>
</tr>
<tr>
<td>Flower-de-Luce</td>
<td>273</td>
</tr>
<tr>
<td>Flowering-fern</td>
<td>345</td>
</tr>
</tbody>
</table>
|-
<p>| Flowering Rush | 288 |
| Fool's Parsley | 118 |
| Forget-me-not | 170 |
| Foxglove | 204 |
| Fescue-grass | 295 |
| Frog-bit | 272 |
| Fumitory | 16 |
| Furze | 74 |
| Gale | 257 |
| Garlic | 285 |
| Garden Burnet | 106 |
| Gentian | 187 |
| Gentianella | 185 |
| Germander | 210 |
| Gipsy-wort | 209 |
| Glasswort | 226 |
| Globe-flower | 9 |
| Goat's-beard | 165 |
| Gold of Pleasure | 25 |
| Gonoo-red | 145 |
| Golden Saxifrage | 143 |
| Good King Henry | 228 |
| Good-shepherd | 109 |
| Goose-foot | 227 |
| Gorse | 74 |
| Gout-weed | 123 |
| Grass-mtitis | 337 |
| Grass of Parnassus | 64 |
| Grass-wrack | 267 |
| Green-weed | 74 |
| Grass-wax | 168 |
| Ground-Ivy | 211 |
| Groundsel | 147 |
| Guelder-rose | 131 |
| Gymnadenia | 270 |
| Hacket | 106 |
| Harebell | 137 |
| Hart's-tongue | 342 |
| Hasel-nut | 255 |
| Hawkbit | 166 |
| Hawkweed | 162 |
| Hawk's-bane | 161 |
| Habon | 107 |
| Heart's-case | 32 |
| Heath | 180 |
| Heath-grass | 306 |
| Hedge Mustard | 26 |
| Hedge Parsley | 114 |
| Helleborine | 10 |
| Hellobinite | 280 |
| Hemlock | 127 |
| Hemp-agrimony | 142 |
| Hemp-nettle | 217 |
| Henbane | 190 |
| Herb Paris | 297 |
| Herb Robert | 55 |
| Heron's-bill | 57 |
| Hog's Fennel | 116 |
| Holly | 72 |
| Honewort | 123 |
| Honeysuckle | 133 |
| Horse | 233 |
| Horsehound | 214 |
| Hornbeam | 257 |
| Horned-pondweed | 263 |
| Horset Poppy | 14 |
| Horse-tail | 420 |
| Horse-tail | 92 |
| Horse-tail | 340 |
| Hound's-tongue | 171 |
| Honeysuckle | 62 |
| Hyaeb | 296 |
| Iris | 273 |
| Ivy | 135 |
| Jack-by-the-Hedge | 174 |
| Jacob's Ladder | 174 |
| Juniper | 259 |
| Kale | 29 |
| Kidney-vetch | 75 |
| Knapsweed | 157 |
| Lamb's-ears | 142 |
| Lamb's-ears | 281 |
| Knot-grass | 223 |
| Lime-tree | 53 |
| Ling | 180 |
| Lobelia | 139 |
| London Rocket | 24 |
| London Pride | 65 |
| Loosestrife | 193 |
| Loose-wort | 20 |
| Lovage | 117 |
| Lyne-grass | 313 |
| Madder | 132 |
| Maidenhair | 341 |
| Mallow | 36 |
| Maple | 54 |
| Marigold | 133 |
| Marigold | 220 |
| Marsh-marigold | 9 |
| Marsh-marigold | 116 |
| Mat-grass | 318 |
| Meadow-grass | 302 |
| Meadow-grass | 5 |
| Meadow-saffron | 242 |
| Meadow-sweet | 86 |
| Medic | 90 |
| Melle-grass | 301 |
| Melilot | 76 |
| Menziea | 180 |
| Mercury | 237 |
| Mignonette, wild | 281 |
| Milfoil | 133 |
| Mistle | 42 |
| Motherwort | 212 |
| Mountain Ash | 108 |
| Mountain Sorrel | 223 |
| Mouse-cant Chickweed | 48 |
| Mugwort | 151 |
| Mullein | 190 |
| Mustard | 29 |
| Narcissus | 283 |
| Nasturtium | 17 |
| Navew | 28 |
| Nettle | 232 |
| Nightshade | 191 |
| Nipple-wort | 160 |
| None so pretty | 65 |
| Oak | 255 |
| Oak or Oat-grass | 312 |
| Oat-like-grass | 302 |
| Oats | 267 |
| Ophry | 278 |
| Ophry | 149 |
| Orach | 229 |
| Orchis | 275 |
| Oripina | 60 |
| Oser | 243 |
| Osmund-royal | 245 |
| Ox-eye | 189 |
| Ox-lip | 193 |
| Ox-tonque | 162 |
| Panay | 33 |
| Parsnip | 113 |
| Pea | 81 |
| Pear-tree | 107 |
| Pearl-wort | 45 |
| Penny-royal | 214 |
| Penny-cress | 22 |
| Pepper-mint | 212 |
| Pepper-Saxifrage | 118 |
| Pepper-wort | 25 |
| Periwinkle | 184 |
| Persicaria | 223 |
| Pieris | 165 |
| Pike-wort | 7 |
| Pill-wort | 348 |
| Pimpernel | 194 |
| Pink | 40 |
| Pipewort | 288 |
| Plantain | 175 |
| Plum | 86 |
| Plume-thistle | 155 |
| Polygory | 357 |
| Pond-wood | 284 |
| Poor Man's Weather-grass | 194 |
| Poplar | 253 |
| Poppy | 13 |
| Primrose | 193 |
| Privet | 175 |
| Purple Loosestrife | 70 |
| Purslane | 69 |
| Quaking-grass | 306 |
| Quicken-tree | 108 |
| Quill-wort | 348 |
| Radish | 30 |
| Rag-wort | 147 |
| Ragged Robin | 43 |
| Ramsom | 285 |
| Rape | 28 |
| Raspberry | 88 |
| Reed | 313 |
| Reed-mace | 133 |
| Rest-harrow | 73 |
| Rock-brake | 343 |
| Rocket | 234 |
| Rock-cress | 19 |
| Rock-rose | 34 |
| Rose-root (Addenda) | 255 |
| Rose | 55 |
| Rupella | 267 |
| Rush | 289 |
| Rye-grass | 317 |
| Sage | 299 |
| Sallow | 243 |
| Salt-wort | 226 |
| Samphire | 117 |
| Sandwort | 46 |
| Sandile | 246 |
| Saponaria | 314 |
| Saxifrage | 64 |
| Scabions | 141 |
| Scorpion-grass | 170 |
| Sea-sorrel | 52 |
| Sea Lavender | 177 |
| Sea-milkwort | 192 |
| Sea-reed | 256 |
| Sea-Rocket | 22 |
| Sedge | 325 |</p>
<table>
<thead>
<tr>
<th>INDEX</th>
<th>271</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAGE</strong></td>
<td><strong>PAGE</strong></td>
</tr>
<tr>
<td>Self-heal</td>
<td>219</td>
</tr>
<tr>
<td>Service tree</td>
<td>107</td>
</tr>
<tr>
<td>Sheep's-bit</td>
<td>138</td>
</tr>
<tr>
<td>Shepherd's-needle</td>
<td>126</td>
</tr>
<tr>
<td>Shepherd's-purse</td>
<td>26</td>
</tr>
<tr>
<td>Sherardia</td>
<td>132</td>
</tr>
<tr>
<td>Shield-fern</td>
<td>338</td>
</tr>
<tr>
<td>Shore-weed</td>
<td>176</td>
</tr>
<tr>
<td>Silver-weed</td>
<td>93</td>
</tr>
<tr>
<td>Sibthorpie</td>
<td>204</td>
</tr>
<tr>
<td>Skull-cap</td>
<td>218</td>
</tr>
<tr>
<td>Sile</td>
<td>87</td>
</tr>
<tr>
<td>Small.reed</td>
<td>297</td>
</tr>
<tr>
<td>Snapdragon</td>
<td>294</td>
</tr>
<tr>
<td>Snowdrop</td>
<td>283</td>
</tr>
<tr>
<td>Soft-grass</td>
<td>301</td>
</tr>
<tr>
<td>Soap-wort</td>
<td>41</td>
</tr>
<tr>
<td>Sorrel</td>
<td>221</td>
</tr>
<tr>
<td>Sow-thistle</td>
<td>159</td>
</tr>
<tr>
<td>Spear-wort</td>
<td>7</td>
</tr>
<tr>
<td>Speedwell</td>
<td>198</td>
</tr>
<tr>
<td>Spike.rush</td>
<td>320</td>
</tr>
<tr>
<td>Spindle-tree</td>
<td>40</td>
</tr>
<tr>
<td>Spirea</td>
<td>86</td>
</tr>
<tr>
<td>Spleenwort</td>
<td>341</td>
</tr>
<tr>
<td>Spurge</td>
<td>235</td>
</tr>
<tr>
<td>Spurrey</td>
<td>44</td>
</tr>
<tr>
<td>Squill</td>
<td>286</td>
</tr>
<tr>
<td>St. John's-wort</td>
<td>38</td>
</tr>
<tr>
<td>Star.thistle</td>
<td>157</td>
</tr>
<tr>
<td>Starwort</td>
<td>144</td>
</tr>
<tr>
<td>Stitchwort</td>
<td>45</td>
</tr>
<tr>
<td>Stock</td>
<td>17</td>
</tr>
<tr>
<td>Stone-crop</td>
<td>60</td>
</tr>
<tr>
<td>Strawberry</td>
<td>92</td>
</tr>
<tr>
<td>Strawberry-tree</td>
<td>182</td>
</tr>
<tr>
<td>Sundew</td>
<td>34</td>
</tr>
<tr>
<td>Sweet-briar</td>
<td>100</td>
</tr>
<tr>
<td>Tansy</td>
<td>151</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# INDEX

**OF THE GENERA AND SPECIES IN PART SECOND.**

<table>
<thead>
<tr>
<th>Index</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aleatoria</td>
<td>Ach. 85</td>
</tr>
<tr>
<td>juvata</td>
<td>Ach. 86</td>
</tr>
<tr>
<td>Andreaea</td>
<td>Ehrh. 7</td>
</tr>
<tr>
<td>alpina</td>
<td>Hedw. 7</td>
</tr>
<tr>
<td>Rothii</td>
<td>Mohr. 7</td>
</tr>
<tr>
<td>rupestris</td>
<td>Hedw. 7</td>
</tr>
<tr>
<td>Anictangium</td>
<td>Hedw. 11</td>
</tr>
<tr>
<td>ciliatum</td>
<td>Hedw. 12</td>
</tr>
<tr>
<td>striatum</td>
<td>Hook. 12</td>
</tr>
<tr>
<td>Anomodon</td>
<td>H. &amp; T. 35</td>
</tr>
<tr>
<td>curtipes</td>
<td>H. &amp; T. 35</td>
</tr>
<tr>
<td>vitticolum</td>
<td>H. &amp; T. 35</td>
</tr>
<tr>
<td>Anthoceros</td>
<td>Linn. 68</td>
</tr>
<tr>
<td>punctatus</td>
<td>Linn. 68</td>
</tr>
<tr>
<td>Arthemia</td>
<td>Ach. 101</td>
</tr>
<tr>
<td>impolita</td>
<td>Borr. 101</td>
</tr>
<tr>
<td>ilicina</td>
<td>Tabl. 105</td>
</tr>
<tr>
<td>lurida</td>
<td>Ach. 105</td>
</tr>
<tr>
<td>Swartziana</td>
<td>Ach. 104</td>
</tr>
<tr>
<td>Bromyces</td>
<td>Pers. 78</td>
</tr>
<tr>
<td>anomalus</td>
<td>Tabl. 79</td>
</tr>
<tr>
<td>furfuraceus</td>
<td>Tabl. 78</td>
</tr>
<tr>
<td>microcephalus</td>
<td>Tabl. 78</td>
</tr>
<tr>
<td>rupestris</td>
<td>Pers. 78</td>
</tr>
<tr>
<td>Bartramia</td>
<td>Hedw. 34</td>
</tr>
<tr>
<td>arcuata</td>
<td>Brd. 34</td>
</tr>
<tr>
<td>fontana</td>
<td>Sw. 34</td>
</tr>
<tr>
<td>gracilis</td>
<td>Fleurke 34</td>
</tr>
<tr>
<td>Halleria</td>
<td>Hedw. 34</td>
</tr>
<tr>
<td>ithyhydra</td>
<td>Brd. 34</td>
</tr>
<tr>
<td>pinniformis</td>
<td>Hedw. 34</td>
</tr>
<tr>
<td>Bryum</td>
<td>Linn. 31</td>
</tr>
<tr>
<td>alpinum</td>
<td>Linn. 32</td>
</tr>
<tr>
<td>argenteum</td>
<td>Linn. 31</td>
</tr>
<tr>
<td>caespitum</td>
<td>Linn. 32</td>
</tr>
<tr>
<td>capillare</td>
<td>Linn. 32</td>
</tr>
<tr>
<td>carneum</td>
<td>Linn. 31</td>
</tr>
<tr>
<td>crumulum</td>
<td>Hedw. 31</td>
</tr>
<tr>
<td>dealbatum</td>
<td>Dicks. 31</td>
</tr>
<tr>
<td>elongatam</td>
<td>Dicks. 32</td>
</tr>
<tr>
<td>hornum</td>
<td>Schreb. 33</td>
</tr>
<tr>
<td>jucaecum</td>
<td>Schrad. 31</td>
</tr>
<tr>
<td>ligulatum</td>
<td>Schreb. 33</td>
</tr>
<tr>
<td>nutans</td>
<td>Schreb. 32</td>
</tr>
<tr>
<td>palustrum</td>
<td>Sw. 31</td>
</tr>
<tr>
<td>punctatum</td>
<td>Schreb. 33</td>
</tr>
<tr>
<td>roseum</td>
<td>Schreb. 33</td>
</tr>
<tr>
<td>rostratum</td>
<td>Schrad. 33</td>
</tr>
<tr>
<td>trichocenum</td>
<td>Schrad. 33</td>
</tr>
<tr>
<td>turbinatum</td>
<td>Sw. 32</td>
</tr>
<tr>
<td>ventricosum</td>
<td>Dicks. 33</td>
</tr>
<tr>
<td>Zierii</td>
<td>Dicks. 32</td>
</tr>
<tr>
<td>Calcium</td>
<td>Ach. 77</td>
</tr>
<tr>
<td>capitellatum</td>
<td>Ach. 78</td>
</tr>
<tr>
<td>clavulatum</td>
<td>Ach. 78</td>
</tr>
<tr>
<td>furfuraceum</td>
<td>Pers. 78</td>
</tr>
<tr>
<td>hypericum</td>
<td>Ach. 77</td>
</tr>
<tr>
<td>spherocephalum</td>
<td>Ach. 75</td>
</tr>
<tr>
<td>Conomyces</td>
<td>Ach. 79</td>
</tr>
<tr>
<td>bacillaris</td>
<td>Ach. 82</td>
</tr>
<tr>
<td>bellidiflora</td>
<td>Ach. 82</td>
</tr>
<tr>
<td>cariosi</td>
<td>Ach. 80</td>
</tr>
<tr>
<td>cervicornis</td>
<td>Ach. 81</td>
</tr>
<tr>
<td>coccifera</td>
<td>Ach. 81</td>
</tr>
<tr>
<td>cornuta</td>
<td>Ach. 81</td>
</tr>
<tr>
<td>ecnocynna</td>
<td>Ach. 82</td>
</tr>
<tr>
<td>efronis</td>
<td>Tyl. 82</td>
</tr>
<tr>
<td>fumutrita</td>
<td>Ach. 81</td>
</tr>
<tr>
<td>furcata</td>
<td>Ach. 80</td>
</tr>
<tr>
<td>gracilis</td>
<td>Ach. 82</td>
</tr>
<tr>
<td>lappillaria</td>
<td>Ach. 82</td>
</tr>
<tr>
<td>parastica</td>
<td>Tyl. 80</td>
</tr>
<tr>
<td>pisidota</td>
<td>Ach. 81</td>
</tr>
<tr>
<td>racemos</td>
<td>Ach. 80</td>
</tr>
<tr>
<td>radiata</td>
<td>Ach. 81</td>
</tr>
<tr>
<td>rangiferina</td>
<td>Ach. 78</td>
</tr>
<tr>
<td>sparass</td>
<td>Ach. 80</td>
</tr>
<tr>
<td>uncials</td>
<td>Ach. 79</td>
</tr>
<tr>
<td>Cetraria</td>
<td>Ach. 154</td>
</tr>
<tr>
<td>glauca</td>
<td>Ach. 154</td>
</tr>
<tr>
<td>islandica</td>
<td>Ach. 155</td>
</tr>
<tr>
<td>Cinclidotus</td>
<td>Beauv. 27</td>
</tr>
<tr>
<td>fontinaloides</td>
<td>Beauv. 27</td>
</tr>
<tr>
<td>Cladonia fuscata</td>
<td>Hoffm. 80</td>
</tr>
<tr>
<td>rangiferina</td>
<td>Hoffm. 79</td>
</tr>
<tr>
<td>uncials</td>
<td>Hoffm. 79</td>
</tr>
<tr>
<td>Colonia</td>
<td>Ach. 107</td>
</tr>
<tr>
<td>curlyss</td>
<td>Ach. 107</td>
</tr>
<tr>
<td>crispum</td>
<td>Borr. 110</td>
</tr>
<tr>
<td>cristatum</td>
<td>Hoffm. 108</td>
</tr>
<tr>
<td>fuscum</td>
<td>Ach. 110</td>
</tr>
<tr>
<td>fragile</td>
<td>Tyl. 109</td>
</tr>
<tr>
<td>fragrans</td>
<td>Ach. 107</td>
</tr>
<tr>
<td>furcata</td>
<td>Ach. 110</td>
</tr>
<tr>
<td>glomerulosum</td>
<td>Ach. 108</td>
</tr>
<tr>
<td>granulatum</td>
<td>Hoffm. 110</td>
</tr>
<tr>
<td>lacerum</td>
<td>Ach. 111</td>
</tr>
<tr>
<td>limosum</td>
<td>Ach. 108</td>
</tr>
<tr>
<td>marginale</td>
<td>Hoffm. 100</td>
</tr>
<tr>
<td>melanium, $\beta$</td>
<td>Ach. 109</td>
</tr>
<tr>
<td>multipartium</td>
<td>Sm. 108</td>
</tr>
<tr>
<td>musciola</td>
<td>Ach. 111</td>
</tr>
<tr>
<td>nigrescens</td>
<td>Ach. 110</td>
</tr>
<tr>
<td>nigrum</td>
<td>Ach. 107</td>
</tr>
<tr>
<td>patagonium</td>
<td>Ach. 108</td>
</tr>
<tr>
<td>sibarium</td>
<td>Hoffm. 110</td>
</tr>
<tr>
<td>spongosum</td>
<td>Ach. 111</td>
</tr>
<tr>
<td>subtile</td>
<td>Ach. 111</td>
</tr>
<tr>
<td>synalunis</td>
<td>Ach. 108</td>
</tr>
<tr>
<td>tremelloides</td>
<td>Ach. 111</td>
</tr>
<tr>
<td>Cornicularia</td>
<td>Ach. 85</td>
</tr>
<tr>
<td>aculeata</td>
<td>Ach. 86</td>
</tr>
<tr>
<td>lanata</td>
<td>Ach. 87</td>
</tr>
<tr>
<td>tristis</td>
<td>Ach. 85</td>
</tr>
<tr>
<td>Daltonia</td>
<td>H. &amp; T. 36</td>
</tr>
<tr>
<td>heteromalla</td>
<td>H. &amp; T. 36</td>
</tr>
<tr>
<td>Dieranium</td>
<td>Hedw. 21</td>
</tr>
<tr>
<td>adiantoides</td>
<td>Sw. 22</td>
</tr>
<tr>
<td>bryoides</td>
<td>Sw. 21</td>
</tr>
<tr>
<td>cerviculatum</td>
<td>Hedw. 22</td>
</tr>
<tr>
<td>crisum</td>
<td>Hedw. 23</td>
</tr>
<tr>
<td>flagellar</td>
<td>Hedw. 23</td>
</tr>
<tr>
<td>flavescentum</td>
<td>Sm. 22</td>
</tr>
<tr>
<td>flexuosum</td>
<td>Hedw. 22</td>
</tr>
<tr>
<td>fulvescens</td>
<td>Sm. 24</td>
</tr>
<tr>
<td>glaucum</td>
<td>Hedw. 22</td>
</tr>
<tr>
<td>heteromallum</td>
<td>Hedw. 24</td>
</tr>
<tr>
<td>latifolium</td>
<td>Hedw. 22</td>
</tr>
<tr>
<td>longifolium</td>
<td>Hedw. 22</td>
</tr>
<tr>
<td>pelliculum</td>
<td>Sw. 23</td>
</tr>
<tr>
<td>sepiarium</td>
<td>Hedw. 24</td>
</tr>
<tr>
<td>Scottium</td>
<td>Turn. 25</td>
</tr>
<tr>
<td>squarrosum</td>
<td>Schrad. 25</td>
</tr>
<tr>
<td>subulatum</td>
<td>Hedw. 24</td>
</tr>
<tr>
<td>taxifolium</td>
<td>Sw. 22</td>
</tr>
<tr>
<td>undulatum</td>
<td>Ehrh. 24</td>
</tr>
<tr>
<td>varius</td>
<td>Hedw. 24</td>
</tr>
<tr>
<td>Didymodon</td>
<td>Hedw. 17</td>
</tr>
<tr>
<td>brachydotius</td>
<td>Hook. 18</td>
</tr>
<tr>
<td>Bruntoni</td>
<td>Arnott. 18</td>
</tr>
<tr>
<td>capillaceus</td>
<td>Schrad. 18</td>
</tr>
<tr>
<td>cylinderius</td>
<td>Hook. 19</td>
</tr>
<tr>
<td>heteromallus</td>
<td>H. &amp; T. 19</td>
</tr>
<tr>
<td>inclinatus</td>
<td>Sw. 17</td>
</tr>
<tr>
<td>revolus</td>
<td>H. &amp; T. 19</td>
</tr>
<tr>
<td>purpurascens</td>
<td>H. &amp; T. 17</td>
</tr>
<tr>
<td>pulsillus</td>
<td>Hedw. 19</td>
</tr>
<tr>
<td>rigidulus</td>
<td>Hedw. 18</td>
</tr>
<tr>
<td>trilacerum</td>
<td>Sw. 18</td>
</tr>
<tr>
<td>Diphysium</td>
<td>Mohr. 12</td>
</tr>
<tr>
<td>foliosum</td>
<td>Mohr. 12</td>
</tr>
<tr>
<td>Encalypta</td>
<td>Hedw. 13</td>
</tr>
<tr>
<td>rhaponticarpa</td>
<td>Schwae. 13</td>
</tr>
<tr>
<td>streptocarpa</td>
<td>Hedw. 13</td>
</tr>
<tr>
<td>vulgaris</td>
<td>Hedw. 13</td>
</tr>
<tr>
<td>Endocarpum</td>
<td>Hedw. 53</td>
</tr>
<tr>
<td>fuscum</td>
<td>Ach. 101</td>
</tr>
<tr>
<td>lachneum</td>
<td>Ach. 99</td>
</tr>
<tr>
<td>late-vires</td>
<td>Hook. 101</td>
</tr>
<tr>
<td>leptophyllum</td>
<td>Ach. 99</td>
</tr>
<tr>
<td>miniatulum</td>
<td>Ach. 98</td>
</tr>
<tr>
<td>pallidum</td>
<td>Ach. 99</td>
</tr>
<tr>
<td>pulechreum</td>
<td>Hook. 101</td>
</tr>
<tr>
<td>pusillum</td>
<td>Hedw. 99</td>
</tr>
<tr>
<td>trilacerum</td>
<td>Sw. 18</td>
</tr>
<tr>
<td>rufu-virens</td>
<td>Hoffm. 100</td>
</tr>
<tr>
<td>sulphureum</td>
<td>Tabl. 100</td>
</tr>
<tr>
<td>Entostodon</td>
<td>Schwae. 24</td>
</tr>
<tr>
<td>Templetoni</td>
<td>Schwae. 24</td>
</tr>
<tr>
<td>Evernia</td>
<td>Ach. 84</td>
</tr>
<tr>
<td>prunastri</td>
<td>Ach. 84</td>
</tr>
<tr>
<td>Pegatella</td>
<td>Cassp. 50</td>
</tr>
<tr>
<td>conica</td>
<td>Tabl. 86</td>
</tr>
<tr>
<td>hemispherica</td>
<td>Tabl. 91</td>
</tr>
</tbody>
</table>
Pertusaria isidioideae, Borriol

Phacium, Linn.

Alternifolium, Dicks.

Asilare, Dicks.

Crispum, Hedw.

Curvulicium, Hedw.

Cupulatum, Schroeb.

Mucilicium, Schreb.

Patens, Hedw.

Rectum, With.

Sarmentum, Schroeb.

Subulatum, Linn.

Polytrichum, Linn.

Aloides, Hedw.

Alginum, Linn.

Commune, Wild.

Phthirium, Schroeb.

Undulatum, Hedw.

Urnigerum, Linn.

Porina, Ach.

Ceuhtocarpus, Tayl.

Folius, Ach.

Isidiosum, Tayl.

Pertusa, Ach.

Pterogonium, Sw.

Filiforme, Schroeg.

Gracile, Sw.

Schiroleceae, Sm.

Lecanora, Linn.

Incarnata, Ach.

Fasciata, Ach.

Fraxinea, Ach.

Pollinaria, Ach.

Polypus, Ach.

Scopularis, Ach.

Rebouillia himericaphica, Auct.

Ramalina, Ach.

Farinacea, Ach.

Fastigata, Ach.

Fraxinea, Ach.

Pollinaria, Ach.

Polypus, Ach.

Scopularis, Ach.

Solorina, Ach.

Saccata, Ach.

Sphagrocarpous, Pers.

Compressum, Ach.

Coralloides, T. & B. & B.

Sphagnum, Linn.

Ehrlichia, Ehrh.

Cuspidatum, Ehrh.

Obtusifolium, Ehrh.

Squarrosum, Web.

Sphalora, Ach.

Dispersum, T. & B.

Gregarium, T. & B.

Nigrum, T. & B.

Spharade, Ach.

Sphachnum, Linn.

Amplellum, Linn.

Splenium, Linn. fil.

Squamaria muscorum, Linn.

Stereoscyphon, Ach.

Cercopis, Ach.

Paschale, Ach.

Scita, Ach.

Siliqua, Tayl.

Crocata, Ach.

Darmacotonis, Ach.

Fulgineus, A.

Limbatum, A.

Macroptralia, L.

Pulmonaria, Hook.

Serobiculata, Ach.

Sylatica, Ach.
INDEX.

Syncisia, Tayl. 103
albida, Tayl. 103

Targonia, Micheli. 54
hypophylla, Linn. 55
Tetraphis, Hedw. 12
Browniana, Grev. 12
pellucida, Hedw. 12

Thelocremum, Ach. 102
exanthematicum, Ach. 103
Hutchinsiae, Borh. 103
lepidinum, Ach. 102

Tortula, Hedw. 25
brevirostris, Hook. 25
convoluta, Sw. 25
cuneifolia, Turn. 25
curvata, Hook. 25
fallax, Sw. 26
gracilis, H. & G. 26
muralis, Hedw. 25
revoluta, Brid. 25
rigida, Turn. 25
ruralis, Sw. 26
subulata, Hedw. 26
tortuosa, Hedw. 26
unguiculata, H. & T. 26

Trichostomum, Hedw. 19
aciculare, Beuv. 20
canescentes, Hedw. 19
eclipticum, H. & T. 20
fasciculare, Schrad. 20
heterostichum, Hedw. 19
lanuginosum, Hedw. 19
microcarpum, Hedw. 20
polyphyllum, Schwaeg. 20

Ureocaria, Ach. 132
Acharii, Ach. 132
calcarea, Ach. 132
sinuca, Ach. 132

 PAGE contorta, Ach. 132
rufescent, Hook. 132
scruposa, Ach. 132
Usnea, Ach. 85
barbata, Ach. 86
florida, Ach. 85
plicata, Ach. 85

Varidaria, Pers. 112
aspergilla, Ach. 112
chlorothecia, Tayl. 114
constellata, Tayl. 113
coralina, Ach. 113
discoidea, Pers. 112
faginea, Pers. 112
griseo-virens, T. & B. 112

lacea, Pers. 113
polythecia, Tayl. 113
terricola, Tayl. 115
torta, Tayl. 114

Verrucaria, Pers. 87
acrotella, Ach. 94
biformis, Borr. 89
byssacea, Ach. 89
cinerea, Pers. 88
circumnscrita, Tayl. 96
concina, Borr. 90
conferta, Tayl. 87
dermatodes, Borr. 87

Dufourii, De C. 92
eleina, Borr. 91
epidermidis, Ach. 88
epigaza, Ach. 96
epipoda, Ach. 92
erysiboda, Tayl. 98
fissa, Tayl. 95

gemmata, Ach. 89
gemmifera, Tayl. 95
immersa, Hoffm. 90
irrigua, Tayl. 94

lavata, Ach. 91
leucocephala, Ach. 90
lithina, Ach. 92
maura, Ach. 93
mollis, Tayl. 97

murals, Ach. 91
nitida, Schrad. 87
obscura, Borr. 96
dolcea, Pers. 89

peripherica, Tayl. 97
rubiginosa, Tayl. 94
rupesria, Schrad. 90
trachona, Ach. 89

viridula, Ach. 91
umbrina, Ach. 89
umbrosa, Tayl. 97

Weistia, Hedw. 14
acuta, Hedw. 16
cirrata, Schrad. 14
controversa, Hedw. 15
curvisoria, H. & T. 15
lanceolata, H. & T. 14

pusilla, Hedw. 15
recurvata, H. & T. 15
Starkana, Hedw. 14
striata, H. & T. 14
tenueirostria, H. & T. 14

trichodes, H. & T. 14
verticillata, Schwaeg.15

Zygodon, H. & T. 29
conoides, H. & T. 29
Zygotrichia, Brid. 29
cylindrica, Tayl. 29
### INDEX
OF
THE GENERA AND SPECIES IN PART THIRD.
(ALGÆ.)

<table>
<thead>
<tr>
<th>PAGE</th>
<th>PAGE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphiobia,</td>
<td>Dillw. 234</td>
<td>Arbuscula, R. Brown 213</td>
</tr>
<tr>
<td>Arbuscula,</td>
<td>Dillw. 210</td>
<td>Areta,</td>
</tr>
<tr>
<td>Arbuscula,</td>
<td>Dillw. 210</td>
<td>Arenosa,</td>
</tr>
<tr>
<td>Asperopococcus,</td>
<td></td>
<td>Atropapurea,</td>
</tr>
<tr>
<td>Linn.</td>
<td></td>
<td>Aurea,</td>
</tr>
<tr>
<td>Bursa,</td>
<td>Dillw. 234</td>
<td>CENOMEMm,</td>
</tr>
<tr>
<td>Calothrix,</td>
<td>—</td>
<td>Brodiae,</td>
</tr>
<tr>
<td>Calophyllum,</td>
<td></td>
<td>Brownii,</td>
</tr>
<tr>
<td>Callithamnion,</td>
<td></td>
<td>Byssodes,</td>
</tr>
<tr>
<td>Catenella,</td>
<td></td>
<td>Capilaris,</td>
</tr>
<tr>
<td>Catenellina,</td>
<td></td>
<td>Castanea,</td>
</tr>
<tr>
<td>Catenella,</td>
<td></td>
<td>Ciliata,</td>
</tr>
<tr>
<td>Chondrus,</td>
<td></td>
<td>Cocccinea,</td>
</tr>
<tr>
<td>Chondrus,</td>
<td></td>
<td>Confervicola,</td>
</tr>
<tr>
<td>Chondrus,</td>
<td></td>
<td>Corymbosa,</td>
</tr>
<tr>
<td>Chondrus,</td>
<td></td>
<td>Crassa,</td>
</tr>
<tr>
<td>Chondrus,</td>
<td></td>
<td>Cripsa,</td>
</tr>
<tr>
<td>Chordaria,</td>
<td></td>
<td>Cryptarum,</td>
</tr>
<tr>
<td>Chordaria,</td>
<td></td>
<td>Curta,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Daviesii,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Decorticum,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Dictocoma,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Diffusa,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Dissilens,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Distorta,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Ecbena,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Elongata,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Ericeterum,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Epactifolia,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Fastigiata,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Ferulastris,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Fibrata,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Flaccida,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Flaccocena,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Flaccosa,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Flocconosa,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Floridatum,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Floridatum,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Fluvatilis,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Fontinalis,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Fracta,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Frigida,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Fucicola,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Fucoida,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Fucoida,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Fuculinum,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Gelatinosa,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Genfexa,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Glimerata,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Graciliis,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Hutchinsonia,</td>
</tr>
<tr>
<td>Chrysidella,</td>
<td></td>
<td>Impexa,</td>
</tr>
</tbody>
</table>
INDEX

jugalis,  lv. 232
lacca,  lv. 234
lanosa,  lv. 230
lanuginosa,  lv. 219
luteascens,  lv. 229
lichenicola,  lv. 219
limosa,  lv. 230
Linum,  lv. 230
lirata,  lv. 228
lubrica,  lv. 222
majuscula,  lv. 238
Melagonium,  lv. 225
meris,  lv. 229
multifida,  lv. 238
muralis,  lv. 238
musicella,  lv. 228
mutabilis,  lv. 222
myochrous,  lv. 235
nana,  lv. 219
nigra,  lv. 208
nigrescens,  lv. 232
nuda,  lv. 229
obliquata,  lv. 230
olivacea,  lv. 240
paradoxa,  lv. 230
parasitica,  lv. 207
paralis,  lv. 207
pectinatis,  lv. 225
pedicellata,  lv. 227
pelucca,  lv. 228
penata,  lv. 225
perrepans,  lv. 226
pinnata,  lv. 180
Plana,  lv. 217
Polypodium,  lv. 209
polymorpha,  lv. 222
protera,  lv. 219
purpurascens,  lv. 218
purpurea,  lv. 218
radicans,  lv. 181
repens,  lv. 218
riparia,  lv. 208
rivulalis,  lv. 225
Rothii,  lv. 219
rubra,  lv. 210
rupestris,  lv. 220
saliciflorum,  lv. 227
scutulata,  lv. 227
silicula,  lv. 181
spiralis,  lv. 232
stratiata,  lv. 206
stricta,  lv. 215
tagetosa,  lv. 225
tetragona,  lv. 225
tetrika,  lv. 225
tortuosa,  lv. 225
tumidula,  lv. 228
Turcz,  lv. 213
turke,  lv. 217
ulorrhix,  lv. 247
umbrosa,  lv. 247
urerata,  lv. 229
vesicata,  lv. 244
vulpicola,  lv. 222
vulpina,  lv. 244
Corynephora,  lv. 184
marina,  lv. 184
Croceus,  lv. 246
aca,  lv. 246
ebena,  lv. 245
Jolitius,  lv. 217
lichenicolus,  lv. 217
Culina,  lv. 177
mutifida,  lv. 177
Cystosera,  lv. 167
erioides,  lv. 167
funiculacea,  lv. 167
fibrosa,  Ag. 168
granulata,  Ag. 167
Dasya,  Ag. 209
Arbuscula,  — 213
Hamateria,  — 213
Hutchinsia,  Harv. 210
olecata,  Harv. 210
simpliciscula,  Ag. 210
Delaeria,  Lamour191
ata,  Lamour191
Bononcainris,  Grev. 193
Hypoglossum,  Ag. 191
Grev. 193
ruscifolia,  Lamour192
sanguinea,  Lamour191
sinuosa,  Lamour191
Dameastria,  Lamour172
acuata,  Lamour172
ligulata,  Lamour172
Diatoma,  Ag. 230
grunatum,  Lyngb. 230
elongatum,  Ag. 231
fasciculatum,  — 231
floriculosum,  — 231
fusca,  Lyngb. 230
obliquatum,  Lyngb. 230
tricatatum,  Ag. 230
truncatum,  Grev. 231
Dium,  Grev. 233
viridis,  Grev. 233
Dietyosphen,  Grev. 176
feniculaceus,  Grev. 176
Dameastria,  Lamour183
atomaria,  Grev. 177
ciliata,  Lamour177
dichotoma,  Lamour177
Dameastria,  Lamour177
Draperinalia, Bory. 222
gleronata,  Ag. 222
tenuis,  Ag. 222
Dumontia, Lamour183
filiformis, Grev. 188
Echinula circularia, Grev. 250
fasciculata, Grev. 231
funiculata, Grev. 231
paradoxa, Grev. 233
cocinea, Lyngb. 232
brachiata, Ag. 182
granulosa, Ag. 182
littoralis, Lyngb. 181
diacus, Lyngb. 181
sphaerophorus, Carm. 182
tomentosus, Lyngb. 181
Enteromorpha, Link. 242
clathrata, Grev. 242
compressa, Grev. 242
intestinalis, Link. 242
Eelaria flabellata, Grev. 252
Fragilaria, Lyngb. 250
penticula, Lyngb. 250
Frustulia, Ag. 251
funiculata, — 251
Uina, — 251
Fucus, — 188
acciariis, Turn. 201
amphiphila, Turn. 197
articulata, Turn. 200
asparagoides, Wood. 193
Brodiaea, Turn. 202
Bractea, Turn. 202
caberea, Turn. 174
canaliculata, Linn. 169
ceramides, Linn. 168
sphaerocarpa, Sm. 174
coccinus, Turn. 196
cornus, Turn. 203
crispus, Turn. 201
craspatus, Linn. 205
dasypogon, Turn. 288
dentatus, Sm. 196
deva, Fl. Dan.178
deva, Hook. 178
fruticosus, Turn. 205
Griffithse, Turn. 201
kaliformis, Turn. 199
lacinata, Turn. 193
laciniate, Huds. 194
Lymnaea, Turn. 200
Lymphodioideae, Turn. 200
Mackai, Turn. 200
mammillatus, Turn. 201
membranaceus, Stackh. 179
membranifolius, Turn. 292
nodosus, Linn. 189
Norvegicus, Turn. 202
obtusus, Turn. 198
ovulis, Turn. 200
palmatus, Linn. 195
Palmetta, Turn. 204
pinastroides, Turn. 292
pinamitidius, Turn. 198
plicatus, Turn. 292
punctatus, Sm. 192
reniformis, Turn. 201
rotundus, Sm. 190
rubra, Linn. 263
resilifolia, Sm. 192
dangeineus, Sm. 200
derratus, Linn. 199
sulphacoides, Turn. 197
tomentosis, Turn. 202
tuberculatus, Linn. 199
tenuissima, G.et W.198
ultrata, Turn. 200
vesiculosus, Linn. 198
Wiggii, Turn. 187
Fucelaria, Lamour190
fastigiata, Lamour190
Gelidium, Lamour203
corniculatum, Lamour203
Garrina, Lamour200
acciaia, Lamour201
confervoides, erecta, Harv. 200
Griffithsia, Lamour201
plicata, Lamour201
purpurascens, Lamour200
tenuissima, Lamour188
Gloioesiphonia, Carm. 186
capilariis, Carm. 187
Gomphonemus, Ag. 202
minutissimus, Grev. 252
paradoxa, Ag. 252
Gracilaria confervoides, Grev. 200
crreta, Grev. 200
purpurascens, Grev. 200
Griffithsia, Ag. 211
corallina, — 212
ecosipetifolia, — 212
multioides, — 212
setacea, — 212
simpliciflum, — 212
Hematococcus Grevdii, Ag. 246
Halidrys, Lyngb. 168
Halimina, — 185
furella, Grev. 200
ligulata, — 188
Himantbalis, Lyngb. 169
lora, Bory. 170
Hutchinsia

strictoides, Lyngb. 206

urceolata, Lyngb. 207

violacea, Lyngb. 208

Trifurcata, Ag. 203

Hygroceris, 248

Atranlementi, 248

ridges, Bory. 189

edulis, Bory. 189

reniformis, Bory. 195

Laminaria

bullosa, Lamour. 171

debitis, Ag. 176

digita, Lamour. 171

Phyllum, Lamour. 171

sacharina, Lamour. 171

Laurencia

dasyphylla, Grev. 195

obtusa, Lamour. 198

pinnatisitina, Lamour. 198

tenuissima, Grev. 195

Lemaria, Bory. 220

Laminaria, Ag. 220

Leptomitus, 248

clavatus, 245

laevis, 248

Lubbia, 170

confinis, 170

pygmea, 170

Liencophora, 232

Gigglella, 232

Lygbya, 232

majo, Lamour. 238

murale, Ag. 238

Meloeira, Grev. 249

lineata, Ag. 249

Meridion, 232

circulare, 232

Mesogloa, 185

capillaris, 187

coccinea, 186

Griffithsiana, Grev. 184

Hudsoni, Ag. 186

mutilata, Ag. 185

purpurea, Harv. 187

vermiculatris, Ag. 184

Mougeotia, 231

genufexa, 231

Myrioneuma, Grev. 223

seringulans, 232

Myriotrichia, Harv. 182

cliveformis, Harv. 182

Nitophyllum, Grev. 192

Bonnemaisonii, Grev. 193

Gmelini, Grev. 193

Hilliae, Grev. 193

laceraturn, Grev. 193

ocellatum, Grev. 192

punctatum, Grev. 192

ulvodeum, Hook. 192

Nostoc, Vauch. 245

commune, Vauch. 245

fucicium, Ag. 245

microscopicum, Carma. 245

verrucosum, Vauch. 245

Odonthalia, Lyngb. 196

dentata, Lyngb. 196

Oscillatoria, Vauch. 238

autumnalis, Ag. 239

chthonoplastes, Hoffm. 239

corium, Ag. 249

decorticata, Grev. 229

Friessi, Ag. 238

limosa, Ag. 239

nigra, Vauch. 239

cochreae, Grev. 240

subbusca, Vauch. 240

tenuis, Ag. 235

Patina, denticula, Grev. 175

parvula, Grev. 175

Palmella, botryoides, Grev. 174

cantua, Grev. 174

hyalin, Grev. 174

protuberans, Ag. 241

Phyllophora, Grev. 202

Phycosmia, Grev. 201

Placocium, Lamour. 193

coccinum, Lamour. 195

Polyales, Ag. 195

brumalis, Ag. 190

rotundus, Grev. 190

Polyisophora, Grev. 204

afrotrubescens, Grev. 206

Brodialis, Grev. 206

byssoides, Grev. 209

cristata, Harv. 203

elongata, Grev. 205

fastigata, Grev. 205

fibrata, Harv. 206

fruticulosa, Grev. 205

fruticulosa, Lyngbya, Harv. 206

macrocarpa, Harv. 206

nigrescens, Grev. 205

parasitica, Grev. 207

pates, Grev. 207

stricta, Grev. 206

thuyoides, Harv. 205

urceolata, Grev. 207

vexen, Grev. 206

Porphyra, Ag. 240

laciniata, — 241

linearis, — 241

Protococcus, 245

nivalis, — 245

Protunema, 247

cryptarum, 247

musculora, — 247

Orthothrichi, 247

Orthothricum, 247

Pilota, 240

plumosa, — 204

Punctaria, Grev. 175

lactifera, Grev. 175

latistatiginea, Grev. 175

Rhodomenia, Ag. 196

Lycopodioides, — 196

pinastrioides, 197

scorpioides, — 197

subbusca, 197

Rhodomenia, Grev. 163

bifida, Grev. 191

clilata, Grev. 191

jubata, Grev. 191

lacinata, Grev. 191

palmata, Grev. 195

Palmetta, Grev. 195

reuniformis, Grev. 195

seilera, Grev. 195

Rivularia, Roht. 234

aplanata, Carma. 233

atra, Roth. 233

bicolor, Grev. 233

nita, Ag. 235

Pisum, Ag. 235

plana, Harv. 235

Scillata, Carma. 234

verruculata, Grev. 241

Schizoneuma, Ag. 253

comoides, — 253

Smithii, — 253

Scteyctona, Grev. 235

Binder, Lyngb. 239

cotextum, Carma. 236

minutum, Ag. 236

myochrous, Ag. 236

Sphacelaria, Lyngb. 219

chirnosa, Ag. 180

filicina, Ag. 180

hynooides, Grev. 180

hymen, Ag. 180

plumosa, Lyngb. 180

radicans, Ag. 181

scoparia, Lyngb. 180

vetinaria, Grev. 241

Spherococcus, Stackh. 203

Brodiea, Lamour. 202

crononpoulouos, Ag. 203

erectus, Grev. 200

Sporochrous, Ag. 173

cabrerus, Ag. 173

pelunculatus, Ag. 173

rizoides, Ag. 173

villus, — 173

Stigomnea, — 236

atiro-virens, — 236

mammillosum, — 236

Straria, Grev. 176

attenuata, Grev. 176

Tetraspora, Link. 244

gelatinosa, Desv. 244

rubrica, Ag. 244

Tremella cruciata, Sm. 244

Trentepohlia, Ag. 218

Daviesi, Harv. 219

doridium, Harv. 219

lanuginosa, Harv. 219

purpurca, Ag. 218

Rothii, Harv. 218

secundata, Harv. 219

sparsa, Harv. 219

Trichocladia, Harv. 183

Griffithsianum, Harv. 184

vernacularia, Harv. 184

virens, Harv. 184

Tyndaridea, Bory. 231

cruciata, Harv. 231

pectinata, Harv. 231

Ulva, Linn. 242

bullosa, Roth. 243

calypophyla, Spreng. 243

crasta, G. Light. 243

furcellata, Sm. 189

furfuracea, Horn. 244

incrassata, Sm. 223

Lactuea, Linn. 229

Lactuea, Sm. 242

latisima, Sm. 242

tlugulata, Sm. 188

Lunza, Linn. 242

multifida, Sm. 177

plumosa, Sm. 233

protuberans, Sm. 244

purpurascens, Sm. 244

ranaetos, Sm. 244

rubra, Huds. 188

umbilicallis, Sm. 241

Vaucheria, D. C. 233

caspitosa, Ag. 234

dichotoma, — 233

Dillwyni, — 234

teretris, — 234

velutina, — 234

Zonaria atomaria, — 177

dichotoma, 178

Zygnea, — 231

decimimium, — 232

nitemum, — 232

quinitum, — 232